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Tuesday, 30 August 2011

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<i>Winterroth, Frank (Univ. of Michigan); Hollister, Scott (Univ. of Michigan); Feinberg, Stephen (Univ. of Michigan); kuo, Shihyang (Univ. of Michigan); Fowlkes, Brian (Univ. of Michigan); Ganguly, Arindam (Univ. of Michigan); Hollman, Kyle* (Sound Sight Research)</i>	

15:15-16:45 TuP08.3
MEMS-Assisted Spatially Homogeneous Endothelialization of a High Length-to-Depth Aspect Ratio Microvascular Network 290-293
Naik, Nisarga (Harvard Medical School, Beth Israel Deaconess Medical Ctr.); Kumar, Vivek (Georgia Inst. of Tech. & Emory Univ.); Chaikof, Elliot (Beth Israel Deaconess Medical Ctr., Harvard Medical School, & the Wyss Inst. of Biologically Inspired Eng. of Har); Allen, Mark (Georgia Inst. of Tech.)*

TuP09: 15:15-16:45 America Ballroom Westin
7.7.5 Protein, Cell and Tissue Interactions with Electrical Fields (Poster Session)

15:15-16:45 TuP09.1
The Electric Field System of a Macular Ion Channel Plaque 294-297
Hales, Colin (Univ. of Melbourne); Grayden, David B. (Univ. of Melbourne); Quiney, Harry (Univ. of Melbourne)*

15:15-16:45 TuP09.2
A Wearable Stimulation Bandage for Electrotherapy Studies in a Rat Ischemic Wound Model 298-301
Howe, Daniel (Case Western Reserve Univ.); Dunning, Jeremy (Louis Stokes Veterans Medical Ctr.)*

15:15-16:45 TuP09.3
Microdosimetry Applied to Nanosecond Pulsed Electric Fields: A Comparison on a Single Cell between Real and Ideal Waveforms 302-305
Merla, Caterina (ICEmB @ La Sapienza Univ. Rome); Paffi, Alessandra (ICEmB@La Sapienza Univ. Rome); Apollonio, Francesca (ICEmB@La Sapienza Univ. Rome); Leveque, Philippe (XLIM, CNRS-Univ. of Limoges); Liberti, Micaela (ICEmB at Sapienza Univ. of Rome)*

TuP10: 15:15-16:45 America Ballroom Westin
9.1.8 Therapeutic and Diagnostic Devices (Poster Session)

15:15-16:45 TuP10.1
A Thermal Stereoscope for Surface Reconstruction of the Diabetic Foot 306-309
Parker, Matthew David (The Univ. of Auckland); Taberner, Andrew (The Univ. of Auckland); Nielsen, Poul (The Univ. of Auckland)*

15:15-16:45 TuP10.2
Heating Properties of a New Hyperthermia System for Deep Tumors without Contact 310-313
Yokoyama, Kouhei (Meiji Univ.); Kato, Kazuo (Meiji Univ.); Shindo, Yasuhiro (Meiji Univ.)*

15:15-16:45 TuP10.3
Theoretical and Experimental Study on RF Tumor Ablation with Internally Cooled Electrodes: When Does the Roll-Off Occur? 314-317
Alba, José (Polytechnic Univ. of Valencia); González, Ana (Polytechnic Univ. of Valencia); Trujillo, Macarena (Univ. Politécnica de Valencia); Berjano, Enrique (Polytechnic Univ. of Valencia)*

15:15-16:45 TuP10.4
Ablation of Demineralized Dentin Using a Mid-Infrared Tunable Nanosecond Pulsed Laser at 6 μm Wavelength Range for Selective Excavation of Carious Dentin 318-321
Ishii, Katsunori (Osaka Univ.); Saiki, Masayuki (Graduate School of Eng., Osaka Univ.); Yoshikawa, Kazushi (Dept. of Operative Dentistry, Osaka Dental Univ.); Yasuo, Kenzo (Osaka Dental Univ.); Yamamoto, Kazuyo (Dept. of Operative Dentistry, Osaka Dental Univ.); Awazu, Kunio (Osaka Univ.)*

15:15-16:45 TuP10.5
Electrical-Thermal-Structural Coupling Simulation for Electrosurgery Simulators 322-325
Kuroda, Yoshihiro (Osaka Univ.); Tanaka, Shota (Osaka Univ.); Imura, Masataka (Osaka Univ.); Oshiro, Osamu (Osaka Univ.)*

15:15-16:45 TuP10.6
Integrated Heaters for Temperature Control in Disposable Bioassay Cartridges for Use with Portable, Battery-Operated Instruments 326-332
Ortiz Hernandez, Luis (Wave 80 Biosciences); Negussie, Haile (Wave 80 Biosciences); Mazzola, Laura (Wave 80 Biosciences); Laser, Daniel (Wave 80 Biosciences); Droitcour, Amy (Wave 80 Biosciences)*

15:15-16:45	TuP10.7
A New Heating Method with Dielectric Bolus Using Resonant Cavity Applicator for Brain Tumors	333-336
<i>Iseki, Yuya* (Meiji Univ.); Kato, Kazuo (Meiji Univ.); Nakane, Kazuya (Meiji Univ.); Shindo, Yasuhiro (Meiji Univ.)</i>	
15:15-16:45	TuP10.8
Electromagnetic Analysis of an RF Rectangular Resonant Cavity Applicator for Hyperthermic Treatment Using Whole-Body Voxel Human Model of Japanese Adult Male	337-340
<i>Tange, Yutaka* (Maizuru Natl. College of Tech); Kanai, Yasushi (Niigata Inst. of Tech.); Yabumoto, Kosuke (Maizuru Natl. College of Tech.)</i>	
15:15-16:45	TuP10.9
Potential of Gallium-Based Lead for Cardiac Rhythm Management Devices	341-344
<i>Kyle, Aaron* (S&K Discoveries); Leahy-Glass, Nichole (Gallilead, Inc.); Combs, William (IUPUI); March, Keith (Indiana Univ. School of Medicine)</i>	
15:15-16:45	TuP10.10
Evaluation of a Newly Designed Endoscope for Observing Inner Wall of Large Arteries for the Use of Endovascular Intervention	345-348
<i>Tanaka, Shinobu* (Kanazawa Univ.); Suzuki, Toshiyuki (Kanazawa Univ.); Ogawa, Mitsuhiro (Kanazawa Univ.); Motoi, Kosuke (Kanazawa Univ.); Nogawa, Masamichi (Kanazawa Univ.); Ohtake, Hiroshi (Kanazawa Univ.); Watanabe, Go (Kanazawa Univ.); Yamakoshi, Ken-ichi (Kanazawa Univ.)</i>	
15:15-16:45	TuP10.11
Novel Short-Duration Heating Balloon Dilatation with Uniform Temperature Distribution: The Heating Conditions to Suppress Neo-Intimal Hyperplasia	349-352
<i>Kunio, Mie* (Keio Univ.); Shimazaki, Natsumi (Keio Univ.); Arai, Tsunenori (Keio Univ.); Sakurada, Masami (Tokorozawa Heart Ctr.)</i>	

TuP11: 15:15-16:45	America Ballroom Westin
9.1.9 Sensor Signal Processing (Poster Session)	

15:15-16:45	TuP11.1
Confidence-Based Classification with Dynamic Conformal Prediction and Its Applications in Biomedicine	353-356
<i>Luo, Yurong* (Virginia Commonwealth Univ.); Abed Al-Raouf, Bsoul (Virginia Commonwealth Univ.); Najarian, Kayvan (Virginia Commonwealth Univ.)</i>	
15:15-16:45	TuP11.2
Detection and Classification of Hypovolaemia During Anaesthesia	357-360
<i>GholamHosseini, Hamid* (Auckland Univ. of Tech.); Mirza, Mansoor (Auckland Univ. of Tech.); Lee, Si-Woong (Hanbat Natl. Univ., Daejeon, South Korea); Harrison, Michael (Univ. of Auckland)</i>	
15:15-16:45	TuP11.3
Development of a Dental Implant Mobility Measurement System Using an Inductive Sensor	361-364
<i>Kim, Dae-Seung (Seoul Natl. Univ.); Lee, Woo-Jin (Seoul Natl. Univ.); Choi, Soon-Chul (Seoul Natl. Univ.); Lee, Sam-Sun (Seoul Natl. Univ.); Heo, Min-Suk (Seoul Natl. Univ.); Huh, Kyung-Hoe (Seoul Natl. Univ.); Yi, WonJin* (Seoul Natl. Univ. Sch of Dentistry)</i>	
15:15-16:45	TuP11.4
Semi-Supervised Event Detection Using Higher Order Statistics for Multidimensional Time Series Accelerometer Data	365-368
<i>Min, Cheol-Hong* (Univ. of Minnesota); Tewfik, Ahmed (Univ. of Minnesota)</i>	
15:15-16:45	TuP11.5
Direction Sensitive Fall Detection Using a Triaxial Accelerometer and a Barometric Pressure Sensor	369-372
<i>Tolkiehn, Marie (Imperial College London); Atallah, Louis (Imperial College London); Lo, Benny (Imperial College London); Yang, Guang-Zhong* (Imperial College London)</i>	
15:15-16:45	TuP11.6
Rotary Blood Pump Control Using Integrated Inlet Pressure Sensor	373-376
<i>Csyk, Joshua* (Penn State College of Medicine); Jhun, Choon-Sik (Penn State College of Medicine); Newswanger, Ray (Penn State College of Medicine); Weiss, William (Penn State College of Medicine); Rosenberg, Gerson (Penn State College of Medicine)</i>	

15:15-16:45	TuP11.7
Improved Blood Glucose Estimation through Multi-Sensor Fusion	377-380
<i>Xiong, Feiyu* (Drexel Univ.); Hipszer, Brian (Thomas Jefferson Univ.); Joseph, Jeffrey (Thomas Jefferson Univ.); Kam, Moshe (Drexel Univ.)</i>	
15:15-16:45	TuP11.8
Breathing Sensor Selection During Movement	381-384
<i>Holtzman, Megan* (Carleton Univ.); Townsend, Daphne (Carleton Univ.); Goubran, Rafik A. (Carleton Univ.); Knoefel, Frank-Dietrich (SCO Health Service)</i>	
15:15-16:45	TuP11.9
A New Virtual Environment for Testing and Hardware Implementation of Closed-Loop Control Algorithms in the Artificial Pancreas	385-388
<i>León-Vargas, Fabian Mauricio* (Univ. de Girona); Prados, Guillermo (Univ. de Girona & Natl. Instruments); Bondia, Jorge (Technical Univ. of Valencia); Vehi, Josep (Univ. of Girona)</i>	
15:15-16:45	TuP11.10
Uncertainty Analysis in the Simulation of X-Ray Spectra in the Diagnostic Range Using the MCNP5 Code	389-392
<i>Gallardo, Sergio* (Univ. Politecnica de Valencia); Querol, Andrea (Polytechnic Univ. of Valencia); Rodenas Diago, Jose (Polytechnic Univ. of Valencia); Verdú, Gumersindo (Polytechnic Univ. of Valencia)</i>	
15:15-16:45	TuP11.11
Distance Estimation from Acceleration for Quantitative Evaluation of Parkinson Tremor	393-396
<i>Jeon, Hyo Seon* (Seoul Natl. Univ.); Kim, Sang Kyong (Seoul Natl. Univ.); Jeon, BeomSeok (Seoul Natl. Univ.); Park, Kwang S. (Seoul Natl. Univ.)</i>	
15:15-16:45	TuP11.12
Development of a Fully Automated Closed Loop Artificial Pancreas Control System with Dual Pump Delivery of Insulin and Glucagon	397-400
<i>Jacobs, Peter G.* (Portland Va Medical Ctr.)</i>	
15:15-16:45	TuP11.13
Multi-GPU Accelerated Three-Dimensional FDTD Method for Electromagnetic Simulation	401-404
<i>Nagaoka, Tomoaki* (Natl. Inst. Info & Comm Tech); Watanabe, Soichi (Nat'l Inst of Information & Comms Tech)</i>	

TuP12: 15:15-16:45	America Ballroom Westin
9.6.12 Image-Guided Therapies (Poster Session)	

15:15-16:45	TuP12.1
Basic Concepts of Optical Measuring of Bone Thickness with IR-Beam	405-408
<i>Wolff, Regine* (Technische Univ. München); Deppe, Herbert (Technische Univ. München); Lueth, Tim (Technical Univ. of Munich)</i>	
15:15-16:45	TuP12.2
Feasibility of Implementing Stereotactic Body Radiation Therapy Using a Non-Commercial Volumetric Modulated Arc Therapy Treatment Planning System for Early Stage Lung Cancer	409-412
<i>Song, Yulin* (Memorial Sloan-Kettering Cancer Ctr.); Mueller, Boris (Memorial Sloan-Kettering Cancer Ctr.); Obcemea, Ceferino (Memorial Sloan-Kettering Cancer Ctr.); Mychalczak, Borys (Memorial Sloan-Kettering Cancer Ctr.)</i>	
15:15-16:45	TuP12.3
Three-Dimensional Reconstruction of Transcranial Ultrasound Images Obtained through the Temporal Bone Window Using a Helmet-Mounted Mechanical Beam-Steering Device	413-416
<i>Gilmour, Timothy P.* (The Pennsylvania State Univ.); Subramanian, Thyagarajan (Penn State Univ.)</i>	
15:15-16:45	TuP12.4
A Multi-Radar Wireless System for Respiratory Gating and Accurate Tumor Tracking in Lung Cancer Radiotherapy	417-420
<i>Gu, Changzhan* (Texas Tech Univ.); Li, Ruijiang (Stanford Univ.); Jiang, Steve B (Univ. of California, San Diego); Li, Changzhi (Texas Tech Univ.)</i>	

15:15-16:45 TuP12.5
Vibro-Acoustography and B-Mode Integration for 3D Imaging 421-424
Kamimura, Hermes Arytto (Univ. de São Paulo); Fagundes, Marden Ambrósio (FIGLABS – Pesquisa e Desenvolvimento); Fatemi, Mostafa (Mayo Clinic); Carneiro, Antonio Adilton Oliveira (Univ. de São Paulo)*

15:15-16:45 TuP12.6
Feasibility Evaluation of a Motion Detection System with Face Images for Stereotactic Radiosurgery 425-428
Yamakawa, Takuya (Hosei Univ.); Ogawa, Koichi (Hosei Univ., Faculty of Science & Eng.); Iyatomi, Hitoshi (Hosei Univ.); Kunieda, Etsuo (Tokai Univ.)*

TuA01: 17:00-18:30 12.1.1 Student Paper Competition I (Oral Session) Chair: Ding, Lei (<i>Univ. of Oklahoma</i>) Co-Chair: Yan, Renfei (<i>Pennsylvania State Univ.</i>)	Berkeley Marriott
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17:00-17:15 TuA01.1
Quantification of Cardio-Respiratory Interactions in Healthy Children During Night-Time Sleep Using Joint Symbolic Dynamics *
Kabir, Muammar Muhammad (The Univ. of Adelaide); Kohler, Mark (Univ. of South Australia); Abbott, Derek (The Univ. of Adelaide); Baumert, Mathias (The Univ. of Adelaide)*

17:15-17:30 TuA01.2
Noninvasive Reconstruction of the Three-Dimensional Ventricular Activation Sequence During Pacing and Ventricular Tachycardia in the Rabbit Heart *
Han, Chengzong (Univ. of Minnesota); Pogwizd, Steven (Univ. of Illinois at Chicago); Killingsworth, Cheryl (Dept. of Medicine, Univ. of Alabama at Birmingham); He, Bin (Univ. of Minnesota)*

17:30-17:45 TuA01.3
Chronic Intracortical Implantation of Saccharose-Coated Flexible Shaft Electrodes into the Cortex of Rats *
Hassler, Christina (Univ. of Freiburg); Guy, Julien (Univ. of Goettingen, Ctr. for Anatomy); Nietzsche, Max (Univ. of Freiburg, Dept. of Microsystems Eng.); Staiger, Jochen (Univ. of Goettingen, Ctr. for Anatomy); Stieglitz, Thomas (Univ. of Freiburg)*

17:45-18:00 TuA01.4
Plasticity Associated Changes in Cortical Somatosensory Evoked Potentials Following Spinal Cord Injury in Rats *
Bazley, Faith A. (Johns Hopkins Univ.); All, Angelo (Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.); Maybhate, Anil (Johns Hopkins Univ.)*

18:00-18:15 TuA01.5
Low-Complexity R-Peak Detection in ECG Signals:
A Preliminary Step towards Ambulatory Fetal Monitoring *
Rooijackers, Michael Johannes (Eindhoven Univ. of Tech.); Rabotti, Chiara (Eindhoven Univ. of Tech.); Bennebroek, Martijn (Philips Research); van Meerbergen, Jef (Philips Research); Misch, Massimo (Eindhoven Univ. of Tech.)*

TuA07: 17:00-18:30 4.5.3 Multiscale Modelling (Oral Session) Chair: Akay, Metin (<i>Univ. of Houston</i>) Co-Chair: Reumann, Matthias (<i>IBM Australia</i>)	Arlington Marriott
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17:00-17:15 TuA07.1
A Computational Approach to Understanding Gastrointestinal Motility in Health and Disease 429-432
Poh, Yong Cheng (Natl. Univ. of Singapore, NUS Graduate School for Integrative Sciences & Eng.); Buist, Martin Lindsay (Natl. Univ. of Singapore)*

17:15-17:30 TuA07.2
Petascale Computation Performance of Lightweight Multiscale Cardiac Models Using Hybrid Programming Models 433-436
Pope, Bernard J (Victorian Life Sciences Computation Initiative); Fitch, Blake G (IBM T.J. Watson Research Ctr.); Rice, John J (IBM T. J Watson Research Ctr.); Reumann, Matthias (IBM Australia)*

17:30-17:45 TuA07.3
A Finite Element Approach for Modeling Micro-Structural Discontinuities in the Heart 437-440
Mendonça Costa, Caroline (Federal Univ. of Juiz de Fora); Campos, Fernando O. (Medical Univ. of Graz); Prassl, Anton J. (Medical Univ. of Graz); Weber dos Santos, Rodrigo (Univ. Federal de Juiz de Fora); Sánchez-Quintana, Damián (Univ. de Extremadura); Hofer, Ernst (Medical Univ. Graz); Plank, Gernot (Medical Univ. of Graz)*

17:45-18:00 TuA07.4
TumorML: Concept and Requirements of an in Silico Cancer Modelling Markup Language 441-444
Johnson, David (Univ. of Oxford); Cooper, Jonathan (Univ. of Oxford); McKeever, Steve (Univ. of Oxford)*

18:00-18:15 TuA07.5
Modeling of the Nervous System: From Molecular Dynamics and Synaptic Modulation to Neuron Spiking Activity 445-448
Bouteiller, Jean-Marie Charles (Univ. of Southern California); Allam, Sushmita (Univ. of Southern California); Hu, Eric (Univ. of Southern California); Greget, Renaud (Rhenovia Pharma); Ambert, Nicolas (Rhenovia Pharma); Keller, Anne Florence (Rhenovia Pharma); Pernot, Fabien (Rhenovia Pharma); Bischoff, Serge (Rhenovia Pharma); Baudry, Michel (Univ. of Southern California); Berger, Theodore (Univ. of Southern California)*

18:15-18:30 TuA07.6
Towards Multiscale Systems Modelling of Endocardial to Mesenchymal Transition 449-452
Abdulla, Tariq (Loughborough Univ.); Imms, Ryan (Loughborough Univ.); Schleich, Jean-Marc (Hospital Pontchaillou); Summers, Ronald (Loughborough Univ.)*

TuA10: 17:00-18:30 Darthmouth Marriott
9.1.5 Clinical Engineering and Rehabilitation (Oral Session)
Chair: Perreault, Eric (*Northwestern Univ.*)
Co-Chair: Sloane, Elliot B. (*Drexel Univ.*)

17:00-17:15 TuA10.1
Automatic Classification of Pathological Gait Patterns Using Ground Reaction Forces and Machine Learning Algorithms 453-457
Alaqtash, Murad (The Univ. of Texas at El Paso); Sarkodie-Gyan, Thompson (The Univ. of Texas at El Paso); Yu, Huiying (The Univ. of Texas at El Paso); Fuentes, Olac (The Univ. of Texas at El Paso); Brower, Richard (Texas Tech Univ. Health Science Ctr.); Abdelgawad, Amr (Texas Tech Univ. Health Science Ctr.)*

17:15-17:30 TuA10.2
FBG in PVC Foils for Monitoring the Knee Joint Movement During the Rehabilitation Process 458-461
Rocha, Rui Pedro (Univ. of Minho); Ferreira da Silva, Alexandre (Univ. of Minho); Carmo, J. P. (Univ. of Minho); Correia, Higinio (Univ. of Minho)*

17:30-17:45 TuA10.3
Clinical Gait Assessment of Older Adults Using Open Platform Tools 462-465
Ni Scanaill, Cliodhna (Intel Labs); Greene, Barry R. (Intel); Doheny, Emer (Intel); O'Donovan, Karol (Shimmer Research); Dishongh, Terrance (intel Corp.); o'Donovan, Alan D. (Health Research & Innovation, Intel); Foran, Tim (St.James's Hospital); Cunningham, Clodagh (St James' Hospital); Kenny, Rose Anne (Trinity College Dublin)*

17:45-18:00 TuA10.4
Reliability of Quantitative TUG Measures of Mobility for Use in Falls Risk Assessment 466-469
McGrath, Denise (Univ. College Dublin); Greene, Barry R. (Intel); Doheny, Emer (Intel); McKeown, David J. (Univ. College Dublin); Devito, Giuseppe (Univ. College Dublin); Caulfield, Brian (UCD)*

18:00-18:15 TuA10.5
Variability of Hand Tremor in Rest and in Posture – A Pilot Study 470-473
Rahimi, Fariborz (London Health Sciences Ctr.); Bee, Carina (London Health Sciences Ctr.); South, Angela (Univ. of Western Ontario); Debicki, Derek (Univ. of Western Ontario); Jog, Mandar (Univ. of Western Ontario – London Health Sciences Ctr.)*

18:15-18:30 TuA10.6
Classification of Lying Position Using Load Cells under the Bed 474-477
Beattie, Zachary Todd (Oregon Health & Science Univ.); Hagen, Chad (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.)*

TuA13: 17:00-18:30 Salons AB Marriott
3.1.12 Optical and Photonic Sensors and Systems (Oral Session)
Chair: Demirci, Utkan (*Harvard-MIT/HST*)
Co-Chair: De Rossi, Danilo (*Univ. of Pisa*)

17:00-17:15 TuA13.1
Multiplexed, Rapid, Point of Care Platform to Quantify Allergen-Specific IgE 478-481
Monroe, Margo (Boston Univ.); Reddington, Alexander (Boston Univ.); Cretich, Marina (CNR); Chiari, Marcella (CNR); Little, Frederic (Boston Univ.); Unlu, Selim (Boston Univ.)*

17:15-17:30 TuA13.2
Optical Microplates for Photonic High Throughput Screening of Algal Photosynthesis and Biofuel Production 482-485
Mertiri, Taulant (Wayne State Univ.); Chen, Meng (Wayne State Univ.); Holland, Thomas (Wayne State Univ.); Basu, Amar (Wayne State Univ.)*

17:30-17:45 TuA13.3
Validation of a Device for Fluorescence Sensing of Rare Circulating Cells with Diffusive Light in an Optical Flow Phantom Model 486-489
Zettergren, Eric (Northeastern Univ.); Vickers, Dwayne (Northeastern Univ.); Runnels, Judith (Massachusetts General Hospital); Lin, Charles (Massachusetts General Hospital); Niedre, Mark (Northeastern Univ.)*

17:45-18:00 TuA13.4
Detection of Tip-Enhanced Fluorescence from Loop-Mediated Isothermal Amplification of Hepatitis B Virus by Two-Photon Microscopy 490-493
Wei, Shih-Chung (Natl. Taiwan Univ.); Chuang, Tsung-Liang (Natl. Taiwan Univ.); Lu, Hui-Hsin (Natl. Taiwan Univ.); Chang, Chia-Chen (Natl. Taiwan Univ.); Wang, Da-Shin (Natl. Taiwan Univ.); Sung, Kung-Bin (Natl. Taiwan Univ.); Lin, Chii-Wann (Natl. Taiwan Univ.)*

18:00-18:15 TuA13.5
Robust Video-Oculography for Non-Invasive Autonomic Nerve Quantification 494-497
Kiyama, Masaru (Hosei Univ.); Iyatomi, Hitoshi (Hosei Univ.); Ogawa, Koichi (Hosei Univ., Faculty of Science & Eng.)*

18:15-18:30 TuA13.6
A 1 μ m Diameter Tip Fiber-Based Surface Plasmon Resonance System for Single Unit Optical Neural Recording 498-500
Moon, Hyowon (Seoul Natl. Univ.); Kim, Shin Ae (Seoul Natl. Univ.); Jun, Sang Beom (Natl. Inst. of Health/Natl. Inst. of Alcohol Abuse & Alcoholism); Lee, Jesun (Seoul Natl. Univ.); Oh, Uhtaek (Seoul Natl. Univ.); Kim, Sung June (Seoul Natl. Univ.)*

TuA14: 17:00-18:30 Salons CD Marriott
3.1.14 New Sensing Techniques (Oral Session)
Chair: Nielsen, Poul (*The Univ. of Auckland*)
Co-Chair: Sethu, Palaniappan (*Univ. of Louisville*)

17:00-17:15 TuA14.1
Passive Monitoring Using a Combination of Focused and Phased Array Radiometry: A Simulation Study 501-504
Farantatos, Panagiotis (Natl. Technical Univ. of Athens); Karanasiou, Irene (Inst. of Communication & Computer Systems, Natl. Technical Univ. of Athens); Uzunoglu, Nikolaos (Natl. Technical Univ. of Athens)*

17:15-17:30 TuA14.2
Time-Domain Ultra-Wideband Synthetic Imager (TUSI) in Silicon 505-511
Arbajian, Amin (UC Berkeley); Niknejad, Ali (UC Berkeley)*

17:30-17:45 TuA14.3
Flexible Sensor for Blood Pressure Measurement 512-515
Sepulveda, Alexandra (Inst. for Polymers & Nanocomposites/I3N, Univ. of Minho); Pontes, António (Inst. for Polymers & Nanocomposites/I3N, Univ. of Minho); Viana, Júlio (Inst. for Polymers & Nanocomposites/I3N, Univ. of Minho); Guzman de Villoria, Roberto (Dept. of Aeronautics & Astronautics, Massachusetts Inst. of Tech.); Fachin, Fabio (Dept. of Aeronautics & Astronautics, Massachusetts Inst. of Tech.); Wardle, Brian (Dept. of Aeronautics & Astronautics, Massachusetts Inst. of Tech.); Rocha, Luís (Inst. for Polymers & Nanocomposites/I3N, Univ. of Minho)*

17:45-18:00 TuA14.4
Pulse Arrival Time Estimation from the Impedance Plethysmogram Obtained with a Handheld Device 516-519
Gomez-Clapers, Joan (Univ. Politècnica de Catalunya); Casanella, Ramon (Univ. Politècnica de Catalunya); Pallas-Areny, Ramon (Univ. Politècnica de Catalunya)*

18:00-18:15 TuA14.5
A Vapor Pressure Thermometer for Use in Muscle Microcalorimetry 520-523
Johnston, Callum Michael (The Univ. of Auckland); Nielsen, Poul (The Univ. of Auckland); Hunter, Ian (Massachusetts Inst. of Tech.); Taberner, Andrew (The Univ. of Auckland)*

18:15-18:30 TuA14.6
Shape Visualization Method of Flexible Colonoscopy Using Non Visual Sensor Network for Monitoring of Operation 524-527
Lee, Jaewoo (Waseda Univ.); Ishii, Hiroyuki (Waseda Univ.); Takanishi, Atsuo (Waseda Univ.)*

TuA15: 17:00-18:30 Salon F-G Marriott
2.4.15 Xray Microscope Imaging of Biomolecules (Minisymposium)
Chair: Makowski, Lee (*Northeastern Univ.*)
Co-Chair: Laine, Andrew (*Columbia Univ.*)

17:00-17:15 TuA15.1
X-Ray Coherent Diffraction Imaging of Cellulose Fibrils in Situ 528-530
Lal, Jyotsana (Argonne Natl. Lab); Harder, Ross (Argonne Natl. Lab.); Makowski, Lee (Northeastern Univ.)*

17:15-17:30 TuA15.2
Phase Contrast X-Ray Imaging for the Study of Small Animal Form and Function *
Lee, Wah-Keat (Argonne Natl. Lab.)*

17:30-17:45 TuA15.3
X-Ray Fluorescence Imaging and Spectroscopy with Synchrotron Radiation *
Dale, Darren (Cornell Univ.); Bilderback, Donald (Cornell Univ.); Woll, Arthur (Cornell Univ.)*

TuA16: 17:00-18:30 Salon HI Marriott
2.1.1 MRI RF Coils and Sequences (Oral Session)
Chair: Bonmassar, Giorgio (*Harvard Medical School*)
Co-Chair: Liu, Feng (*The Univ. of Queensland*)

17:00-17:15 TuA16.1
An Improved Real-Time Cine Late Gadolinium Enhancement (LGE) Imaging Method at 3T 531-534
Kadbi, Mo (Univ. of Louisville); Kotys, Melanie (Philips Healthcare); Alshaher, Motaz (Univ. of Louisville Hospital); Fischer, Stefan (Philips Healthcare); Amini, Amir (Univ. of Louisville)*

17:15-17:30 TuA16.2
Orthogonal CSPAMM (OCSPAMM) MR Tagging for Imaging Ventricular Wall Motion 535-538
Wang, Hui (Univ. of Louisville); Kadbi, Mo (Univ. of Louisville); Kotys, Melanie (Philips Healthcare); Ersoy, Mehmet (Cleveland State Univ.); Chatzimavroudis, George (Cleveland State Univ.); Setser, Randolph (Cleveland Clinic); Alshaher, Motaz (Univ. of Louisville Hospital); Fischer, Stefan (Philips Healthcare); Amini, Amir (Univ. of Louisville)*

17:30-17:45 TuA16.3
A Theoretical Study for the Inverse Design of an Ellipsoidal Phased-Array Breast Coil 539-542
*Li, Yu** (The Univ. of Queensland); *Liu, Feng* (The Univ. of Queensland); *Weber, Ewald* (The Univ. of Queensland); *Li, Mingyan* (Univ. of Queensland); *Xu, Wenlong* (China Jiliang Univ.); *Crozier, Stuart* (The Univ. of Queensland)

17:45-18:00 TuA16.4
A Comparison Study of Different RF Shields for an 8-Element Transceive Small Animal Array at 9.4T 543-546
Jin, Jin (The Univ. of Queensland); *Li, Yu** (The Univ. of Queensland); *Liu, Feng* (The Univ. of Queensland); *Weber, Ewald* (The Univ. of Queensland); *Crozier, Stuart* (The Univ. of Queensland)

18:00-18:15 TuA16.5
Analysis of RF Transmit Performance for a 7T Dual Row Multi-Channel MRI Loop Array 547-553
*Kozlov, Mikhail** (Max Planck Inst. for Human Cognitive & Brain Sciences); *Turner, Robert* (Max Planck Inst. for Human Cognitive & Brain Sciences)

18:15-18:30 TuA16.6
Highly Adaptive RF Excitation Scheme Based on Conformal Resonant CRLH Metamaterial Ring Antennas for 7-Tesla Traveling-Wave Magnetic Resonance Imaging 554-558
*Erni, Daniel** (General & Theoretical Elec. Eng. (ATE), Univ. of Duisburg-Essen); *Liebig, Thorsten* (General & Theoretical Elec. Eng. (ATE), Univ. of Duisburg-Essen); *Rennings, Andreas* (General & Theoretical Elec. Eng. (ATE), Univ. of Duisburg-Essen); *Koster, Norbert H. L.* (General & Theoretical Elec. Eng. (ATE), Univ. of Duisburg-Essen); *Froehlich, Juerg* (Swiss Federal Inst. of Tech. Zurich (ETH))

TuA17: 17:00-18:30	Salon JK Marriott
2.2.5 Ultrasound Vascular Imaging (Oral Session)	
Chair: Konofagou, Elisa (Columbia Univ.)	
Co-Chair: Baselli, Giuseppe (Pol. di Milano)	

17:00-17:15 TuA17.1
Affine Optical Flow Combined with Multiscale Image Analysis for Motion Estimation of the Arterial Wall from B-Mode Ultrasound 559-562
*Gastouniotti, Aimilia** (Natl. Technical Univ. of Athens); *Tsiaparas, Nikos* (Natl. Technical Univ. of Athens); *Golemati, Spyretta* (Natl. Kapodistrian Univ. of Athens); *Stoitsis, John* (Inst. of Communication); *Nikita, Konstantina* (Natl. Technical Univ. of Athens)

17:15-17:30 TuA17.2
Two-Dimensional Flow Study in a Stenotic Artery Phantom Using Ultrasonic Particle Image Velocimetry 563-566
*Qian, Ming** (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); *Song, Ruibo* (Shenzhen Inst. of Advanced Tech.); *Niu, Lili* (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); *Zheng, Hairong* (Shenzhen Inst of Advanced Tech)

17:30-17:45 TuA17.3
In-Vivo PULSE Wave Imaging for Arterial Stiffness Measurement Under Normal and Pathological Conditions 567-570
*Li, Ronny** (Columbia Univ.); *Luo, Jianwen* (Columbia Univ.); *Balaram, Sandhya* (St. Luke's – Roosevelt Hospital); *Chaudhry, Farooq* (St. Luke's-Roosevelt Hospital Ctr.); *Lantis, John* (St. Luke's-Roosevelt Hospital Ctr.); *Shahmirzadi, Danial* (Columbia Univ.); *Konofagou, Elisa* (Columbia Univ.)

17:45-18:00 TuA17.4
Automated Detection of the Carotid Artery Wall in Longitudinal B-Mode Images Using Active Contours Initialized by the Hough Transform 571-574
Matsakou, Aikaterini (Natl. Technical Univ. of Athens); *Golemati, Spyretta** (Natl. Kapodistrian Univ. of Athens); *Stoitsis, John* (Inst. of Communication); *Nikita, Konstantina* (Natl. Technical Univ. of Athens)

18:00-18:15 TuA17.5
Carotid Automated Ultrasound Double Line Extraction System (CADLES) via Edge-Flow 575-578
Meiburger, Kristen Mariko (Politecnico di Torino); *Molinari, Filippo** (Politecnico di Torino); *Zeng, Guang* (Mayo Clinic); *Saba, Luca* (Policlinico Univ.); *Suri, Jasjit* (Biomedical Technologies)

18:15-18:30

TuA17.6

Assessment of the Cerebral Venous System from the Transcondylar Ultrasound

Window Using Virtual Navigator Technology and MRI 579-582

Lagana, Maria Marcella (IRCCS S.Maria Nascente); Forzoni, Leonardo (Esaote S.p.A., Genova, Italy); Viotti, Stefano (Univ. degli Studi di Milano, Italy); De Beni, Stefano (Esaote S.p.A., Genova, Italy); Baselli, Giuseppe (Politecnico di Milano); Cecconi, Pietro (Fondazione Don Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano)*

Wednesday, 31 August 2011

WeA01: 08:00-09:30

St. George AB Westin

8.1.20 Modeling and Simulation in Biomechanics (Oral Session)

Chair: Stein, Richard B. (*Univ. of Alberta*)

Co-Chair: Della Croce, Ugo (*Univ. of Sassari*)

08:00-08:15

WeA01.1

Influence of Parallel Spring-Loaded Exoskeleton on Ankle Muscle-Tendon

Dynamics During Simulated Human Hopping 583-586

Robertson, Benjamin (UNC-Chapel Hill/North Carolina State Univ.); Sawicki, Gregory (North Carolina State Univ., Biomedical Eng.)*

08:15-08:30

WeA01.2

Simulation of a Slope Adapting Ankle Prosthesis Provided by Semi-Active Damping 587-590

Sup, Frank (Univ. of Massachusetts – Amherst); LaPre, Andrew (Univ. of Massachusetts)*

08:30-08:45

WeA01.3

Design of a Fully-Passive Transfemoral Prosthesis Prototype 591-594

Behrens, S.M. (Univ. of Twente); Unal, Ramazan (Univ. of Twente); Hekman, Edsko (Univ. of Twente); Carloni, Raffaella (Univ. of Twente); Stramigioli, Stefano (Univ. of Twente); Koopman, Bart (Univ. of Twente)*

08:45-09:00

WeA01.4

Semi-Automatic Customization of Internal Fracture Fixation Plates 595-598

Musuvathy, Suraj (Univ. of Utah); Azernikov, Sergei (Siemens Corporate Research); Fang, Tong (Siemens Corporate Research)*

09:00-09:15

WeA01.5

A Dynamic 3D Foot Reconstruction System 599-602

Thabet, Ali Kassem (Univ. of Dundee); Trucco, Emanuele (Univ. of Dundee); Salvi, Joaquim (Univ. of Girona); Wang, Weijie (Univ. of Dundee); Abboud, Rami J. (Univ. of Dundee)*

09:15-09:30

WeA01.6

Optimal Trajectory Planning for a Constrained Functional Electrical

Stimulation-Based Human Walking 603-607

Sharma, Nitin (Univ. of Alberta); Stein, Richard B. (Univ. of Alberta)*

WeA02: 08:00-09:30

St. George CD Westin

8.1.6 Wearable Robotic Systems: Orthotics (Oral Session)

Chair: Hsiao-Wecksler, Elizabeth (*Univ. of Illinois*)

Co-Chair: Boissy, Patrick (*Univ. de Sherbrooke*)

08:00-08:15

WeA02.1

Restoration of Stance Phase Knee Flexion during Walking after Spinal Cord

Injury Using a Variable Impedance Orthosis 608-611

Bulea, Thomas C. (Case Western Reserve Univ.); Kobetic, Rudi (Louis Stokes Veterans Affairs Medical Ctr.); Triolo, Ronald J. (US Dept. of Veterans Affairs & Case Western Reserve Univ.)*

08:15-08:30

WeA02.2

Self-Adjusting, Isostatic Exoskeleton for the Human Knee Joint 612-618

Cai, Viet Anh Dung (Institut des Systèmes Intelligents et de Robotique-Univ. Pierre et Marie Curie – France)*

08:30-08:45	WeA02.3
Repeatability Analysis of Rollover Recognition in Changing Myoelectric Electrode Condition	619-623
<i>Ando, Takeshi* (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)</i>	
08:45-09:00	WeA02.4
Experimental Evaluation of a Portable Powered Ankle-Foot Orthosis	624-627
<i>Shorter, Kenneth* (Univ. of Illinois); Li, Yifan (Univ. of Illinois); Morris, Emily (Univ. of Illinois); Kogler, Geza (Georgia Tech); Hsiao-Wecksler, Elizabeth (Univ. of Illinois)</i>	
09:00-09:15	WeA02.5
Proportional EMG Control for Upper-Limb Powered Exoskeletons	628-631
<i>Lenzi, Tommaso* (Scuola Superiore Sant'Anna); De Rossi, Stefano Marco Maria (Scuola Superiore Sant'Anna); Vitiello, Nicola (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)</i>	
09:15-09:30	WeA02.6
Strip-Driven Devices for the Spatial Motion Guidance of Human Joints	632-635
<i>Sancisi, Nicola* (Univ. of Bologna); Parenti-Castelli, Vincenzo (Univ. of Bologna)</i>	
<hr/>	
WeA03: 08:00-09:30	Essex Ballroom South Westin
6.1.24 Microelectrode Technology (Oral Session)	
Chair: Gluckman, Bruce J. (<i>Pennsylvania State Univ.</i>)	
Co-Chair: Joshi, Bharat (<i>Univ. of North Carolina at Charlotte</i>)	
<hr/>	
08:00-08:15	WeA03.1
Advancements in Electrode Design and Laser Techniques for Fabricating	
Micro-Electrode Arrays as Part of a Retinal Prosthesis	636-639
<i>Dodds, Christopher William Douglas* (Univ. of New South Wales); Schuettler, Martin (Univ. of Freiburg); Guenther, Thomas (The Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales); Suaning, Gregg (The Univ. of New South Wales)</i>	
08:15-08:30	WeA03.2
Mechanical Characterization of Neural Electrodes Based on PDMS-Parylene	
C-PDMS Sandwiched System	640-643
<i>Henle, Christian* (Univ. of Freiburg); Hassler, Christina (Univ. of Freiburg); Kohler, Fabian (Univ. of Freiburg, IMTEK, Dept. of MicroSystems Eng.); Schuettler, Martin (Univ. of Freiburg); Stieglitz, Thomas (Univ. of Freiburg)</i>	
08:30-08:45	WeA03.3
Chronic Intracortical Implantation of Saccharose-Coated Flexible Shaft	
Electrodes into the Cortex of Rats	644-647
<i>Hassler, Christina* (Univ. of Freiburg); Guy, Julien (Univ. of Goettingen, Ctr. for Anatomy); Nietzsche, Max (Univ. of Freiburg, Dept. of Microsystems Eng.); Staiger, Jochen (Univ. of Goettingen, Ctr. for Anatomy); Stieglitz, Thomas (Univ. of Freiburg)</i>	
08:45-09:00	WeA03.4
An Experimental Approach towards the Development of an	
In Vitro Cortical-Thalamic Co-Culture Model	648-651
<i>Kanagasabapathi, Thirukumaran T.* (Philips Research Laboratories Eindhoven); Massobrio, Paolo (Univ. of Genova); Tedesco, Mariateresa (Univ. of Genova); Martinoia, Sergio (Univ. of Genova); Wadman, Wytse J (Ctr. for Neuroscience, Swammerdam Inst. for Life Sciences, Univ. of Amsterdam); Decré, Michel (Philips Research)</i>	
09:00-09:15	WeA03.5
Reconfigurable Fault-Tolerant Multielectrode Array for Dependable Monitoring of the Human Brain	652-655
<i>Acharya, Ipsita (Univ. of North Carolina at Charlotte); Joshi, Bharat* (Univ. of North Carolina at Charlotte); Lanning, Bruce (ITN Energy Systems, Inc.); Zaveri, Hitten (Yale Univ.)</i>	
09:15-09:30	WeA03.6
Micro-Reaction Chamber Electrodes for Neural Stimulation and Recording	656-659
<i>Shanmugasundaram, Balaji* (The Pennsylvania State Univ., Univ. Park); Gluckman, Bruce J. (Pennsylvania State Univ.)</i>	

WeA05: 08:00-09:30 Essex Ballroom North Westin
6.5.16 Deep Brain Stimulation: New Technical Developments and Perspectives (Oral Session)
Chair: Graupe, Daniel (*Univ. of Illinois at Chicago*)
Co-Chair: McIntyre, Cameron (*Cleveland Clinic Foundation*)

- 08:00-08:15 WeA05.1
Development of an Implantable Microstimulation System for Chronic DBS in Rodents **660-662**
*Harnack, Daniel** (*Charité-Univ.smedizin Berlin, Germany*)
- 08:15-08:30 WeA05.2
The Translational Value of the MPTP Non-Human Primate Model of Parkinsonism for Deep Brain Stimulation Research **663-666**
*Meissner, Wassilios G.** (*CNRS 5293, Univ. Bordeaux 2*)
- 08:30-08:45 WeA05.3
Search for the Optimal Strength of Coordinated Reset Stimulation **B#5**
*Tass, Peter Alexander** (*Research Ctr. Juelich*)
- 08:45-09:00 WeA05.4
Advancing Neuromodulation Using a Dynamic Control Framework **671-674**
*Denison, Timothy** (*Medtronic*)
- 09:00-09:15 WeA05.5
Improving Postural Stability via Computational Modeling Approach to Deep Brain Stimulation Programming **675-676**
*McIntyre, Cameron** (*Cleveland Clinic Foundation*)
- 09:15-09:30 WeA05.6
Emerging Techniques for Elucidating Mechanism of Action of Deep Brain Stimulation **677-680**
*Lee, Kendall** (*Mayo Clinic*)

WeA07: 08:00-09:30 Berkeley Marriott
12.1.2 Student Paper Competition II (Oral Session)
Chair: Ding, Lei (*Univ. of Oklahoma*)
Co-Chair: Yan, Renfei (*Pennsylvania State Univ.*)

- 08:00-08:15 WeA07.1
A SU-8-Based Compact Implantable Wireless Pressure Sensor for Intraocular Pressure Sensing Application *
*Xue, Ning** (*Univ. of Texas at Dallas*); *Chang, Sung Pil* (*Inha Univ.*); *Lee, Jeong-Bong* (*Univ. of Texas at Dallas*)
- 08:15-08:30 WeA07.2
Voxel-Based, Parallel Simulation of Light in Skin Tissue for the Reconstruction of Subsurface Skin Lesion Volumes *
*D'Alessandro, Brian** (*New Jersey Inst. of Tech.*); *Dhawan, Atam* (*New Jersey Inst. of Tech.*)
- 08:30-08:45 WeA07.3
Microfluidics-Mediated Isothermal Detection of Enzyme Activity at the Single Molecule Level *
*Juul, Sissel** (*Aarhus Univ., Duke Univ.*); *Ho, Yi-Ping* (*Duke Univ.*); *Stougaard, Magnus* (*Aarhus Univ. Hospital*); *Koch, Jørn* (*Aarhus Univ. Hospital*); *Andersen, Félicie F.* (*Aarhus Univ.*); *Leong, Kam W.* (*Duke Univ.*); *Knudsen, Birgitta R.* (*Aarhus Univ.*)
- 08:45-09:00 WeA07.4
Four-Dimensional MR Cardiovascular Imaging: Method and Applications *
*Christodoulou, Anthony** (*Univ. of Illinois at Urbana-Champaign*); *Zhao, Bo* (*Univ. of Illinois at Urbana-Champaign*); *Zhang, Haosen* (*Pittsburgh NMR Ctr. for Biomedical Research*); *Ho, Chien* (*Carnegie Mellon Univ.*); *Liang, Zhi-Pei* (*Univ. of Illinois at Urbana-Champaign*)

09:00-09:15 WeA07.5
Towards a Movement Quantification System Capable of Automatic Evaluation of Upper Limb Motor Function after Neurological Injury *
Bento, Virgilio (Univ. of Aveiro); Tedim Cruz, Vitor (Hospital São Sebastião, Santa Mariada Feira, Portugal); Ribeiro, David (Univ. of Aveiro); Cunha, João Paulo Silva (Univ. of Aveiro)*

WeA11: 08:00-09:30 Wellesley Marriott
5.4.11 Blood Pressure Regulation and Heart Rate Variability (Oral Session)
Chair: Dumont, Guy (Univ. of British Columbia)
Co-Chair: Khoo, Michael (Univ. of Southern California)

08:00-08:15 WeA11.1
Correlation of Heart Rate Variability and Circadian Markers in Humans **681-684**
Boudreau, Philippe (McGill Univ.); Dumont, Guy (Univ. of British Columbia); Ng Ying Kin, N.M.K (McGill Univ.); Walker, Claire-Dominique (McGill Univ.); Boivin, Diane (McGill Univ.)*

08:15-08:30 WeA11.2
Heart Rate Variability Effect on the Myocyte Action Potential Duration Restitution: Insights from Switched Systems Theory **685-688**
Dvir, Hila (Tel-Aviv Univ.); Zlochiver, Sharon (Tel-Aviv Univ.)*

08:30-08:45 WeA11.3
Consideration on Step Duration to Assess Open-Loop Static Characteristics of the Carotid Sinus Baroreflex in Rats **689-692**
Kawada, Toru (Nat. Cerebral & Cardiovascular Ctr. Res Inst); Sata, Yusuke (Natl. Cerebral & Cardiovascular Ctr.); Shimizu, Shuji (Natl. Cerebral & Cardiovascular Ctr. Research Inst.); Kamiya, Atsunori (Natl. Cardiovascular Ctr. Research Inst.); Sunagawa, Kenji (Kyushu Univ.); Sugimachi, Masaru (Natl Cardio Ctr. Research Inst)*

08:45-09:00 WeA11.4
Changes in Blood Volume Pulse During Exercise Recovery in Activity-Based Therapy for Spinal Cord Injury **693-696**
Tran, Yvonne (Univ. of Tech., Sydney); Thuraisingham, Ranjit Arulnayagam (Univ. of Tech. Sydney); Craig, Ashley (Univ. of Tech., Sydney); Tomlinson, Erika (Univ. of Melbourne/Univ. of Tech. Sydney); Davis, Glen (Univ. of Sydney); Middleton, James (The Univ. of Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney)*

09:00-09:15 WeA11.5
Artificial Baroreflex System Restores Volume Tolerance in the Absence of Native Baroreflex **697-699**
Hosokawa, Kazuya (Kyushu Univ. Graduate School of Medical Sciences); Funakoshi, Kouta (Kyushu Univ. Hospital); Tanaka, Atsushi (Kyushu Univ. Graduate School of Medical Sciences, Japan); Sakamoto, Takafumi (Kyushu Univ.); Onitsuka, Ken (Kyushu Univ.); Sakamoto, Kazuo (Kyushu Univ.); Tobushi, Tomoyuki (Kyushu Univ.); Fujino, Takeo (Kyushu Univ.); Saku, Keita (Kyushu Univ.); Murayama, Yoshinori (Kyushu Univ.); Ide, Tomomi (Kyushu Univ.); Sunagawa, Kenji (Kyushu Univ.)*

09:15-09:30 WeA11.6
A Systematic Approach to Local Stability Analysis of Cardiovascular Baroreflex **700-703**
Ataee, Pedram (Univ. of British Columbia); Hahn, Jin-Oh (Univ. of British Columbia); Dumont, Guy (Univ. of British Columbia); Boyce, W. Thomas (College for Interdisciplinary Studies & Faculty of Medicine, Univ. of British Columbia)*

WeA13: 08:00-09:30 Arlington Marriott
4.5.1 Algorithms and Techniques for Systems Modelling (Oral Session)
Chair: Kahya, Yasemin P. (Bogazici Univ.)
Co-Chair: Genc, Sahika (General Electric Global Res. Ctr.)

08:00-08:15 WeA13.1
Comparison of Continuous and Discrete Stochastic Ion Channel Models **704-707**
Dangerfield, Ciara Ellen (Univ. of Oxford); Kay, David (Oxford Univ.); Burrage, Kevin (Univ. of Oxford)*

08:15-08:30 WeA13.2
3-D Modeling of Nitric Oxide Emission and Vasodilation Induced by CA3 Hippocampal Neurons **708-711**
Nejati, Alireza (Univ. of Auckland); Unsworth, Charles Peter (Univ. of Auckland)*

08:30-08:45 WeA13.3
Prediction of Mean Arterial Blood Pressure with Linear Stochastic Models 712-715
Genc, Sahika (General Electric Global Research Ctr.)*

08:45-09:00 WeA13.4
A Feedback Control Model of Cortisol Secretion 716-719
Faghih, Rose T. (MIT); Savla, Ketan (MIT); Dahleh, Munther (MIT);
Brown, Emery N (MGH-Harvard Medical School-MIT)*

09:00-09:15 WeA13.5
3D Tracking of Mating Events in Wild Swarms of the Malaria Mosquito Anopheles Gambiae 720-723
Butail, Sachit (Univ. of Maryland); Manoukis, Nicholas Chirivas (US Pacific Basin Agricultural Research Ctr.,
USDA-ARS); Moussa, Diallo (MRTC/FMPOS); Yaro, Alpha Seydou (Malaria Research & Training Ctr., Univ. of
Mali, Bamako); Dao, Adama (Malaria Research & Training Ctr., Univ. of Mali, Bamako); Traore, Cheick (Malaria
Research & Training Ctr., Univ. of Mali, Bamako); Ribeiro, Jose (Natl. Inst. of Allergy & Infectious Diseases);
Lehmann, Tovi (NIAID/NIH); Paley, Derek (Univ. of Maryland)*

09:15-09:30 WeA13.6
GPGPU Accelerated Cardiac Arrhythmia Simulations 724-727
Wang, Wei (Univ. of Delaware); Huang, Howie (George Washington Univ.); Kay, Matthew (The George
Washington Univ.); Cavazos, John (Univ. of Delaware)*

WeA16: 08:00-09:30 Dartmouth Marriott
9.1.16 Cell Membrane Electroporation and Electroporation Based Therapies (Oral Session)
Chair: Miklavcic, Damijan (*Univ. of Ljubljana*)
Co-Chair: Davalos, Rafael (*Virginia Tech.*)

08:00-08:15 WeA16.1
Electrochemotherapy of Solid Tumors – Preclinical and Clinical Experience 728-731
Sersa, Gregor (Inst. of Oncology Ljubljana); Cemazar, Maja (Inst. of Oncology Ljubljana);
Snoj, Marko (Inst. of Oncology Ljubljana)*

08:15-08:30 WeA16.2
Intracellular Electroporation Site Distributions: Modeling Examples for Nspaf and IRE Pulse Waveforms 732-735
*Gowrishankar, Thiruvallur (Massachusetts Inst. of Tech.); Esser, Axel (Massachusetts Inst. of Tech.);
Smith, Kyle (Massachusetts Inst. of Tech.); Son, Reuben (MIT); Weaver, James* (Massachusetts Inst. of Tech.)*

08:30-08:45 WeA16.3
Electroporation Based Gene Therapy – From the Bench to the Bedside 736-738
Heller, Richard (Old Dominion Univ.); Shirley, Shawna (Old Dominion Univ.); Guo, Siqi (Old Dominion Univ.);
Donate, Amy (Old Dominion Univ.); Heller, Loree (Old Dominion Univ.)*

08:45-09:00 WeA16.4
Electrical Conductivity Changes During Irreversible Electroporation Treatment of Brain Cancer 739-742
Garcia, Paulo, A. (Virginia Tech – Wake Forest Univ.); Rossmesl, Jr., John H. (Virginia-Maryland Regional
College of Veterinary Medicine); Davalos, Rafael (Virginia Tech)*

09:00-09:15 WeA16.5
Mitochondrial Membrane Permeabilization with Nanosecond Electric Pulses 743-745
Vernier, P. Thomas (Univ. of Southern California)*

09:15-09:30 WeA16.6
Planar Lipid Bilayers: Observing Pore Creation and Extinction 746-749
Kramar, Peter (Univ. of Ljubljana); Maček Lebar, Alenka (Univ. of Ljubljana);
Miklavcic, Damijan (Univ. of Ljubljana)*

WeA19: 08:00-09:30 Salons AB Marriott
1.2.2 Advances in Neural Signal Recording, Processing, and Neurostimulation (Minisymposium)
Chair: Cash, Sydney (*Massachusetts General Hospital*)
Co-Chair: Akay, Metin (*Univ. of Houston*)

- 08:00-08:15 WeA19.1
Variable-Arrival-Time Reaching with the Brain-Machine Interface: Performance Comparison on Empirically-Derived Movements **750-752**
*Srinivasan, Lakshminarayan**
- 08:15-08:30 WeA19.2
Emerging Technology for Advancing the Treatment of Epilepsy Using a Dynamic Control Framework **753-756**
Denison, Timothy (Medtronic)*
- 08:30-08:45 WeA19.3
Using Point Process Models to Describe Rhythmic Spiking in the Subthalamic Nucleus of Parkinson's Patients **757-760**
Eden, Uri (Boston Univ.); Eskandar, Emad (Massachusetts General Hospital)*
- 08:45-09:00 WeA19.4
Advances in Microphysiological Recordings for Understanding Epilepsy *****
Cash, Sydney (Massachusetts General Hospital); Truccolo, Wilson (Brown Univ.)*
- 09:00-09:15 WeA19.5
Millimeter-Scale Epileptiform Spike Patterns and Their Relationship to Seizures **761-764**
Chamberlain, Ann (Univ. of Pennsylvania); Viventi, Jonathan (Univ. of Pennsylvania); Blanco, Justin (Univ. of Pennsylvania); Kim, Dae-Hyeong (Univ. of Illinois at Urbana Champaign); Rogers, John (Univ. of Illinois); Litt, Brian (Univ. of Pennsylvania)*
- 09:15-09:30 WeA19.6
Anodal Transcranial Direct Current Stimulation Relieves the Unilateral Bias of a Rat Model of Parkinson's Disease **765-768**
Li, Yiyang (Chongqing Univ.); Tian, Xuelong (Dept. of BioEng., Chongqing Univ.); Yu, Xuehong (Chongqing Univ.); Jiang, Weiwei (Chongqing Univ.); Qian, Long (Chongqing Univ.)*

WeA20: 08:00-09:30 Salons CD Marriott
1.2.24 Signal Processing in Physiological Systems I (Oral Session)
Chair: Picard, Rosalind (*Massachusetts Inst. of Tech.*)
Co-Chair: Moussavi, Zahra (*Univ. of Manitoba*)

- 08:00-08:15 WeA20.1
Assessment of Sleep Quality in Power napping **769-772**
Kooravand Takhtsabzy, Bashaer (Technical Univ. of Denmark (DTU)); Thomsen, Carsten Eckhart (Univ. of Copenhagen)*
- 08:15-08:30 WeA20.2
Obstructive Sleep Apnea Prediction During Wakefulness **773-776**
Montazeripouragha, Amanallah (Univ. of Manitoba); Moussavi, Zahra (Univ. of Manitoba)*
- 08:30-08:45 WeA20.3
Toward a Taxonomy of Autonomic Sleep Patterns with Electrodermal Activity **777-780**
Sano, Akane (MIT); Picard, Rosalind (Massachusetts Inst. of Tech.)*
- 08:45-09:00 WeA20.4
Visual ERP P3 Amplitude and Latency in Standalone and Embedded Visual Processing Task **781-784**
Korpela, Jussi (Finnish Inst. of Occupational Health); Huutilainen, Minna (Finnish Inst. of Occupational Health)*

09:00-09:15 WeA20.5
A Methodology to Improve Estimation of Stimulus-Evoked Hemodynamic Response from Fnrirs Measurements 785-788
Scarpa, Fabio (Univ. of Padova); Brigadoi, Sabrina (Univ. of Padova); Cutini, Simone (Univ. of Padova); Scatturin, Pietro (Univ. of Padova); Zorzi, Marco (Univ. of Padova); Dell'Acqua, Roberto (Univ. of Padova); Sparacino, Giovanni (Univ. of Padova)*

09:15-09:30 WeA20.6
An Auditory Go/No-Go Study of Event-Related Potentials in Children with Fetal Alcohol Spectrum Disorders 789-792
Steinmann, Tobias Pyndt (Technical Univ. of Denmark); Andrew, Colin Murray (Univ. of Cape Town); Thomsen, Carsten Eckhart (Univ. of Copenhagen); Kjaer, Troels Wesenberg (Rigshospitalet); Meintjes, Ernesta M. (Univ. of Cape Town, South Africa); Molteno, Christopher D. (Dept. of Psychiatry, Faculty of Health Sciences, Univ. of Cape Town, Cape Town, South Africa); Jacobson, Joseph L. (Dept. of Psychiatry & Behavioral Neurosciences, Wayne State Univ. School of Medicine, Detroit, Michigan); Jacobson, Sandra W. (Dept. of Psychiatry & Behavioral Neurosciences, Wayne State Univ. School of Medicine, Detroit, Michigan); Sorensen, Helge B D (Technical Univ. of Denmark)*

WeA21: 08:00-09:30	Salon E Marriott
1.1.22 Empirical Mode Decomposition (Oral Session)	
Chair: Ding, Mingzhou (Univ. of Florida)	
Co-Chair: Magenes, Giovanni (Univ. of Pavia)	

08:00-08:15 WeA21.1
Power Independent EMG Based Gesture Recognition for Robotics 793-796
Li, Ling (Imperial College London); Looney, David (Imperial College London); Park, Cheolsoo (Imperial College London); Rehman, Naveed (Imperial College London); Mandic, Danilo (Imperial College)*

08:15-08:30 WeA21.2
Artifact Removal for Intracranial Pressure Monitoring Signals: A Robust Solution with Signal Decomposition 797-801
Feng, Mengling (Inst. for Infocomm Research); Loy, Liang Yu (Inst. for Inforcomm Research); Zhang, Feng (Inst. for Inforcomm Research Singapore); Guan, Cuntai (Inst. for Infocomm Research)*

08:30-08:45 WeA21.3
Towards a Suitable Time-Scale Representation of Cardio-Respiratory Signals through Empirical Mode Decomposition Algorithms: A Simulation and Validation Tool 802-805
Franco, Céline (UJF-Grenoble 1/CNRS/TIMC-IMAG UMR 5525 & FRE 3405 AGIM (AGEing Imaging Modeling), CNRS-UJF-EPHE); Fontecave-Jallon, Julie (UJF-Grenoble 1/CNRS/TIMC-IMAG UMR 5525); Vuillerme, Nicolas (FRE 3405, AGIM (AGEing Imaging Modeling), CNRS-UJF-EPHE, Grenoble, France); Gumery, Pierre-Yves (Univ. joseph fourier)*

08:45-09:00 WeA21.4
Comparison between EEMD, Wavelet and FIR Denoising: Influence on Event Detection in Impedance Cardiography 806-809
De Ridder, Sven (Royal Military Acad. of Belgium); Migeotte, Pierre-François (Royal Military Acad.); Neyt, Xavier (Royal Military Acad.)*

09:00-09:15 WeA21.5
Multivariate Multiscale Entropy for Brain Consciousness Analysis 810-813
Ahmed, Mosabber Uddin (Imperial College London); Li, Ling (Imperial College London); Cao, Jianting (Saitama Inst. of Tech.); Mandic, Danilo (Imperial College)*

WeA22: 08:00-09:30 Salon F Marriott
1.2.27 Signals and Systems (Oral Session)
Chair: Signorini, Maria G. (*Pol. di Milano*)
Co-Chair: Patel, Shyamal (*Harvard Medical School*)

08:00-08:15 WeA22.1
Analysis of Local Field Potential Signals: A Systems Approach 814-817
*Huberdeau, David** (*The Johns Hopkins Univ.*); *Walker, Harrison* (*Univ. of Alabama at Birmingham*);
Huang, He (*Univ. of Alabama-Birmingham*); *Montgomery, Erwin* (*Univ. of Alabama at Birmingham*);
Sarma, Sridevi V. (*Johns Hopkins Univ.*)

08:15-08:30 WeA22.2
Hearing Level Equalized Otoacoustic Emissions Acquired by Swept-Tones: Intensity Characteristics 818-821
*Mihajloski, Todor** (*Univ. of Miami*); *Lachowska, Magdalena* (*Medical Univ. of Warsaw*);
Bennett, Christopher (*Univ. of Miami*); *Ozdamar, Ozcan* (*Univ. of Miami*)

08:30-08:45 WeA22.3
Circadian Rest-Activity Rhythm for Maintenance of Body Shape 822-825
Kume, Shinya (*Ritsumeikan Univ.*); *Hagiwara, Hiroshi** (*Ritsumeikan Univ.*)

08:45-09:00 WeA22.4
A Data-Driven Modeling Approach to Stochastic Computation for Low-Energy Biomedical Devices 826-829
*Lee, Kyong Ho** (*Princeton Univ.*); *Jang, Kuk Jin* (*Princeton Univ.*); *Shoeb, Ali* (*Massachusetts Inst. of Tech.*);
Verma, Naveen (*Princeton Univ.*)

09:00-09:15 WeA22.5
Auditory Evoked Responses to Binaural Beat Illusion: Stimulus Generation and the Derivation of the Binaural Interaction Component (BIC) 830-833
*Ozdamar, Ozcan** (*Univ. of Miami*); *Bohorquez, Jorge* (*Univ. of Miami*); *Mihajloski, Todor* (*Univ. of Miami*);
Yavuz, Erdem (*Intelligent Hearing Systems*); *Lachowska, Magdalena* (*Medical Univ. of Warsaw*)

09:15-09:30 WeA22.6
Extraction of Deep Brain Stimulation (DBS) Source in SEEG Using EMD and ICA 834-837
*Hofmanis, Janis** (*INPL, CRAN*); *Salido-Ruiz, Ricardo* (*CRAN, Nancy Univ.*); *Louis-Dorr, Valerie* (*Nancy-Univ.*);
Caspary, Olivier (*INPL, CRAN*); *Ranta, Radu* (*Nancy-Univ.*)

WeA23: 08:00-09:30 Salon G Marriott
10.8.26 Health Informatics: eHealth Solutions for Cardiovascular Risk Screening I (Minisymposium)
Chair: Poon, Carmen CY (*The Chinese Univ. of Hong Kong*)
Co-Chair: Armentano, Ricardo Luis (*Favaloro Univ.*)

08:00-08:15 WeA23.1
An Innovative Home Care Model Using Mobile Phones and Internet Demonstrates Improved Utilization Rate of Cardiac Rehabilitation Programs *
*Karunanithi, Mohanraj** (*CSIRO ICT Ctr.*); *Varnfield, Marlien* (*Australian e-Health Research Ctr. (AEHRC)*);
Ding, Hang (*CSIRO*); *Garcia, Elsa* (*AEHRC*)

08:15-08:30 WeA23.2
Patient Specific Cardiovascular Risk Assessment and Treatment Decision Support Based on Multiscale Modelling and Medical Guidelines 838-841
*Exarchos, Themis P.** (*Unit of Medical Tech & Intelligent Info*); *Goletsis, Yorgos* (*Univ. of Ioannina*);
Stefanou, Kostas (*FORTH-BRI*); *Fotiou, Evangelos* (*d.d. Synergy Hellas*); *Fotiadis, Dimitrios I.* (*Univ. of Ioannina*); *Parodi, Oberdan* (*CNR Clinical Physiology Inst. – Milan*)

08:30-08:45 WeA23.3
Uruguay Ehealth Initiative: Preliminary Studies Regarding an Integrated Approach to Evaluate Vascular Age and Preclinical Atherosclerosis (CUiDARTE Project) 842-845
*Armentano, Ricardo Luis** (*Favaloro Univ.*); *Bia, Daniel* (*School of Medicine, Republic Univ.*);
Zócalo, Yanina (*School of Medicine, Republic Univ.*); *Torrado, Juan* (*School of Medicine, Republic Univ.*);
Farro, Ignacio (*School of Medicine, Republic Univ.*); *Farro, Federico* (*Univ. de la República, School of Medicine*); *Florio, Lucía* (*CUiDARTE*); *Olascoaga, Alicia* (*Lab Clínico*); *Alallon, Walter* (*Hospital de Clínicas*);
Negreira, Carlos (*Univ. de la República Uruguay*); *Lluberas, Ricardo* (*Depto. Cardiología*)

08:45-09:00 WeA23.4
**Development of Wearable Technologies for Myocardial Infarction and Stroke
 Screening and Intervention within Nations (MISSIoN)** *
Poon, Carmen CY (The Chinese Univ. of Hong Kong); Zhang, Yuan-Ting (The Chinese Univ. of Hong Kong)*

WeA24: 08:00-09:30 Salon HI Marriott
10.2.2 Wireless Health Technologies and Body Sensor Networks Technologies (Oral Session)
Chair: Penders, Julien (*imec*)
Co-Chair: Lubecke, Victor (*Univ. of Hawaii Manoa*)

08:00-08:15 WeA24.1
ZigBee-Based Wireless Multi-Sensor System for Physical Activity Assessment **846-849**
Mo, Lingfei (Univ. of Connecticut); Liu, Shaopeng (Univ. of Connecticut); Gao, Robert X. (Univ. of Connecticut); John, Dinesh (Univ. of Massachusetts Amherst); Staudenmayer, John (Univ. of Massachusetts, Amherst); Freedson, Patty (Univ. of Massachusetts Amherst)*

08:15-08:30 WeA24.2
Diagnostic Grade Wireless ECG Monitoring **850-855**
Garudadri, Harinath (Qualcomm); Chi, Yuejie (Dept. of Elec. Eng., Princeton Univ., Princeton, NJ); Baker, Steve (Welch Allyn); Majumdar, Somdeb (Qualcomm Inc.); Baheti, Pawan (Qualcomm); Ballard, Dan (Welch Allyn)*

08:30-08:45 WeA24.3
PERCEPT: Indoor Navigation for the Blind and Visually Impaired **856-859**
Ganz, Aura (Univ. of Massachusetts, Amherst); Schafer, James (Univ. of Massachusetts Amherst); Gandhi, Siddhesh (Univ. of Massachusetts, Amherst); Singh, Tushar (Univ. of Massachusetts Amherst); Wilson, Carole (Executive Office of Health & Human Services)*

08:45-09:00 WeA24.4
Scalable Patients Tracking Framework for Mass Casualty Incidents **860-863**
Ganz, Aura (Univ. of Massachusetts, Amherst); Schafer, James (Univ. of Massachusetts Amherst); Yu, Xunyi (Univ. of Massachusetts); Lord, Graydon (Office of Homeland Security, The George Washington Univ.)*

09:00-09:15 WeA24.5
CHRONIOUS: A Wearable Platform for Monitoring and Management of Patients with Chronic Disease **864-867**
Bellos, Christos (FORTH BRI Foundation for Research & Tech. – Hellas, Biomedical Research); Papadopoulos, Athanasios (Foundation for Research & Tech.); Rosso, Roberto (Tesan S.p.A.); Fotiadis, Dimitrios I. (Univ. of Ioannina)*

09:15-09:30 WeA24.6
**Biometric and Mobile Gait Analysis for Early Diagnosis and Therapy
 Monitoring in Parkinson's Disease** **868-871**
Barth, Jens (Univ. Hospital Erlangen); Klucken, Jochen (Univ. Hospital Erlangen); Kugler, Patrick (Univ. of Erlangen-Nuremberg); Kammerer, Thomas (ASTRUM IT GmbH); Steidl, Ralph (ASTRUM IT GmbH); Winkler, Juergen (Univ. Hospital Erlangen); Hornegger, Joachim (Friedrich-Alexander Univ. Erlangen-Nuremberg); Eskofier, Björn (Univ. of Erlangen-Nuremberg)*

WeA25: 08:00-09:30 Salon JK Marriott
10.1.17 Closing the Loop in PHS Telemonitoring Systems: How Far Have We Gone? (Oral Session)
Chair: Saranummi, Niilo (*VTT Tech. Res. Centre*)
Co-Chair: Reiter, Harald (*Philips*)

08:00-08:15 WeA25.1
Fusion of Risk Assessment Models with Application to Coronary Artery Disease Patients **872-875**
Paredes, Simão (Instituto Superior de Engenharia de Coimbra); Rocha, Teresa (Inst Superior de Eng de Coimbra); de Carvalho, Paulo (Univ. of Coimbra); Henriques, Jorge (Univ. of Coimbra – NIF 501617582); Rasteiro, Deolinda (Instituto Politécnico de Coimbra, Departamento de Física e Matemática, Coimbra); Morais, João (Hospital de Santo André, Leiria); Ferreira, Jorge (Cardiology Dept., Santa Cruz Hospital, Lisbon, Portugal); Mendes, Miguel (Cardiology Dept., Santa Cruz Hospital, Lisbon, Portugal)*

08:15-08:30	WeA25.2
Cardiac Status Assessment with a Multi-Signal Device for Improved Home-Based Congestive Heart Failure Management	876-879
<i>Muehlsteff, Jens* (Philips); de Carvalho, Paulo (Univ. of Coimbra); Henriques, Jorge (Univ. of Coimbra – NIF 501617582); Paiva, Rui Pedro (Univ. of Coimbra); Reiter, Harald (Philips)</i>	
08:30-08:45	WeA25.3
Personalized Behavior Change Support for Disease Prevention	880-883
<i>Kaipainen, Kirsikka* (VTT Technical Research Ctr. of Finland); Honka, Anita (VTT Technical Research Ctr. of Finland); Saranummi, Niilo (VTT Technical Research Ctr.)</i>	
08:45-09:00	WeA25.4
Risk Assessment and Patient Stratification Using Implantable Medical Devices. The Funding for Personal Health Programs	884-887
<i>Guillen, Alejandra* (Medtronic Spain); Colas, Javier (Medtronic Iberica); Gutiérrez, Germán (Medtronic Ibérica)</i>	
09:00-09:15	WeA25.5
Novel Approaches for Medication Compliance and Effectiveness Analysis and Support in Cardiovascular Disease Patients	888-891
<i>Chouvarda, Ioanna (Aristotle Univ.); Gkontra, Polyxeni (Aristotle Univ. of Thessaloniki, Lab of Medical Informatics); Athina, Kokonozi (Aristotle Univ. of Thessaloniki); Semertzidis, Pangiotis (Aristotle Univ. of Thessaloniki, 2nd Internal Medicine Dept., Ippokrateion Hospital, Hippokration Hospital); Caffarel, Jennifer (Philips Research); Maglaveras, Nikolaos* (Aristotle Univ. of Thessaloniki)</i>	
09:15-09:30	WeA25.6
Towards Closed-Loop Personal Health Systems in Cardiology: The HeartCycle Approach	892-895
<i>Maglaveras, Nikolaos* (Aristotle Univ. of Thessaloniki); Reiter, Harald (Philips)</i>	

WeA27: 09:30-11:00	Provincetown Marriott
4.2.1 Systems in Synthetic Biology I (Minisymposium)	
Chair: Tidor, Bruce (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: Weiss, Ron (<i>MIT</i>)	

09:30-10:00	WeA27.1
Synthetic Biology: From Parts to Modules to Therapeutic Systems	*
<i>Weiss, Ron* (MIT)</i>	
10:00-10:30	WeA27.2
Designing Biological Systems for Therapeutics and Sustainability	*
<i>Silver, Pamela A.* (Dept. of Systems Biology, Harvard Medical School)</i>	
10:30-11:00	WeA27.3
Synthetic Design of Molecular Therapeutics with Multifactorial Systems Goals	*
<i>Tidor, Bruce* (Massachusetts Inst. of Tech.)</i>	

WeP11: 09:30-11:00	America Ballroom Westin
4.5.8 Models of Tissues and Organs (Poster Session)	

09:30-11:00	WeP11.1
Validation of a Preterm Infant Cardiovascular System Model under Baroreflex Control with Heart Rate and Blood Pressure Data	896-899
<i>Jennekens, Ward* (Máxima Medical Ctr.); Dat, Marco (Eindhoven Univ. of Tech.); Bovendeerd, Peter (Eindhoven Univ. of Tech.); Wijn, Pieter (Máxima Medical Ctr.); Andriessen, Peter (Máxima Medical Ctr.)</i>	
09:30-11:00	WeP11.2
A Simulation Framework for Estimating Wall Stress Distribution of Abdominal Aortic Aneurysm	900-903
<i>Zhang, Jing (Inst. for Infocomm Research); Qin, Jing* (Natl. Univ. of Singapore); Huang, Weimin (Inst. for Infocomm Research, Agency for Science Tech. & Research); Yang, Tao (Inst. of Infocomm Research); Pang, Wai Man (Univ. of Aizu); Venkatesh, Sudhakar K (Dept. of Diagnostic Radiology, Natl. Univ. of Singapore); Chang, Stephen KY (Natl. Univ. of Singapore)</i>	

09:30-11:00	WeP11.3
Balloon Type Elasticity Sensing for Left Ventricle of Small Laboratory Animal	904-907
<i>Ishii, Ryohei* (Osaka Univ.); Higashimori, Mitsuru (Osaka Univ.); Tadakuma, Kenjiro (Osaka Univ.); Kaneko, Makoto (Osaka Univ.); Tamaki, Shunsuke (Osaka Univ.); Sakata, Yasushi (Osaka Univ.); Yamamoto, Kazuhiro (Osaka)</i>	
09:30-11:00	WeP11.4
Continuum Model of Light Response in the Retina	908-911
<i>Yin, Shijie (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales); Suaning, Gregg (The Univ. of New South Wales); Dokos, Socrates* (Univ. of New South Wales)</i>	
09:30-11:00	WeP11.5
Parameter Exploration of Staircase-Shape Extracellular Stimulation for Targeted Stimulation of Myelinated Axon	912-915
<i>Ueno, Ayako* (Tohoku Univ.); Karashima, Akihiro (Tohoku Univ.); Nakao, Mitsuyuki (Tohoku Univ.); Katayama, Norihiro (Tohoku Univ.)</i>	
09:30-11:00	WeP11.6
Evaluation of a Resectable Ultrasound Liver Phantom for Testing of Surgical Navigation Systems	916-919
<i>Shevchenko, Nikita* (Technische Univ. Muenchen); Schwaiger, Johannes (Technical Univ. of Munich); Markert, Mathias (Technical Univ. Munich); Flatz, Wilhelm (Institut für Klinische Radiologie – Klinikum der Univ. München); Lueth, Tim (Technical Univ. of Munich)</i>	
09:30-11:00	WeP11.7
Preliminary Design of a SIMO Fuzzy Controller for Steering Microparticles Inside Blood Vessels by Using a Magnetic Resonance Imaging System	920-923
<i>Peng, Ke (Ecole Polytechnique de Montreal); Martel, Sylvain* (Ecole Polytechnique de Montreal)</i>	

WeP12: 09:30-11:00	America Ballroom Westin
4.6.4 Algorithms and Computational Tools for Proteomics (Poster Session)	

09:30-11:00	WeP12.1
Design of Multiple Sequence Alignment Algorithms on Parallel, Distributed Memory Supercomputers	924-927
<i>Church, Philip Clayton* (Deakin Univ.); Goscinski, Andrzej (Deakin Univ., Science & Tech.); Holt, Kathryn (Univ. of Melbourne, Microbiology & Immunology); Inouye, Michael (Walter & Eliza Hall Inst. of Medical Research); Ghoting, Amol (IBM T.J. Watson Research Ctr.); Makarychev, Konstantin (IBM T.J. Watson Research Ctr.); Reumann, Matthias (IBM Australia)</i>	
09:30-11:00	WeP12.2
ABS: Sequence Alignment by Scanning	928-931
<i>Bonny, Talal (King Abdullah Univ. of Science & Tech.); Salama, Khaled N* (King Abdullah Univ. of Science & Tech.)</i>	
09:30-11:00	WeP12.3
Analyzing mRNA and microRNA Co-Expression Profiles to Identify Pathways and Their Potential Regulators in ER+ and ER- Breast Tumors	932-935
<i>Roqueiro, Damian* (Univ. of Illinois at Chicago); Huang, Lei (Univ. of Illinois at Chicago); Dai, Yang (Univ. of Illinois at Chicago)</i>	
09:30-11:00	WeP12.4
Gene Expression Analysis with Integrated Fuzzy C-Means and Pathway Analysis	936-939
<i>Zhang, Mingrui* (Winona State Univ.); Yang, Ping (Mayo Clinic)</i>	
09:30-11:00	WeP12.5
A General CellML Simulation Code Generator Using ODE Solving Scheme Description	940-944
<i>Amano, Akira* (Ritsumeikan Univ.); Soejima, Naoki (Ritsumeikan Univ., Dept. of Informatics); Shimayoshi, Takao (ASTEM Research Inst. of Kyoto); Kuwabara, Hiroaki (Ritsumeikan Univ., Dept. of Informatics); Kunieda, Yoshitoshi (Ritsumeikan Univ., Dept. of Informatics)</i>	

09:30-11:00 WeP12.6
Prediction of Protein Subcellular Localization Based on Variable-Length Motifs
Detection and Dissimilarity Based Classification 945-948
Arango, Gustavo (Univ. Nacional de Colombia); Jaramillo Garzón, Jorge Alberto (Univ. Nacional de Colombia); Röthlisberger, Sarah (Instituto Tecnológico Metropolitano); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia)*

09:30-11:00 WeP12.7
Evaluating Feature Selection Strategies for High Dimensional, Small Sample Size Datasets 949-952
Golugula, Abhishek (Rutgers Univ.); Lee, George (Rutgers Univ.); Madabhushi, Anant (Rutgers Univ.)*

WeP13: 09:30-11:00 America Ballroom Westin
5.2.13 ECG Analysis (Poster Session)

09:30-11:00 WeP13.1
Beat to Beat Wavelet Variability in Atrial Fibrillation 953-956
Filos, Dimitrios (Aristotle Univ. o Thessaloniki); Chouvarda, Ioanna (Aristotle Univ.); Dakos, George (Aristotle Univ. o Thessaloniki); Vassilikos, Vassilios (Aristotle Univ. o Thessaloniki); Maglaveras, Nikolaos (Aristotle Univ. of Thessaloniki)*

09:30-11:00 WeP13.2
A Spline Framework for ECG Analysis 957-960
Guilak, Farzin (Intel Corp.); McNames, James (Portland State Univ.)*

09:30-11:00 WeP13.3
Excitation Specificity of Repolarization Parameters 961-964
Halamek, Josef (Inst. of Scientific Instruments); Vondra, Vlastimil (Inst. of Scientific Instruments AS CR); Jurak, Pavel (Inst of Scientific Instruments Acad.); Viscor, Ivo (Inst. of Scientific Instruments, Czech Acad. of Sciences); Leinveber, Pavel (St. Anne's Univ. Hospital); Plachy, Martin (St Anne's Univ. Hospital, Brno.)*

09:30-11:00 WeP13.4
Algorithm for Quantitative 3 Dimensional Analysis of ECG Signals Improves Myocardial Diagnosis Over Cardiologists in Diabetic Patients 965-968
Wenzel, Brian (Home); George, Samuel (NewCardio, Inc); Lakkireddy, Dhanunjaya (Univ. of Kansas Hospitals); Vanga, Subba Reddy (Univ. of Kansas City Hospitals); Bommana, Sudha Rani (Univ. of Kansas Hospitals); Gussak, Ihor (NewCardio, Inc); Simic, Goran (NewCardio, Inc); Bojovic, Bosko (NewCardio, Inc); Ljupco, Hadzievski (NewCardio, Inc); Panescu, Dorin (NewCardio, Inc.)*

09:30-11:00 WeP13.5
Wavelet-Based Features for Characterizing Ventricular Arrhythmias in Optimizing Treatment Options 969-972
Balasundaram, Krishnanand (Ryerson Univ.); Masse, Stephane (THCFM Lab, Toronto General Hospital); Nair, Krishnakumar (THCFM Lab., Toronto General Hosp.); Farid, Talha (THCFM Lab, Toronto General Hospital); Nanthakumar, Kumaraswamy (THCFM Lab, Toronto General Hospital); Umopathy, Karthikeyan (Ryerson Univ.)*

09:30-11:00 WeP13.6
A Vectorcardiogram-Based Classification System for the Detection of Myocardial Infarction 973-976
Huang, Chih-Sheng (Natl. Chiao Tung Univ.); Ko, Li-Wei (Natl. Chiao-Tung Univ.); Lu, Shao-Wei (Natl. Chiao Tung Univ.); Chen, Shi-An (Natl. Chiao Tung Univ.); Lin, Chin-Teng (Natl. Chiao-Tung Univ.)*

09:30-11:00 WeP13.7
Baseline Wander Estimation and Removal by Quadratic Variation Reduction 977-980
Fasano, Antonio (Univ. Campus Bio-Medico di Roma); Villani, Valeria (Univ. Campus Bio-Medico di Roma); Vollero, Luca (Univ. Campus Bio-Medico di Roma)*

09:30-11:00 WeP13.8
Denosing and Harmonic Artifacts Rejection for ECG P-Waves by Quadratic Variation Reduction 981-984
Fasano, Antonio (Univ. Campus Bio-Medico di Roma); Villani, Valeria (Univ. Campus Bio-Medico di Roma); Vollero, Luca (Univ. Campus Bio-Medico di Roma)*

09:30-11:00	WeP13.9
Use of Genetic Algorithm for Selection of Regularization Parameters in Multiple Constraint Inverse ECG Problem	985-988
<i>Mazloumi Gavgani, Alireza (Middle East Technical Univ.-Turkey); Serinagaoglu Dogrusoz, Yesim* (Middle East Technical Univ.)</i>	
09:30-11:00	WeP13.10
Home-Based Mobile Cardio-Pulmonary Rehabilitation Consultant System	989-992
<i>Lu, Shao-Wei (Natl. Chiao Tung Univ.); Wu, Bo-Yuan (Natl. Chiao Tung Univ.); Ko, Li-Wei* (Natl. Chiao-Tung Univ.)</i>	
09:30-11:00	WeP13.11
Predicting the Optimal Position and Direction of a Ubiquitous ECG Using a Multi-Scale Model of Cardiac Electrophysiology	993-996
<i>Shim, Eun Bo* (Kangwon Natl. Univ.); Shin, Kunsoo (Samsung Advanced Inst of Tech); Ko, Byung-Hoon (Samsung Advanced Inst. of Tech.); Bae, Sang Kon (Samsung Advanced Inst of Tech)</i>	
09:30-11:00	WeP13.12
Numerical Simulation of Motion-Induced Dynamic Noise in a Ubiquitous ECG Application	997-1000
<i>Shim, Eun Bo* (Kangwon Natl. Univ.); Shin, Kunsoo (Samsung Advanced Inst of Tech); Ko, Byung-Hoon (Samsung Advanced Inst. of Tech.); Bae, Sang Kon (Samsung Advanced Inst of Tech)</i>	

WeP14: 09:30-11:00	America Ballroom Westin
5.6.18 Respiratory Engineering (Poster Session)	

09:30-11:00	WeP14.1
Breath Gas Analysis for Estimating Physiological Processes using Anesthetic Monitoring as a Prototypic Example	1001-1004
<i>King, Julian* (Austrian Acad. of Sciences); Unterkofler, Karl (Vorarlberg Univ. of Applied Sciences); Teschl, Gerald (Faculty of Mathematics of the Univ. of Vienna); Amann, Anton (Innsbruck Medical Univ.); Teschl, Susanne (Univ. of Applied Sciences Technikum Wien)</i>	
09:30-11:00	WeP14.2
Robust Online Adaptive Neural Network Control for the Regulation of Treadmill Exercises	1005-1008
<i>Nguyen, Tuan Nghia* (Univ. of Tech., Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney); Su, Steven Weidong (Univ. of Tech., Sydney); Celler, Branko George (Univ. of New South Wales)</i>	
09:30-11:00	WeP14.3
A Convenient Pulmonary Volume and Flow Detection System	1009-1012
<i>Sim, Myeong Heon* (Yonsei Univ.); Kim, Minyong (Yonsei Univ.); Jeong, Incheol (Seoul Natl. Univ. Hospital); Yoon, Chan-Sol (Yonsei Univ.); Yoon, Hyungro (Yonsei Univ.)</i>	
09:30-11:00	WeP14.4
Inverse Modeling Supports Quantification of Pressure and Time Depending Effects in ARDS Patients ..	1013-1016
<i>Schranz, Christoph* (Furtwangen Univ.); Moeller, Knut (Furtwangen Univ.)</i>	
09:30-11:00	WeP14.5
Effectiveness of Interval Training Compared with Endurance Training in Cardiac Rehabilitation	1017-1020
<i>Hanada, Satoru* (Chiba Univ.); Sekine, Masaki (Chiba Univ.); Tamura, Toshiyo (Chiba Univ.); Shinchi, Tomokazu (Fujimoto Central Hospital); Fujimoto, Toshiro (Fujimoto Hayasuzu Hospital)</i>	

WeP15: 09:30-11:00	America Ballroom Westin
5.6.19 Cardiorespiratory Modeling (Poster Session)	

09:30-11:00	WeP15.1
Effect of Deep Breathing on Extracted Oxygen and Cerebral Hemoglobin Levels	1021-1024
<i>Kennedy, Patrick (Dartmouth College); Zarbock, Christopher (Dartmouth College); Burke, Broc (Dartmouth College); Diamond, Solomon G.* (Dartmouth College)</i>	
09:30-11:00	WeP15.2
Effect of Inflow on Computational Fluid Dynamic Simulation of Cerebral Bifurcation Aneurysms	1025-1028
<i>Farnoush, Azadeh* (Macquarie Univ.); Qian, Yi (Macquarie Univ.); Avolio, Alberto (Macquarie Univ.)</i>	

09:30-11:00	WeP15.3
Modeling the Adaptive Pathophysiology of Essential Hypertension	1029-1032
<i>Wang, Yu* (Univ. of California, San Diego); Winters, Jack (Marquette Univ.)</i>	
09:30-11:00	WeP15.4
Automation of an Extracorporeal Support System with Adaptive Fuzzy Controllers	1033-1036
<i>Mendoza Garcia, Alejandro* (Technical Univ. Munich); Sprunk, Nicole (Technical Univ. Munich); Baumgartner, Benedikt (Technical Univ. Munich); Schreiber, Ulrich (German Heart Ctr.); Eichhorn, Stefan (German Heart Ctr.); Bauernschmitt, Robert (German Heart Ctr.); Lange, Rüdiger (German Heart Ctr. Munich); Krane, Markus (German Heart Ctr.); Knoll, Alois (Technical Univ. Munich)</i>	
09:30-11:00	WeP15.5
Modeling of Aquaporin-1 Mediated Transmural Water Transport and the Resulting Oncotic Paradox	1037-1040
<i>Joshi, Shripad* (City College of CUNY); Rumschitzki, David (City College of the City Univ. of New York)</i>	
09:30-11:00	WeP15.6
A Multiple-Input Multiple-Output System for Modeling the Cardiac Dynamics	1041-1044
<i>Monzon, Jorge E.* (Univ. Nacional del Nordeste); Alvarez Picaza, Carlos (Univ. Nacional del Nordeste); Pisarello, Maria Ines (Univ. Nacional del Nordeste)</i>	
<hr/>	
WeP16: 09:30-11:00	America Ballroom Westin
6.4.50 Sensory Neuroprostheses (Poster Session)	
09:30-11:00	WeP16.1
A PDA Platform for Offline Processing and Streaming of Stimuli for Cochlear Implant Research	1045-1048
<i>Ali, Hussnain* (Univ. of Texas at Dallas); Lobo, Arthur (Univ. of Texas at Dallas); Loizou, Philipos (Univ. of Texas at Dallas)</i>	
09:30-11:00	WeP16.2
Current Steering and Current Focusing with a High-Density Intracochlear Electrode Array	1049-1052
<i>Bhatti, Pamela* (Georgia Inst. of Tech.); Falcone, Jessica (Georgia Inst. of Tech.)</i>	
09:30-11:00	WeP16.3
Responses of Starburst Amacrine Cells to Prosthetic Stimulation of the Retina	1053-1056
<i>Tsai, David* (Univ. of New South Wales); Morley, John William (Univ. of Western Sydney); Suaning, Gregg (The Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales)</i>	
09:30-11:00	WeP16.4
Selective Co-Stimulation of Pudendal Afferents Enhances Reflex Bladder Activation	1057-1060
<i>McGee, Meredith* (Duke Univ.); Yoo, Paul (Duke Univ.); Grill, Warren (Duke Univ.)</i>	
09:30-11:00	WeP16.5
Vibrotactile Feedback Aids EMG Control of Object Manipulation	1061-1064
<i>Stepp, Cara* (Boston Univ.); Chang, Chelsey (Chih-Chi) (Univ. of Washington); Malhotra, Mark (Univ. of Washington); Matsuoka, Yoky (Univ. of Washington)</i>	
09:30-11:00	WeP16.6
Sensory Cortical Re-Mapping Following Upper-Limb Amputation and Subsequent Targeted Reinnervation: A Case Report	1065-1068
<i>Yao, Jun* (Northwestern Univ.); Carmona, Carolina (Northwestern Univ.); Chen, Albert (Northwestern Univ.); Kuiken, Todd (Rehabilitation Inst. of Chicago); Dewald, Julius P. A. (Northwestern Univ.)</i>	
09:30-11:00	WeP16.7
Optimizing Microstimulation Using a Reinforcement Learning Framework	1069-1072
<i>Brockmeier, Austin* (Univ. of Florida); Choi, John Stephen (SUNY Downstate Medical Ctr.); DiStasio, Marcello (SUNY Downstate Medical Ctr.); Francis, Joseph Thachil (SUNY Downstate Medical Ctr.); Principe, Jose (Univ. of Florida)</i>	

09:30-11:00	WeP16.8
3D Hybrid Electrode Structure As Implantable Interface for a Vestibular Neural Prosthesis in Humans .. 1073-1076	
<i>Hoffmann, Klaus-Peter* (Fraunhofer Institut); Poppendieck, Wigand (Fraunhofer Institut für Biomedizinische Technik); Tätzner, Simon (Fraunhofer IBMT); DiGiovanna, Jack (ETH Zurich); Kos, Izabel (ENT Dept., Geneva Univ. Hospital); Guinand, Nils (Univ. of Geneva); Guyot, Jean-Philippe (ENT Dept., Geneva Univ. Hospital); Micera, Silvestro (École Polytechnique Fédérale de Lausanne)</i>	
09:30-11:00	WeP16.9
High Frequency Electric Stimulation of Retinal Neurons Elicits Physiological Signaling Patterns 1077-1080	
<i>Fried, Shelley* (Massachusetts General Hospital/Harvard Medical School); Cai, Changsi (Shanghai Jiao-Tong Univ.); Ren, Qiushi (Shanghai Jiaotong Univ.)</i>	
09:30-11:00	WeP16.10
Physiological Response of Mouse Retinal Ganglion Cells to Electrical Stimulation: Effect of Soma Size 1081-1084	
<i>Cho, Alice* (Univ. of Southern California); Sampath, Alapakkam (Univ. of Southern California, Keck School of Medicine); Weiland, James (Univ. of Southern California)</i>	
09:30-11:00	WeP16.11
Laser-Micromachined, Chip-Scaled Ceramic Carriers for Implantable Neurostimulators 1085-1088	
<i>Guenther, Thomas* (The Univ. of New South Wales); Mintri, Apoorv (Univ. of New South Wales); Jung, Louis Hyunsuk (Univ. of New South Wales); Lehmann, Torsten (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales); Suaning, Gregg (The Univ. of New South Wales)</i>	
09:30-11:00	WeP16.12
Standard ERG Equipment Can Be Used to Monitor Functionality of Retinal Implants 1089-1092	
<i>Bosse, Brandon* (Univ. of New South Wales); Wilke, Robert (Univ. of New South Wales); Zrenner, Eberhart (Univ. of Tuebingen)</i>	
09:30-11:00	WeP16.13
Comparison of Basal Oscillatory Rhythm of Retinal Activities in Rd1 and Rd10 Mice 1093-1096	
<i>Goo, Yong Sook* (Chungbuk Nati Univ. School of Medicine); Ahn, Kun No (Chungbuk Natl. Univ.); Song, Yeong jun (Chungbuk Natl. Univ.); Ryu, Sangbaek (Yonsei Univ.); Kim, Kyung Hwan (Yonsei Univ.)</i>	
09:30-11:00	WeP16.14
Eye-Surface Conformable Telemetric Structure for Polymer-Based Retinal Prosthesis 1097-1100	
<i>Jeong, Joonsoo* (Seoul Natl. Univ.); Lee, Seung Woo (Seoul Natl. Univ.); Min, Kyou Sik (Seoul Natl. Univ.); Bae, So Hyun (Seoul Natl. Univ.); Kim, Sung June (Seoul Natl. Univ.)</i>	
09:30-11:00	WeP16.15
Multi-Command SSVEP-Based BCI System via Single Flickering Frequency Half-Field Stimulation Pattern 1101-1104	
<i>Punsawad, Yunyong* (Mahidol Univ.); Wongsawat, Y. (Mahidol Univ.)</i>	

WeP17: 09:30-11:00	America Ballroom Westin
9.3.13 Diagnostic Devices and Instrumentation (Poster Session)	

09:30-11:00	WeP17.1
New Variable Porosity Flow Diverter (VPOD) Stent Design for Treatment of Cerebrovascular Aneurysms 1105-1108	
<i>Suri, Himanshu* (Toshiba Stroke Research Ctr., Univ. at Buffalo); Ionita, Ciprian (SUNY at Buffalo); Rudin, Stephen (Univ. at Buffalo)</i>	
09:30-11:00	WeP17.2
Neural Network Based Classifier for Cardio Vascular Diseases Based on Vascular Aging 1109-1112	
<i>Krishnasamy Balasundaram, Jayanthi* (K.S. Rangasamy College of Tech.); RSD, Wahida Banu (Government College of Eng., Salem)</i>	

09:30-11:00 WeP17.3
Surface EMG and Heartbeat Analysis Preliminary Results in Surgical Training: Dry Boxes and Live Tissue 1113-1116
Bartolomeo, Luca (Waseda Univ.); Lin, Zhuohua (Waseda Univ.); Zecca, Massimiliano (Waseda Univ.); Sessa, Salvatore (Waseda Univ.); Ishii, Hiroyuki (Waseda Univ.); Uemura, Munenori (Kyushu Univ.); Xu, Hao (Kyushu Univ.); Tomikawa, Morimasa (Kyushu Univ. Hospital); Hashizume, Makoto (Kyushu Univ.); Takanishi, Atsuo (Waseda Univ.)*

09:30-11:00 WeP17.4
Progress on Multimodal Molecular / Anatomical Intravascular Imaging of Coronary Vessels Combining Near Infrared Fluorescence and Ultrasound 1117-1120
Mallas, Georgios (Northeastern Univ. & Massachusetts General Hospital, Boston, MA); Rosenthal, Amir (Technical Univ. of Munich); Calfon, Marcella (Massachusetts General Hospital); Razansky, Nika (Technical Univ. of Munich); Mauskopf, Adam (Massachusetts General Hospital); Jaffer, Farouc Amin (Massachusetts General Hospital/Harvard Medical School); Brooks, Dana (Northeastern Univ.); Ntziachristos, Vasilis (Harvard Univ. HMS/MGH)*

WeP18: 09:30-11:00 America Ballroom Westin
9.8.14 Gait and Rehabilitation (Poster Session)

09:30-11:00 WeP18.1
Haptic Interface Protocol for FEM-Based Deformable Model and Effects on Fineness of Force Feedback and Perceived Hardness 1121-1124
Kuroda, Yoshihiro (Osaka Univ.); Okumura, Yosuke (Osaka Univ.); Kamada, Kyouzuke (Asahikawa Medical Univ.); Imura, Masataka (Osaka Univ.); Oshiro, Osamu (Osaka Univ.)*

09:30-11:00 WeP18.2
Estimation of Traversed Distance in Level Walking Using a Single Inertial Measurement Unit Attached to the Waist 1125-1128
Kose, Alper (Univ. of Sassari); Cereatti, Andrea (Univ. of Sassari); Della Croce, Ugo (Univ. of Sassari)*

09:30-11:00 WeP18.3
A Method for Selecting an Efficient Diagnostic Protocol for Classification of Perceptive and Cognitive Impairments in Neurological Patients 1129-1132
Rana, Kunjan (Boston Univ.); Caldwell, Benvy (School of Public Health, Boston Univ.); Vaina, Lucia (Brain & Vision Research Lab, Boston Univ. Dept. of Biomedical Eng., Boston, MA & Harvard Medical School, Ma)*

09:30-11:00 WeP18.4
Animal Assisted Therapy for Persons with Disabilities Based on Canine Tail Language Interpretation via Fuzzy Emotional Behavior Model 1133-1136
Phanwanich, Warangkhan (Mahidol Univ.); Kumdee, Orrawan (Mahidol Univ.); Ritthipravat, Panrasee (Mahidol Univ.); Wongsawat, Y. (Mahidol Univ.)*

09:30-11:00 WeP18.5
Assessment and Follow-Up of Muscle Injuries in Athletes by Bioimpedance: Preliminary Results 1137-1140
Nescolarde, Lexa (Technical Univ. of Catalonia (UPC)); Yanguas, Xavier (Medical Service, Futbol Club Barcelona); Medina, Daniel (Medical Service, Futbol Club Barcelona); Rodas, Gil (Medical Service, Futbol Club Barcelona); Rosell-Ferrer, Javier (Technical Univ. of Catalonia)*

09:30-11:00 WeP18.6
Magnetic Stimulation for Fracture Consolidation – Clinical Study 1141-1144
Moncada, Maria Elena (Instituto Tecnológico Metropolitano); Martinez, Alfredo (Univ. del Valle); Sarmiento, Consuelo (Fundación Clínica Valle del Lili)*

WeP19: 09:30-11:00 America Ballroom Westin
9.9.11 Neural Stimulation (Poster Session)

09:30-11:00 WeP19.1
Neural Adaptation and Perceptual Learning Using a Portable Real-Time Cochlear Implant Simulator in Natural Environments 1145-1148
Smalt, Christopher (Purdue Univ.); Talavage, Thomas (Purdue Univ.); Pisoni, David (Indiana Univ.); Svirsky, Mario (NYU School of Medicine)*

09:30-11:00	WeP19.2
High Frequency Oscillations Evoked by Peripheral Magnetic Stimulation	1149-1152
<i>Biller, Sebastian* (Ilmenau Univ. of Tech.); Simon, Lea (Ilmenau Univ. of Tech.); Fiedler, Patrique (Ilmenau Univ. of Tech., Inst. of Biomedical Eng. & Informatics); Strohmeier, Daniel (Ilmenau Univ. of Tech., Inst. of Biomedical Eng. & Informatics); Haueisen, Jens (Technical Univ. Ilmenau)</i>	
09:30-11:00	WeP19.3
Nerve Block Using a Navigation System and Ultrasound Imaging for Regional Anesthesia	1153-1156
<i>Shi, Jiayi* (Technical Univ. Munich); Schwaiger, Johannes (Technical Univ. of Munich); Lueth, Tim (Technical Univ. of Munich)</i>	
09:30-11:00	WeP19.4
Methods for Assessment of Effects of Habitual Exercise on the Autonomic Nervous Function Using Plethysmogram	1157-1160
<i>Yoshizawa, Makoto* (Tohoku Univ.); Yambe, Tomoyuki (Tohoku Univ.); Sugita, Norihiro (Tohoku Univ.); Sugai, Telma Keiko (Tohoku Univ.); Abe, Makoto (Tohoku Univ.)</i>	

WeP110: 09:30-11:00	America Ballroom Westin
10.1.2 Advances in Personal, Pervasive, Preventive, and Participatory Health Systems (Poster Session)	

09:30-11:00	WeP110.1
ISO/IEEE 11073 PHD Message Generation Toolkit to Standardize Healthcare Device	1161-1164
<i>Lim, Joon-Ho (Elec. & Telecom Research Inst.); Park, Chan-Yong (Elec. & Telecommunications Research Inst.); Park, Soo-Jun (Elec. & Telecomm Research Inst); Lee, Kyu-Chul* (Chungnam Natl. Univ.)</i>	
09:30-11:00	WeP110.2
An Automated Medication Adherence Tool	1165-1168
<i>Maulucci, Ruth* (MOCO, inc.); Somerville, Daniel (MOCO)</i>	
09:30-11:00	WeP110.3
A User Centered Design Approach for Patient Interfaces to a Diabetes IT Platform	1169-1172
<i>Fico, Giuseppe* (Technical Univ. of Madrid); Fioravanti, Alessio (Technical Univ. of Madrid); Arredondo, María Teresa (Technical Univ. of Madrid); Leuteritz, Jan-Paul (Univ. Stuttgart IAT); Guillen, Alejandra (Medtronic Spain); Duarte, Fernandez (Medtronic, Madrid, Spain)</i>	
09:30-11:00	WeP110.4
A Chair-Type Interface for Long-Term and Ambient Vital Sensing	1173-1176
<i>Shimokakimoto, Tomoya* (Univ. of Tsukuba); Suzuki, Kenji (Univ. of Tsukuba)</i>	
09:30-11:00	WeP110.5
Rapid Trend Detection for an Ambulatory Monitoring System	1177-1180
<i>Fu, Yongji* (Becton Dickinson Technologies)</i>	
09:30-11:00	WeP110.6
Iheartlift: A Closed Loop System with Bio-Feedback That Uses Music Tempo Variability to Improve Heart Rate Variability	1181-1184
<i>Ho, Thomas Chee Tat (Inst. for Infocomm Research); Chen, Xiang* (Inst. for Infocomm Research)</i>	

WeP111: 09:30-11:00	America Ballroom Westin
10.1.10 Clinical Engineering and Laboratory Measurements (Poster Session)	

09:30-11:00	WeP111.1
Improving the Drug Dispensing Process at the National Institute of Respiratory Diseases by Applying the Six Sigma Methodology	1185-1188
<i>Pimentel-Aguilar, Ana Bertha* (INER: Instituto Nacional de Enfermedades Respiratorias); Aguilar Adaya, Mariana Karen (Univ. Autonoma Metropolitana); Sanchez Castillo, Eric Ianmael (Univ. Autónoma Metropolitana); Ortiz-Posadas, Martha R. (Univ. Autónoma Metropolitana)</i>	

- 09:30-11:00 WeP111.2
A Novel Mainstream Capnometer System for Non-Intubated Pediatric Patients Requiring Oxygen Administration **1189-1192**
Takatori, Fumihiko (Nihon Kohden Corp.); Yamamori, Shinji (Nihon Kohden Corp.); Inoue, Masayuki (Nihon Kohden Corp.); Abe, Seiki (Nagano Children's Hospital); Miyasaka, Katsuyuki (St. Luke's College of Nursing)*
- 09:30-11:00 WeP111.3
DigiScope – Unobtrusive Collection and Annotating of Auscultations in Real Hospital Environments **1193-1196**
Pereira, Daniel (Faculty of Medicine, Univ. of Porto); Hedayioglu, Fabio (Instituto de Telecomunicações); Correia, Ricardo (Health Information & Decision Sciences Dept. (CIDES) & the Ctr. for Research in Health Technologies & Information S); Silva, Tiago (Instituto de Engenharia de Sistemas e Computadores – Porto (INESC-Porto) & the Ctr. for Research in Advanced Computing System); Dutra, Inês (Instituto de Engenharia de Sistemas e Computadores – Porto (INESC-Porto) & the Ctr. for Research in Advanced Computing System); Almeida, Filipa (Health Information & Decision Sciences Dept. (CIDES) & the Ctr. for Research in Health Technologies & Information S); Mattos, Sandra (UCMF – Unidade de Cardiologia e Medicina Fetal); Coimbra, Miguel (Instituto de Telecomunicações/Univ. do Porto)*
- 09:30-11:00 WeP111.4
An Alignment Procedure for Ambulatory Measurements of Lower Limb Kinematic Using Magneto-Inertial Sensors **1197-1200**
Taffoni, Fabrizio (Campus Bio-Medico Univ.); Piervigili, Gianluca (Univ. Campus Bio-Medico di Roma); Formica, Domenico (Campus Bio-Medico Univ.); Guglielmelli, Eugenio (Campus Bio-Medico Univ.)*
- 09:30-11:00 WeP111.5
Respiratory Rate Estimation Using Respiratory Sinus Arrhythmia from Photoplethysmography **1201-1204**
Karlen, Walter (UBC); Brouse, Christopher (Univ. of British Columbia); Cooke, Erin (British Columbia's Children's Hospital); Ansermino, J. Mark (British Columbia's Children's Hospital); Dumont, Guy (Univ. of British Columbia)*
- 09:30-11:00 WeP111.6
Gas Prewarming for Improving Performances of Heated Humidifiers in Neonatal Ventilation **1205-1208**
Schena, Emiliano (Univ. of Rome Campus Bio-Medico); De Paolis, Elvira (Univ. Campus Bio-Medico of Rome); Silvestri, Sergio (Univ. Campus Bio-Medico)*
- 09:30-11:00 WeP111.7
A Multi Agent System Model for Evaluating Quality Service of Clinical Engineering Department **1209-1212**
Gaetano, Laura (Politecnico di Torino); Balestra, Gabriella (Politecnico di Torino)*
- 09:30-11:00 WeP111.8
A Methodology to Guarantee Technology Continuity in Health Structures **1213-1216**
Miniati, Roberto (Univ. di Firenze); Dori, Fabrizio (Univ. di Firenze); Iadanza, Ernesto (Univ. degli Studi di Firenze); Scatizzi, Lapo (Univ. of Florence); Niccolini, Fabrizio (AOU Careggi – Univ. Florence Hospital); Sarti, Alessandro (AOU Careggi – Univ. Florence Hospital)*
- 09:30-11:00 WeP111.9
In-Vivo Performance Evaluation of the Innovamedica Pneumatic Ventricular Assist Device **1217-1220**
Sacristan, Emilio (Univ. Autónoma Metropolitana); Tuzun, Egemen (Texas A&M); Winkler, Jo Anna (Texas Heart Inst.); Contreras, Ana L. (UAM-Iztapalapa); Cohn, William E. (Texas Heart Inst.)*
- 09:30-11:00 WeP111.10
Intensive Care Unit Availability Indexed to Patient Complexity **1221-1224**
Pino, Esteban J (Univ. de Concepcion); Pereira, Rodrigo Andres (Clinica Univ. Concepcion)*
- 09:30-11:00 WeP111.11
Biphasic Transdermal Iontophoretic Drug Delivery Platform **1225-1228**
McLaughlin, Glen (InCube Labs); Arastu, Huma (InCube Labs); Harris, Joel (InCube Labs); Hashim, Mir (InCube Labs); Korupolu, Radhika (InCube Labs); Mangogna, Andrew (InCube Labs); Patel, Sanjay (InCube Labs); Ong, Chang (InCube Labs); Vaidyanathan, Rekha (InCube Labs); Wang, Lu (InCube Labs); Williams, Timothy (InCube Labs); Imran, Mir (InCube Labs)*

- 09:30-11:00 WeP111.12
NIRS Study of Cerebral Oxygenation and Hemodynamics in Neonate at Birth 1229-1232
Hou, Xinlin (First Hospital of Peking Univ.); Ding, Haiyan (Tsinghua Univ.); Zhou, Congle (Peking Univ. First Hospital); Teng, Yichao (School of Medicine, Tsinghua Univ.); Zhang, Dandan (Beijing Normal Univ.)*
- 09:30-11:00 WeP111.13
Design and Accuracy Evaluation of a New Navigated Drill System for Computer Assisted ENT-Surgery ... 1233-1236
Wenger, Thomas (Technical Univ. Munich & ERGOSURG GmbH); Nowatschin, Stephan (Technical Univ. Munich); Wittmann, Wolfgang (Technical Univ. Munich & ERGOSURG GmbH); Hurka, Florian (Technical Univ. Munich & ERGOSURG GmbH); Strauss, Gero (Univ. of Leipzig); Lueth, Tim (Technical Univ. of Munich)*
- 09:30-11:00 WeP111.14
Official Measurement Protocol and Accuracy Results for an Optical Surgical Navigation System (NPU) 1237-1240
Wittmann, Wolfgang (Technical Univ. Munich & ERGOSURG GmbH); Wenger, Thomas (Technical Univ. Munich & ERGOSURG GmbH); Loewe, Erik (Technical Univ. Munich & ERGOSURG GmbH); Lueth, Tim (Technical Univ. of Munich)*
- 09:30-11:00 WeP111.15
New Approach for Quantitative Measurement of Ultrasonic Cavitation Yields 1241-1244
Noh, Si Cheol (Intl. Univ. of Korea); Kim, Ju Young (Inje Univ.); Kim, Jin Su (Inje Univ.); Kang, Jung Hun (Inje Univ.); Min, Hong Ki (Univ. of Incheon); Choi, Heung Ho (Inje Univ.)*
- 09:30-11:00 WeP111.16
Influence of Ventilatory Settings on Indirect Calorimetry in Mechanically Ventilated Patients 1245-1248
Cecchini, Stefano (Univ. Campus Bio-Medico of Rome); Schena, Emiliano (Univ. of Rome Campus Bio-Medico); Cuttone, Rosaria (Univ. Campus Bio-Medico of Rome); Carassiti, Massimiliano (Univ. Campus Bio-Medico of Rome); Silvestri, Sergio (Univ. Campus Bio-Medico)*

WeB01: 11:15-12:45	St. George AB Westin
8.3.1 Assistive and Cognitive Robotics in Rehabilitation (Oral Session)	
Chair: Fujie, Masakatsu G. (Waseda Univ.)	
Co-Chair: Masia, Lorenzo (Istituto Italiano Di Tecnologia)	

- 11:15-11:30 WeB01.1
A Conceptual Cognitive Architecture for Robots to Learn Behaviors from Demonstrations in Robotic Aid Area 1249-1252
Tan, Huan (Vanderbilt Univ.)*
- 11:30-11:45 WeB01.2
Algorithm for Selecting Appropriate Transfer Support Equipment Based on the Physical Ability of the User 1253-1258
Matsushita, Shiho (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*
- 11:45-12:00 WeB01.3
Trajectory Planning of a Robot for Lower Limb Rehabilitation 1259-1263
Obinata, Goro (Nagoya Univ.); Pei, Yanling (Nagoya Univ.); Stefanov, Dimitar (Coventry Univ.); Kim, Youngwoo (Nagoya Univ.)*
- 12:00-12:15 WeB01.4
Direct Interaction with an Assistive Robot for Individuals with Chronic Stroke 1264-1267
Markham, Heather (Univ. of Pittsburgh); Kmetz, Brandon (Rose-Hulman Univ.); Brewer, Bambi (Univ. of Pittsburgh)*
- 12:15-12:30 WeB01.5
Improving the ROM of Wrist Movements in Stroke Patients by Means of a Haptic Wrist Robot 1268-1271
Squeri, Valentina (Istituto Italiano di Tecnologia); Masia, Lorenzo (Istituto Italiano Di Tecnologia); Taverna, Laura (Italian Inst. of Tech.); Morasso, Pietro (Univ. of Genova)*
- 12:30-12:45 WeB01.6
Thoracic ROM Measurement System with Visual Bio-Feedback: System Design and Biofeedback Evaluation 1272-1274
Ando, Takeshi (Waseda Univ.); Kawamura, Kazuya (Waseda Univ.); Fujitani, Junko (Natl. Ctr. for Global Health & Medicine); Fujie, Masakatsu G. (Waseda Univ.)*

WeB02: 11:15-12:45

St. George CD Westin

8.3.2 Biomechanics and Rehabilitation: Sports and Clinical Evaluation (Oral Session)

Chair: Della Croce, Ugo (*Univ. of Sassari*)

Co-Chair: Erickson, Jon (*Washington & Lee Univ.*)

11:15-11:30

WeB02.1

Generation of Complex Motor Patterns in American Grasshopper via

Current-Controlled Thoracic Electrical Interfacing 1275-1278

Giampalmo, Susan (Washington & Lee Univ.); Absher, Benjamin (Washington & Lee Univ.); Bourne, W. Tucker (Washington & Lee Univ.); Steves, Lida (Washington & Lee Univ.); Vodenski, Vassil (Washington & Lee Univ.); O'Donnell, Peter (Washington & Lee Univ.); Erickson, Jon (Washington & Lee Univ.)*

11:30-11:45

WeB02.2

Time-Frequency Analysis of Human Motion During Rhythmic Exercises 1279-1282

Vyas, Khushi (Indian Inst. of Science); H N, Vikranth (Indian Inst. of Science); S N, Omkar (Indian Inst. of Science)*

11:45-12:00

WeB02.3

Throwing Darts Utilizes the Interaction Torque of the Elbow Joint 1283-1286

Tamei, Tomoya (Nara Inst. of Science & Tech.); Obayashi, Chihiro (Nara Inst. of Science & Tech.); Shibata, Tomohiro (Nara Inst. of Science & Tech.)*

12:00-12:15

WeB02.4

Arm Motion Analysis of Stroke Patients in Activities of Daily Living Tasks: A Preliminary Study 1287-1291

Kim, Kyung (Natl. Rehabilitation Ctr.); Park, Dae-Sung (Natl. Rehabilitation Ctr.); Ko, Byung-Woo (Natl. Rehabilitation Ctr.); Lee, Jeongsu (Natl. Rehabilitation Ctr.); Yang, Seung-Nam (Natl. Rehabilitation Ctr.); Kim, Jongbae (Natl. Rehabilitation Ctr.); Song, Won-Kyung (Natl. Rehabilitation Ctr.)*

12:15-12:30

WeB02.5

Accuracy and Repeatability of Parameter Estimation Methods from

Ambulatory Data for the Wrist Joint 1292-1296

Esmaeili Malekabadi, Mohammad (Nanyang Technological Univ.); Moussouni, Sarah (Nanyang Technological Univ.); Wijaja, Ferdinan (Nanyang Technological Univ.); Kumudu Chalaka Gamage, Welihena (Nanyang Technological Univ.); Campolo, Domenico (Nanyang Technological Univ.)*

12:30-12:45

WeB02.6

A Motor-Control Training Method for Smoothness and Timing of Voluntary Arm

Movements in a Virtual Tennis Task B#

Tanaka, Yoshiyuki (Hiroshima Univ.); Inoue, Haruhito (Hiroshima Univ.); Tsuji, Toshio (Hiroshima Univ.); Imamura, Nobuaki (Hiroshima Kokusai Univ.)*

WeB03: 11:15-12:45

Essex Ballroom South Westin

6.2.4 Futures in Brain-Machine Interfaces (Minisymposium)

Chair: Carmena, Jose M. (*Univ. of California, Berkeley*)

Co-Chair: Sanchez, Justin C. (*Univ. of Miami*)

11:15-11:30

WeB03.1

Monkey Models for Brain-Machine Interfaces: The Need for Maintaining Diversity 1301-1305

Nuyujukian, Paul (Stanford Univ.); Fan, Joline M. (Stanford Univ.); Gilja, Vikash (Stanford Univ.); Kalanithi, Paul (Stanford Univ.); Chestek, Cynthia (Stanford Univ.); Shenoy, Krishna V. (Stanford Univ.)*

11:30-11:45

WeB03.2

BrainGate Pilot Clinical Trials: Progress in Translating Neural Engineering Principles to Clinical Testing *

Hochberg, Leigh (VA/Brown U./MGH/Harvard Med. School); Simeral, John (Brown Univ.); Aceros, Juan (Brown Univ.); Black, Michael J. (Brown Univ.); Bacher, Daniel (Brown Univ.); Berhanu, Etsub (Massachusetts General Hospital); Borton, David (Brown Univ.); Cash, Sydney (Massachusetts General Hospital); Feldman, Jessica (Brown Univ.); Gallivan, Erin (Massachusetts General Hospital); Homer, Mark (Brown Univ.); Jarosiewicz, Beata (Brown Univ.); King, Brandon (Brown Univ.); Liu, Jie (Brown Univ.); Malik, Wasim Q. (Massachusetts Inst. of Tech.); Masse, Nicolas (Brown Univ.); Patterson, William (Brown Univ.); Perge, János (Brown Univ.); Rosler, David (Providence VA Medical Ctr.); Schmansky, Nicholas (Massachusetts General Hospital); Truccolo, Wilson (Brown Univ.); Yin, Ming (Brown Univ.); Nurmikko, Arto (Brown Univ.); Donoghue, John, (Brown Univ.)*

11:45-12:00 WeB03.3
Brain-Machine Interfaces in Activities of Daily Living: Innovating a New Roadmap for Experimentation *
Mahmoudi, Babak (Univ. of Miami); Pohlmeier, Eric (Univ. of Miami); Prasad, Abhishek (Univ. of Miami); Sanchez, Justin C. (Univ. of Miami)*

12:00-12:15 WeB03.4
Learning Mechanisms Underlying Neuroprosthetic Control *
Ganguly, Karunesh (Univ. of California, San Francisco); Orsborn, Amy (Univ. of California Berkeley); Koralek, Aaron (UC Berkeley); Long, John D. (Univ. of California, Berkeley); Dangi, Siddharth (Univ. of California, Berkeley); Schulman, John (UC Berkeley); Gowda, Suraj (EECS, Univ. of California, Berkeley); Moorman, Helene (UC Berkeley); Carmena, Jose M. (Univ. of California, Berkeley)*

WeB05: 11:15-12:45 Essex Ballroom North Westin
6.4.14 Restoring or Augmenting Impaired Sensory Function for Posture and Gait I (Oral Session)
Chair: Sienko, Kathleen H. (*Univ. of Michigan*)
Co-Chair: Loughlin, Patrick (*Univ. of Pittsburgh*)

11:15-11:30 WeB05.1
A Balance Control Model Predicts How Vestibular Loss Subjects Benefit from a Vibrotactile Balance Prosthesis 1306-1309
Goodworth, Adam (Univ. of Hartford); Wall, Conrad (Harvard Medical School); Peterka, Robert (Oregon Health & Science Univ.)*

11:30-11:45 WeB05.2
Designing Vibrotactile Balance Feedback for Desired Body Sway Reductions 1310-1313
Loughlin, Patrick (Univ. of Pittsburgh); Mahboobin, Arash (Univ. of Pittsburgh); Furman, Joseph (Univ. of Pittsburgh Medical Ctr.)*

11:45-12:00 WeB05.3
Improving Impaired Balance Function: Real-Time versus Carry-Over Effects of Prosthetic Feedback 1314-1318
Allum, John HJ (Basel Univ.); Carpenter, Mark (School of Human Kinetics, The Univ. of British Columbia); Horslen, Brian (School of Human Kinetics, The Univ. of British Columbia); Davis, Justin (School of Human Kinetics, The Univ. of British Columbia.); Honegger, Flurin (Dept of ORL, Univ. Hospital Basel); Tang, Kok-Sing (Dept of ORL, Univ. Hospital Basel); Kessler, Paul (Dept of ORL, Buerger Hospital Solothurn)*

12:00-12:15 WeB05.4
An Integrated Vestibular-Cochlear Prosthesis for Restoring Balance and Hearing 1319-1322
Lu, Thomas (Univ. of California); Djalilian, Hamid (Univ. of California); Zeng, Fan -Gang (Univ. of California, Irvine); Chen, Hongbin (Nurotron BioTech.); Sun, Xiaoan (Nurotron BioTech.)*

12:15-12:30 WeB05.5
Can an Electro-Tactile Vestibular Substitution System Improve Balance in Patients with Unilateral Vestibular Loss under Altered Somatosensory Conditions from the Foot and Ankle? 1323-1326
Vuillerme, Nicolas (FRE 3405, AGIM (AGeInG Imaging Modeling), CNRS-UJF-EPHE, Grenoble, France); Hlavackova, Petra (AGIM Lab., CNRS-UJF-EPHE); Franco, Céline (UJF-Grenoble 1/CNRS/TIMC-IMAG UMR 5525 & FRE 3405 AGIM (AGeInG Imaging Modeling), CNRS-UJF-EPHE); Diot, Bruno (IDS SA); Demongeot, Jacques (Laboratoire TIMC-IMAG); Payan, Yohan (Laboratoire TIMC-IMAG)*

12:30-12:45 WeB05.6
Development and Validation of a Clinic Based Balance Assessment Technology 1327-1330
Walsh, Lorcan (Natl. Univ. of Ireland Maynooth); Greene, Barry R. (Intel); McGrath, Denise (Univ. College Dublin); Burns, Adrian (Intel); Caulfield, Brian (UCD)*

WeB07: 11:15-12:45 Berkeley Marriott
12.1.3 Student Paper Competition III (Oral Session)
Chair: Ding, Lei (*Univ. of Oklahoma*)
Co-Chair: Yan, Renfei (*Pennsylvania State Univ.*)

11:15-11:30 WeB07.1
Automated Unsupervised Respiratory Event Analysis *
Robles-Rubio, Carlos Alejandro (McGill Univ.); Brown, Karen (McGill Univ.); Kearney, Robert Edward (McGill Univ.)*

11:30-11:45	WeB07.2
Instrumentation to Record Evoked Potentials for Closed-Loop Control of Deep Brain Stimulation	*
<i>Kent, Alexander* (Duke Univ.); Grill, Warren (Duke Univ.)</i>	
11:45-12:00	WeB07.3
Robustness of the P-U and LnD-U Loop Wave Speed Estimation Methods: Effects of the Diastolic Pressure Decay and Vessel Wall Non-Linearities	*
<i>Mynard, Jonathan* (Murdoch Children's Research Inst.); Davidson, Malcolm R. (Dept. of Chemical & Biomolecular Eng., Univ. of Melbourne); Penny, Daniel (Murdoch Children's Research Inst.); Smolich, Joseph (Murdoch Children's Research Inst.)</i>	
12:00-12:15	WeB07.4
A Prototype 64-Electrode Stimulator in 65 nm CMOS Process towards a High Density Epi-Retinal Prosthesis	*
<i>Tran, Nhan* (Univ. of Melbourne); Skafidas, Stan (NICTA Victoria Research Lab); Yang, Jiawei (Univ. of Melbourne); Bai, Shun (Univ. of Melbourne); Fu, Meng (Univ. of Melbourne); Ng, David (NICTA Victoria Research Lab); Halpern, Mark E (NICTA Victoria Res. Lab.); Mareels, Iven (Melbourne Univ., Australia)</i>	
12:15-12:30	WeB07.5
On-Chip Incubation System for Long-Term Microfluidic Cell Culture	*
<i>Takano, Atsushi* (Frontier R&D Ctr., Tokyo Denki Univ.); Ogawa, Tomohisa (Tokyo Denki Univ.); Tanaka, Masato (Tokyo Denki Univ.); Futai, Nobuyuki (Tokyo Denki Univ.)</i>	

WeB11: 11:15-12:45	Wellesley Marriott
5.1.17 Mechanical Devices (Oral Session)	
Chair: Timms, Daniel Lee (<i>Bivacor Pty Ltd</i>)	
Co-Chair: Miura, Hidekazu (<i>Tohoku Univ.</i>)	

11:15-11:30	WeB11.1
Improvement of Hemocompatibility for Hydrodynamic Levitation Centrifugal Pump by Optimizing Step Bearings	1331-1334
<i>Kosaka, Ryo* (AIST); Yada, Toru (Graduate School of Tokyo Univ. of Science); Nishida, Masahiro (Natl. Inst. of Advanced Industrial Science & Tech. (AIST)); Maruyama, Osamu (Natl. Inst. of Advanced Industrial Science & Tech. (AIST)); Yamane, Takashi (Natl. Inst. of Advanced Industrial Science & Tech. (AIST))</i>	
11:30-11:45	WeB11.2
Frank-Starling Control of a Left Ventricular Assist Device	1335-1338
<i>Stevens, Michael Charles* (Univ. of Queensland); Gaddum, Nicholas Richard (Critical Care Research Group); Percy, Mark (Queensland Univ. of Tech.); Salamonsen, Robert F (Alfred Hospital); Timms, Daniel Lee (Bivacor Pty Ltd); Mason, David Glen (Univ. of Queensland); Fraser, John F. (Prince Charles Hospital, Brisbane, Queensland)</i>	
11:45-12:00	WeB11.3
The Aortic Valve Dynamics Role in the Recovery Treatments of Patients with Left Ventricular Assist Devices	1339-1342
<i>Faragallah, George* (Univ. of Central Florida); Wang, Yu (Univ. of Central Florida); Divo, Eduardo (Daytona State College); Simaan, Marwan (Univ. of Central Florida)</i>	
12:00-12:15	WeB11.4
Noninvasive Miniaturized Mass-Flow Meter Using a Curved Cannula for Implantable Axial Flow Blood Pump	1343-1346
<i>Kosaka, Ryo* (AIST); Nishida, Masahiro (Natl. Inst. of Advanced Industrial Science & Tech. (AIST)); Maruyama, Osamu (Natl. Inst. of Advanced Industrial Science & Tech. (AIST)); Yamane, Takashi (Natl. Inst. of Advanced Industrial Science & Tech. (AIST))</i>	
12:15-12:30	WeB11.5
A New Index Measured by Cardiovascular Magnetic Resonance Imaging to Detect Mechanical Heart Valve Malfunction	1347-1350
<i>Garcia, Julio* (Laval Univ.); Marrufo, Oscar (Univ. Autonoma Metropolitana); Rodriguez, Alfredo O (UAM, Iztapalapa); Pibarot, Philippe (Laval Univ.); Kadem, Lyes (Concordia Univ.)</i>	

12:30-12:45 WeB11.6
Development of a Total Artificial Heart Using Centrifugal Rotary Blood Pump 1351-1354
Miura, Hidekazu (Tohoku Univ.)*

WeB13: 11:15-12:45 Arlington Marriott
4.5.6 Parameter Estimation and Inverse Problems in Biology (Oral Session)
Chair: Marmarelis, Vasilis (*Univ. of Southern California*)
Co-Chair: Taberner, Andrew (*The Univ. of Auckland*)

11:15-11:30 WeB13.1
Reconstruction of Multiple Gastric Electrical Wave Fronts Using Potential Based Inverse Methods 1355-1358
Kim, Juliana (Univ. of Auckland); Pullan, Andrew (Univ. of Auckland); Cheng, Leo (The Univ. of Auckland)*

11:30-11:45 WeB13.2
Permittivity Estimation for Breast Cancer Detection Using Particle Swarm Optimization Algorithm 1359-1362
Modiri, Arezoo (Univ. of Texas at Dallas); Kiasaleh, Kamran (Univ. of Texas at Dallas)*

11:45-12:00 WeB13.3
Comparison of System Identification Techniques in the Analysis of a Phantom for Studying Shaken-Baby Syndrome 1363-1366
Lintern, Thomas Oliver (The Univ. of Auckland); Finch, Mark Christopher (The Univ. of Auckland); Taberner, Andrew (The Univ. of Auckland); Nielsen, Poul (The Univ. of Auckland); Nash, Martyn (Univ. of Auckland)*

12:00-12:15 WeB13.4
Inverse Modeling for Heat Conduction Problem in Human Abdominal Phantom 1367-1370
Huang, Ming (Univ. of Aizu); Chen, Wenxi (Univ. of Aizu)*

12:15-12:30 WeB13.5
Estimating Parameters in Genetic Regulatory Networks with SUM Logic 1371-1374
Tian, LiPing (Beijing Wuzi Univ.); Liu, LiZhi (Univ. of Saskatchewan); Wu, Fang Xiang (Univ. of Saskatchewan)*

12:30-12:45 WeB13.6
Tissue-Based Optimization of a Sino-Atrial Node Disc Model 1375-1378
Al Abed, Amr (Univ. of New South Wales); Guo, Tianruo (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales); Dokos, Socrates (Univ. of New South Wales)*

WeB16: 11:15-12:45 Dartmouth Marriott
9.2.15 Extending the Benefits of Virtual Reality to Rehabilitation Through Technology and Methodology Combinations (Oral Session)
Chair: Keshner, Emily (*Temple Univ.*)
Co-Chair: Rikakis, Thanassis (*Arizona State Univ.*)

11:15-11:30 WeB16.1
Augmenting Sensory-Motor Conflict Promotes Adaptation of Postural Behaviors in a Virtual Environment 1379-1382
Keshner, Emily (Temple Univ.); Slaboda, Jill (Temple Univ.); Buddharaju, Ravi (Temple Univ.); Lanaria, Lois (Temple Univ.); Norman, Jeremy (Temple Univ.)*

11:30-11:45 WeB16.2
Incorporating Virtual Reality Graphics with Brain Imaging for Assessment of Sport-Related Concussions 1383-1386
Slobounov, Semyon (Penn State Univ.); Sebastianelli, Wayne (Penn State Univ.); Newell, Karl (Pennsylvania State Univ.)*

11:45-12:00 WeB16.3
Interactive Rehabilitation and Dynamical Analysis of Scalp EEG 1387-1390
Faith, Aaron (Arizona State Univ.); Chen, Yinpeng (Arizona State Univ.); Rikakis, Thanassis (Arizona State Univ.); Iasemidis, Leonidas (Arizona State Univ.)*

12:00-12:15 WeB16.4
Utilizing Media Arts Principles for Developing Effective Interactive Neurorehabilitation Systems 1391-1394
Rikakis, Thanassis (Arizona State Univ.)*

12:15-12:30 WeB16.5
Adaptive Strategy for Multi-User Robotic Rehabilitation Games 1395-1398
Caurin, Glauco (Univ. of Sao Paulo); Siqueira, Adriano (Univ. of São Paulo); Andrade, Kleber de Oliveira (Univ. de São Paulo); Joaquim, Ricardo Cezar (EESC – Univ. of São Paulo); Krebs, Hermano Igo (MIT)*

12:30-12:45 WeB16.6
A Computational Framework for Constructing Interactive Feedback for Assisting Motor Learning 1399-1402
Sundaram, Hari (Arizona State Univ.); Rikakis, Thanassis (Arizona State Univ.);
Chen, Yinpeng (Arizona State Univ.)*

WeB19: 11:15-12:45 Salons AB Marriott
1.5.15 Connectivity and Causality (Oral Session)
Chair: Principe, Jose (*Univ. of Florida*)
Co-Chair: Tong, Shanbao (*Shanghai Jiao Tong Univ.*)

11:15-11:30 WeB19.1
**Study of Neurovascular and Autonomic Response in a Divided Attention Test by
Means of EEG, ECG and NIRS Signals 1403-1406**
*Bari, Vlasta (Univ. of Milan, Milan, Italy); Calcagnile, Paola (Univ. del Salento, Istituto Italiano di Tecnologia);
Molteni, Erika (Politecnico di Milano); Re, Rebecca (Politecnico di Milano); Contini, Davide (Politecnico di
Milano); Spinelli, Lorenzo (IFN-CNR); Caffini, Matteo (Polytechnic Univ. of Milan); Torricelli, Alessandro
(Politecnico di Milano); Cubeddu, Rinaldo (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano);
Bianchi, Anna Maria* (Politecnico di Milano)*

11:30-11:45 WeB19.2
Robust EEG Preprocessing for Dependence-Based Condition Discrimination 1407-1410
Fadlallah, Bilal (Univ. of Florida); Seth, Sohan (Univ. of Florida); Keil, Andreas (Univ. of Florida);
Principe, Jose (Univ. of Florida)*

11:45-12:00 WeB19.3
Modeling Neuronal Source Dynamics and Interactions During Seizure 1411-1414
Mullen, Tim (Univ. of California, San Diego); Akalin Acar, Zeynep (Univ. of California San Diego);
Worrell, Gregory A. (Mayo Clinic); Makeig, Scott (Univ. of California San Diego)*

12:00-12:15 WeB19.4
**Cortical Networks for Rotational Uncertainty Effect in Mental Rotation Task by
Partial Directed Coherence Analysis of EEG 1415-1418**
*Yan, Jing (Dept. of Biomedical Eng., Shanghai Jiao Tong Univ., China); Guo, Xiaoli (Shanghai Jiao Tong Univ.);
Sun, Junfeng* (Shanghai Jiao Tong Univ.); Tong, Shanbao (Shanghai Jiao Tong Univ.)*

12:15-12:30 WeB19.5
**Graphic Patterns of Cortical Functional Connectivity of Depressed Patients on the
Basis of EEG Measurements 1419-1422**
*Sun, Yu (Loughborough Univ.); Hu, Sijung (Loughborough Univ.); Chambers, Jonathon A. (Cardiff Univ.);
Zhu, Yisheng (Shanghai Jiaotong Univ.); Tong, Shanbao* (Shanghai Jiao Tong Univ.)*

12:30-12:45 WeB19.6
Kalman Filter-Based Time-Varying Cortical Connectivity Analysis of Newborn EEG 1423-1426
Omidvarnia, Amir Hossein (Univ. of Queensland); Mesbah, Mostefa (Univ. of Queensland); Khlif, Mohamed
Salah (Univ. of Queensland); O'Toole, John (Univ. of Deusto); Colditz, Paul (Univ. of Queensland);
Boashash, Boualem (Univ. of Queensland)*

WeB20: 11:15-12:45 Salons CD Marriott
1.2.25 Signal Processing in Physiological Systems II (Oral Session)
Chair: Thakor, Nitish (*Johns Hopkins Univ.*)
Co-Chair: Tian, Jie (*Chinese Acad. of Sciences*)

11:15-11:30 WeB20.1
**A Two-Stage Cascade Nonlinear Dynamical Model of Single Neurons for the Separation and
Quantification of Pre and Post-Synaptic Mechanisms of Synaptic Transmission 1427-1430**
Lu, Ude (Univ. of Southern California); Roach, Shane (Univ. of Southern California); Song, Dong (Univ. of
Southern California); Berger, Theodore (Univ. of Southern California)*

- 11:30-11:45 WeB20.2
A State-Space Model of the Burst Suppression Ratio 1431-1434
Chemali, Jessica Jean (Massachusetts General Hospital); Wong, Kin Foon Kevin (Massachusetts General Hospital); Solt, Ken (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT)*
- 11:45-12:00 WeB20.3
A Bayesian Framework for Analyzing iEEG Data from a Rat Model of Epilepsy 1435-1438
Santaniello, Sabato (Johns Hopkins Univ.); Sherman, David (Infinite Biomedical Technologies); Mirski, Marek (Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.); Sarma, Sridevi V. (Johns Hopkins Univ.)*
- 12:00-12:15 WeB20.4
Assessing the Impact of Signal Normalization: Preliminary Results on Epileptic Seizure Detection 1439-1442
Logesparan, Lojini (Imperial College London); Casson, Alexander James (Imperial College London); Rodriguez-Villegas, Esther (Imperial College London)*
- 12:15-12:30 WeB20.5
An Algorithm for Detecting Seizure Termination in Scalp EEG 1443-1446
Shoeb, Ali (Massachusetts Inst. of Tech.); Kharbouch, Alaa (MIT); Soegaard, Jacqueline (MIT); Guttag, John (MIT)*
- 12:30-12:45 WeB20.6
Online EEG Channel Weighting for Detection of Seizures in the Neonate 1447-1450
Temko, Andriy (Univ. College Cork); Lightbody, Gordon (Univ. College Cork); Boylan, Geraldine (Univ. College Cork); Marnane, Liam (Univ. College Cork)*

WeB21: 11:15-12:45 1.3.32 Nonlinear Analysis of Biomedical Signals I (Oral Session) Chair: Lake, Douglas E. (<i>Univ. of Virginia</i>) Co-Chair: Schneider, Uwe (<i>FSU Jena</i>)	Salon E Marriott
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- 11:15-11:30 WeB21.1
Multi-Scale Characteristics of Resampled Fetal Heart Rate Pattern Provide Novel Fetal Developmental Indices 1451-1454
Hoyer, Dirk (Jena Univ. Hospital); Nowack, Samuel (Biomagnetic Ctr., Friedrich Schiller Univ., Jena, Germany); Schneider, Uwe (FSU Jena)*
- 11:30-11:45 WeB21.2
Phase Plane Based Identification of Fetal Heart Rate Patterns 1455-1458
Govindan, Rathinaswamy (UAMS); Vairavan, Srinivasan (Univ. of Arkansas at Little Rock); Sriram, Bhargavi (Univ. of Arkansas at Little Rock); Wilson, James (Univ. of Arkansas at Little Rock); Preissl, Hubert (Univ. of Tübingen); Eswaran, Hari (Univ. of Arkansas for Medical Sci)*
- 11:45-12:00 WeB21.3
Quantification of Cardio-Respiratory Interactions in Healthy Children During Night-Time Sleep Using Joint Symbolic Dynamics 1459-1462
Kabir, Muammar Muhammad (The Univ. of Adelaide); Kohler, Mark (Univ. of South Australia); Abbott, Derek (The Univ. of Adelaide); Baumert, Mathias (The Univ. of Adelaide)*
- 12:00-12:15 WeB21.4
Improved Entropy Rate Estimation in Physiological Data 1463-1466
Lake, Douglas E (Univ. of Virginia)*
- 12:15-12:30 WeB21.5
Noninvasive Organization Analysis Along Consecutive Episodes of Paroxysmal Atrial Fibrillation 1467-1470
Alcaraz Martinez, Raul (Univ. of Castilla-La Mancha); Hornero, Fernando (General Univ. Hospital of Valencia); Rieta, J. J. (Univ. Politecnica de Valencia)*
- 12:30-12:45 WeB21.6
Electropathological Substrate Detection of Persistent Atrial Fibrillation – A Novel Method to Analyze Unipolar Electrograms of Noncontact Mapping 1471-1474
Zhao, Jichao (Univ. of Auckland); Huang, Wen (Fu Wai Hospital & Cardiovascular Inst.); Yao, Yan (Fu Wai Hospital & Cardiovascular Inst.); Trew, Mark L. (Univ. of Auckland); Smaill, Bruce (Univ. of Auckland); Pullan, Andrew (Univ. of Auckland); Zhang, Shu (Fu Wai Hospital & Cardiovascular Inst.)*

WeB22: 11:15-12:45 Salon F Marriott
1.2.8 Innovative Measurements and Processing for Sleep Studies (Oral Session)
Chair: Cerutti, Sergio (*Pol. di Milano*)
Co-Chair: Bianchi, Anna Maria (*Pol. di Milano*)

- 11:15-11:30 WeB22.1
Cardiovascular and Respiratory Regulation During Sleep in Patients with Sleep Apnea with and without Hypertension 1475-1478
*Penzel, Thomas** (*Charite Univ. Hospital*); *Suhrbier, Alexander* (*Inst. for Applied Computer Science*); *Bretthauer, G* (*Inst. for Applied Computer Science*); *Riedl, Maik* (*Univ. Potsdam*); *Wessel, Niels* (*Humboldt-Univ. zu Berlin*); *Kurths, Juergen* (*Univ. Potsdam*); *Malberg, Hagen* (*Dresden Technical Univ.*); *Fietze, Ingo* (*Charite-Univ.smedizin Berlin*)
- 11:30-11:45 WeB22.2
Mapping Sleep Using Coupled Biological Oscillations 1479-1482
*Thomas, Robert Joseph** (*Beth Israel Deaconess Medical Ctr.*); *Mietus, Joseph E.* (*Beth Israel Deaconess Medical Ctr.*)
- 11:45-12:00 WeB22.3
Sleep Apnoea Detection in Children using PPG Envelope-Based Dynamic Features 1483-1486
Sepúlveda Cano, Lina María (*Univ. Nacional de Colombia Sede Manizales*); *Gil, Eduardo* (*Zaragoza Univ. & CIBER-BBN*); *Laguna, Pablo* (*Zaragoza Univ. & CIBER-BBN*); *Castellanos-Dominguez, Germán** (*Univ. Nacional de Colombia*)
- 12:00-12:15 WeB22.4
Monitoring Ultradian Changes in Cardiorespiratory Control in Obstructive Sleep Apnea Syndrome 1487-1490
*Khoo, Michael** (*Univ. of Southern California*); *Wang, Wenli* (*Univ. of Southern California*); *Chalacheva, Patjanaporn* (*Univ. of Southern California*)
- 12:15-12:30 WeB22.5
Automatic Detection of CAP on Central and Fronto-Central EEG Leads via Support Vector Machines 1491-1494
*Mariani, Sara** (*Politecnico di Milano*); *Grassi, Andrea* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Mendez, Martin Oswaldo* (*Univ. Autonoma de San Luis Potosi*); *Parrino, Liborio* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Terzano, Mario Giovanni* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Bianchi, Anna Maria* (*Politecnico di Milano*)
- 12:30-12:45 WeB22.6
CAP Sleep in Insomnia: New Methodological Aspects for Sleep Microstructure Analysis 1495-1498
*Chouvarda, Ioanna** (*Aristotle Univ.*); *Mendez, Martin Oswaldo* (*Univ. Autonoma de San Luis Potosi*); *Rosso, Valentina* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Bianchi, Anna Maria* (*Politecnico di Milano*); *Parrino, Liborio* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Grassi, Andrea* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Terzano, Mario Giovanni* (*Sleep Disorders Ctr., Dept. of Neurology, Univ. of Parma, Parma, Italy*); *Maglaveras, Nikolaos* (*Aristotle Univ. of Thessaloniki*); *Cerutti, Sergio* (*Politecnico di Milano*)

WeB23: 11:15-12:45 Salon G Marriott
10.1.1 Personal, Pervasive, Preventive, and Participatory Health Systems (Oral Session)
Chair: Lovell, Nigel (*Univ. of New South Wales*)
Co-Chair: Bamberg, Stacy J. Morris (*Univ. of Utah*)

- 11:15-11:30 WeB23.1
Classification Between Non-Multiple Fallers and Multiple Fallers Using a Triaxial Accelerometry-Based System 1499-1502
*Liu, Ying** (*Univ. of New South Wales*); *Redmond, Stephen James* (*Univ. of New South Wales*); *Narayanan, Michael Ravi* (*Univ. of New South Wales*); *Lovell, Nigel* (*Univ. of New South Wales*)
- 11:30-11:45 WeB23.2
Characterization of Maternal Body Movement During Sleep before and after Parturition 1503-1506
*Liu, Zhaoqin** (*Univ. of Aizu*); *Jiang, Linlin* (*Univ. of Aizu*); *Chen, Wenxi* (*Univ. of Aizu*); *Kitamura, Kei-ichiro* (*Univ. of Kanazawa*); *Nemoto, Tetsu* (*Univ. of Kanazawa*)

11:45-12:00 WeB23.3
A Wireless Sensory Feedback System for Real-Time Gait Modification 1507-1510
Redd, Christian Brandt (Univ. of Utah); Bamberg, Stacy J Morris (Univ. of Utah)*

12:00-12:15 WeB23.4
Analysis of Time-Series Correlation between Weighted Lifestyle Data and Health Data 1511-1514
Takeuchi, Hiroshi (Takasaki Univ. of Health & Welfare); Mayuzumi, Yuuki (Takasaki Univ. of Health & Welfare);
Kodama, Naoki (Takasaki Univ. of Health & Welfare)*

12:15-12:30 WeB23.5
Evaluation of a Novel Cardiac Output Index on Healthy Elderly, Cardiovascular and Heart Failure Patients During Dynamic Exercise 1515-1518
Wang, Ling (Beihang Univ.); Poon, Carmen CY (The Chinese Univ. of Hong Kong); Yip, Gabriel W. K. (Prince of Wales Hospital, The Chinese Univ. of Hong Kong); Yu, Cheuk-Man (Prince of Wales Hospital, The Chinese Univ. of Hong Kong); Zhang, Yuan-Ting (The Chinese Univ. of Hong Kong)*

12:30-12:45 WeB23.6
An Improved Scheme of IPI-Based Entity Identifier Generation for Securing Body Sensor Networks 1519-1522
Hong, Tian (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Bao, Shu-Di (Shenzhen Inst. of Advance Tech., Chinese Acad. of Sciences); Zhang, Yuan-Ting (The Chinese Univ. of Hong Kong)*

WeB24: 11:15-12:45 Salon HI Marriott
10.3.3 mHealth (Oral Session)
Chair: Puiatti, Alessandro (*Univ. of Applied Science of Southern Switzerland*)
Co-Chair: Philip, Nada (*Kingston Univ.*)

11:15-11:30 WeB24.1
A Collaborative Awareness System for Chronic Disease Medication Adherence Applied to HIV Infection 1523-1527
Moore, John (Massachusetts Institute of Tech.); Hardy, Helene (Boston Medical Ctr.); Skolnik, Paul (Boston Medical Ctr.); Moss, Frank (Massachusetts Institute of Tech.)*

11:30-11:45 WeB24.2
A Sensor Network to Iphone Interface Separating Continuous and Sporadic Processes in Mobile Telemedicine 1528-1531
D'Angelo, Lorenzo Tancredi (Technische Univ. Muenchen); Schneider, Michael (TU Muenchen); Lueth, Tim (Technical Univ. of Munich)*

11:45-12:00 WeB24.3
Mapping of Multiple Parameter M-Health Scenarios to Mobile WiMAX QoS Variables 1532-1535
Alinejad, Ali (Kingston Univ.); Philip, Nada (Kingston Univ.); Istepanian, Robert (Kingston Univ. London)*

12:00-12:15 WeB24.4
Estimation of Patient Compliance in Application of Adherent Mobile Cardiac Telemetry Device 1536-1539
Engel, Jonathan (Corventis, Inc); Chakravarthy, Niranjana (Corventis, Inc); Katra, Rodolphe (MetroHealth Campus, Case Western Reserve Univ.); Mazar, Scott (Corventis, Inc); Libbus, Imad (Corventis); Chavan, Abhi (Corventis, Inc)*

12:15-12:30 WeB24.5
Mobile Health for Drug Dose Optimisation 1540-1543
Larsen, Mark Erik (Univ. of Oxford); Farmer, Andrew (Univ. of Oxford); Weaver, Andrew (Oxford Radcliffe Hospitals NHS Trust); Young, Annie (The Univ. of Warwick); Tarassenko, Lionel (Univ. of Oxford)*

12:30-12:45 WeB24.6
Feasibility Assessment of Doppler Radar Long-Term Physiological Measurements 1544-1547
Massagram, Wansuree (Naresuan Univ.); Boric-Lubecke, Olga (Univ. of Hawaii Manoa); Lubecke, Victor (Univ. of Hawaii Manoa)*

WeB25: 11:15-12:45 Salon JK Marriott
10.1.21 State-of-the-Art Technologies for AAL, eInclusion, and pHHealth: The Road Ahead (Oral Session)
Chair: Maglaveras, Nikolaos (*Aristotle Univ. of Thessaloniki*)
Co-Chair: Lymberis, Andreas (*European Commission*)

11:15-11:30 WeB25.1
The Era of Micro and Nano Systems in the Biomedical Area: Bridging the Research and Innovation Gap **1548-1551**
Lymberis, Andreas (European Commission)*

11:30-11:45 WeB25.2
Longitudinal Monitoring of Patients with Parkinson’s Disease via Wearable Sensor Technology in the Home Setting **1552-1555**
Patel, Shyamal (Harvard Medical School); Chen, Bor-rong (Harvard Univ.); Mancinelli, Chiara (Harvard Medical School); Paganoni, Sabrina (Dept. of PM&R, Harvard Medical School); Shih, Ludy (Harvard Medical School); Welsh, Matt (Harvard Univ.); Dy, Jennifer (Northeastern Univ.); Bonato, Paolo (Harvard Medical School)*

11:45-12:00 WeB25.3
Closing the Loop for Deep Brain Stimulation Implants Enables Personalized Healthcare for Parkinson’s Disease Patients **1556-1558**
Eberle, Wolfgang (imec); Penders, Julien (imec); Yazicioglu, Refet Firat (IMEC)*

12:00-12:15 WeB25.4
Innovative Self Management System for Guided Cardiac Rehabilitation **1559-1562**
Ottaviano, Manuel (Technical Univ. of Madrid); Vera-Muñoz, Cecilia (Univ. Politécnica de Madrid (UPM)); Arredondo, María Teresa (Technical Univ. of Madrid); Salvi, Dario (Technical Univ. of Madrid); Salvi, Sergio (Technical Univ. of Madrid); Paez, Jose Manuel (Technical Univ. of Madrid); Díaz de Barrionuevo, Arturo (Technical Univ. of Madrid)*

12:15-12:30 WeB25.5
An Integrated Advanced Communication and Coaching Platform for Enabling Personalized Management of Chronic Cardiovascular Diseases **1563-1566**
Meneu, Teresa (Univ. Politécnica de Valencia); Martínez-Romero, Álvaro (Instituto ITACA); Martínez-Millana, Antonio (Univ. Politécnica de Valencia); Guillen, Sergio (Inst. Itaca Valencia)*

12:30-12:45 WeB25.6
An Ontology-Based Framework Aiming to Support Personalized Exercise Prescription: Application in Cardiac Rehabilitation **1567-1570**
Kostopoulos, Konstaninos (Lab of Medical Informatics, Medical School, Aristotle Univ. of Thessaloniki); Chouvarda, Ioanna (Aristotle Univ.); Koutkias, Vassilis (Aristotle Univ. of Thessaloniki); Athina, Kokonozi (Aristotle Univ. of Thessaloniki); Maglaveras, Nikolaos (Aristotle Univ. of Thessaloniki)*

WeB26: 11:15-12:15 Provincetown Marriott
4.2.2 Systems in Synthetic Biology II (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Weiss, Ron (*MIT*)

11:15-11:45 WeB26.1
Making Biology Easier to Engineer *
Shetty, Reshma (Ginkgo BioWorks)*

11:45-12:15 WeB26.2
Toward Breaking the Complexity Barrier for Synthetic Biology Therapeutics *
Beal, Jacob (BBN Technologies)*

WeC01: 13:00-14:30	St. George AB Westin
8.3.17 Hardware and Control Developments in Rehabilitation Robotics (Oral Session)	
Chair: Fujie, Masakatsu G. (<i>Waseda Univ.</i>)	
Co-Chair: Krebs, Hermano Igo (<i>MIT</i>)	

13:00-13:15	WeC01.1
On the Interlimb Coordination and Synchronization During Gait	1571-1574
<i>Artemiadis, Panagiotis* (Massachusetts Inst. of Tech.); Krebs, Hermano Igo (MIT)</i>	
13:15-13:30	WeC01.2
A Multi-DOF Robotic Exoskeleton Interface for Hand Motion Assistance	1575-1578
<i>Iqbal, Jamshed* (Univ. of Genoa – Italian Inst. of Tech. (IIT)); Tsagarakis, Nikos (Italian Inst. of Tech.); Caldwell, Darwin G. (Italian Inst. of Tech.)</i>	
13:30-13:45	WeC01.3
Supinator Extender (SUE): A Pneumatically Actuated Robot for Forearm/Wrist Rehabilitation after Stroke	1579-1582
<i>Allington, James* (Univ. of California, Irvine); Spencer, Steven (Univ. of California, Irvine); Klein, Julius (Univ. of California at Irvine); Buell, Meghan (Rehabilitation Inst. of Chicago); Reinkensmeyer, David J. (Univ. of California); Bobrow, James (Univ. of Calif, Irvine)</i>	
13:45-14:00	WeC01.4
Treadmill Motor Current Based Anteroposterior Force Estimation Using Ground Reaction Force Approximation Depending on Gait Cycle	1583-1589
<i>Nakashima, Yasutaka* (Waseda Univ.); Ando, Takeshi (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)</i>	
14:00-14:15	WeC01.5
Pelvis Motion Analysis for Gait Phase Estimation Toward Leg-Dependent Body Weight Support at Different Walking Speed	1590-1593
<i>Fujie, Masakatsu G. (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Watanabe, Takao* (Waseda Univ.)</i>	
14:15-14:30	WeC01.6
Fuzzy Adaptive Control of Electric Power-Assisted Wheelchair for Disturbance Road Driving	1594-1599
<i>Seki, Hirokazu* (Chiba Inst. of Tech.); Kiso, Atsushi (Chiba Inst. of Tech.)</i>	

WeC02: 13:00-14:30	St. George CD Westin
8.2.8 Prosthetic Limbs, Devices, and Related Appliances and Aides (Oral Session)	
Chair: Carrozza, Maria Chiara (<i>Scuola Superiore Sant'Anna</i>)	
Co-Chair: Wall, Conrad (<i>Harvard Medical School</i>)	

13:00-13:15	WeC02.1
Evaluation of Modal Analysis Techniques using Physical Models to Detect Osseointegration of Implants in Transfemoral Amputees	1600-1603
<i>Cairns, Nicola Jeanne* (Univ. of Strathclyde); Adam, Clayton (Queensland Univ. of Tech.); Percy, Mark (Queensland Univ. of Tech.); Smeathers, James (Queensland Univ. of Tech.)</i>	
13:15-13:30	WeC02.2
Optimal Tracking of a sEMG Based Force Model for a Prosthetic Hand	1604-1607
<i>Potluri, Chandra Sekhar* (Idaho State Univ.); Anugolu, Madhavi (Idaho State Univ.); Yihun, Yimesker (Idaho State Univ.); Jensen, Alex (Idaho State Univ.); Chiu, Steve (Idaho State Univ.); Schoen, Marco P. (Idaho State Univ.); Naidu, D Subbaram (Idaho State Univ.)</i>	
13:30-13:45	WeC02.3
Decoding of Individuated Finger Movements Using Surface EMG and Input Optimization Applying a Genetic Algorithm	1608-1611
<i>Kanitz, Gunter Robert (Scuola Superiore Sant'Anna); Antfolk, Christian (Lund Univ.); Cipriani, Christian* (Scuola Superiore Sant'Anna); Sebelius, Fredrik (Dept. of Elec. Measurements, Lund Univ., Sweden); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)</i>	

13:45-14:00	WeC02.4
Biomechanical Consideration Based on the Unrestrained Gait Measurement of Trans-Femoral Amputee with a Prosthetic Limb 1612-1615	
<i>Hayashi, Yuichiro* (Graduate School, Doshisha Univ.); Tsujiuchi, Nobutaka (Doshisha Univ.); Koizumi, Takayuki (Doshisha Univ.); Matsuda, Yasushi (Kawamura Gishi Co., LTD); Tsuchiya, Youtaro (Tec Gihan Co., LTD)</i>	
14:00-14:15	WeC02.5
Control of a Myoelectric Arm Considering Cooperated Motion of Elbow and Shoulder Joints 1616-1619	
<i>Kiguchi, Kazuo* (Saga Univ.); Hayashi, Yoshiaki (Saga Univ.)</i>	
14:15-14:30	WeC02.6
Influence of the Weight Actions of the Hand Prosthesis on the Performance of Pattern Recognition Based Myoelectric Control: Preliminary Study 1620-1623	
<i>Cipriani, Christian* (Scuola Superiore Sant'Anna); Sassu, Rossella (Scuola Superiore Sant'Anna); Controzzi, Marco (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)</i>	
WeC03: 13:00-14:30	Essex Ballroom South Westin
6.11.1 Algorithms for Seizure Prediction: Towards Wearable Devices to Support Epileptic People (Oral Session)	
Chair: Dourado, António (FCTUC, Univ. of Coimbra)	
Co-Chair: Brown, Michael (Univ. of Minnesota – Twin Cities)	
13:00-13:15	WeC03.1
Seizure Prediction in Epilepsy: From Circadian Concepts via Probabilistic Forecasting to Statistical Evaluation 1624-1627	
<i>Schelter, Bjorn* (Albert-Ludwigs Univ.); Feldwisch-Drentrup, Hinnerk (Albert-Ludwigs-Univ.); Ihle, Matthias (Univ. of Freiburg, Germany); Schulze-Bonhage, Andreas (Univ. Hospital Freiburg); Timmer, Jens (Inst. of Physics, Univ. of Freiburg)</i>	
13:15-13:30	WeC03.2
Hardware for Seizure Prediction: Towards Wearable Devices to Support Epileptic People 1628-1631	
<i>Castellaro, Cipriano (Micromed S.p.A. – Italy); Favaro, Gianpietro* (Micromed S.p.A. – Italy)</i>	
13:30-13:45	WeC03.3
Probing Cortical Excitability Using Cross-Frequency Coupling in Intracranial EEG Recordings: A New Method for Seizure Prediction 1632-1635	
<i>Alvarado-Rojas, Catalina (ICM Research Ctr.); Valderrama, Mario (ICM Research Ctr.); Witon, Adrien (ICM Research Ctr.); Navarro, Vincent (Epilepsy Unit, Pitié-Salpêtrière Hospital); Le Van Quyen, Michel* (ICM Research Ctr.)</i>	
13:45-14:00	WeC03.4
Optimizing Feature Subsets for Epileptic Seizure Prediction Studies 1636-1639	
<i>Direito, Bruno (FCTUC, Univ. of Coimbra); Ventura, Francisco (Univ. of Coimbra); Teixeira, César* (CISUC, Univ. of Coimbra); Dourado, António (FCTUC, Univ. of Coimbra)</i>	
14:00-14:15	WeC03.5
A Low Complexity Seizure Prediction Algorithm 1640-1643	
<i>Brown, Michael* (Univ. of Minnesota – Twin Cities); Netoff, Tay (Univ. of Minnesota); Parhi, Keshab (Univ. of Minnesota)</i>	
14:15-14:30	WeC03.6
Probing for Cortical Excitability 1644-1647	
<i>Freestone, Dean Robert* (Univ. of Melbourne); Burkitt, Anthony Neville (Univ. of Melbourne); Lai, Alan (The Bionic Ear Inst.); Nelson, Timothy Scott (The Bionic Ear Inst.); Grayden, David B. (Univ. of Melbourne); Vogrin, Simon (St. Vincent's Hospital, Melbourne); Murphy, Michael (Dept. of Neurosurgery, St. Vincent's Hospital Melbourne); D'Souza, Wendy (St. Vincent's Hospital, Melbourne); Badawy, Radwa (Univ. of Melbourne); Kulhmann, Levin (Univ. of Melbourne); Cook, Mark (St. Vincent's Hospital)</i>	

WeC05: 13:00-14:30	Essex Ballroom North Westin
6.13.60 Human Performance I (Oral Session)	
Chair: Veltink, Peter (<i>Univ. of Twente</i>)	
Co-Chair: Smith, Maurice (<i>Johns Hopkins Univ.</i>)	

13:00-13:15	WeC05.1
A Point Process Approach for Analyzing Gait Variability Dynamics	1648-1651
<i>Ellis, Robert (Beth Israel Deaconess Medical Ctr./Harvard Medical School); Citi, Luca (MGH/Harvard Medical School); Barbieri, Riccardo* (MGH-Harvard Medical School-MIT)</i>	
13:15-13:30	WeC05.2
Statistical Analysis of Gait Maturation in Children Based on Probability Density Functions	1652-1655
<i>Wu, Yunfeng* (Xiamen Univ.); Zhong, Zhangting (Xiamen Univ.); Lu, Meng (Xiamen Univ.); He, Jia (Xiamen Univ.)</i>	
13:30-13:45	WeC05.3
Multivariate Nonlinear Regression Analysis of Trajectory Tracking Performance Using Force Reflecting Joystick in Chronic Stroke-Induced Hemiparesis	1656-1659
<i>Feng, Xin* (Marquette Univ.); Winters, Jack (Marquette Univ.)</i>	
13:45-14:00	WeC05.4
Identification of Nocturnal Movements During Sleep Using the Non-Contact under Mattress Bed Sensor	1660-1663
<i>Walsh, Lorcan* (Natl. Univ. of Ireland Maynooth); Moloney, Eddie (Trinity College Dublin); McLoone, Sean F. (Natl. Univ. of Ireland, Maynooth)</i>	
14:00-14:15	WeC05.5
The Frequency of Saccades Correlates to Peak Velocity in Symmetrical Disparity Vergence	1664-1667
<i>Kim, Eun Hwa* (New Jersey Inst. of Technology); Alvarez, Tara (New Jersey Inst. of Tech.)</i>	
14:15-14:30	WeC05.6
Vibrotactile Stimulation of the Upper Leg: Effects of Location, Stimulation Method and Habituation	1668-1671
<i>Wentink, Eva C.* (Univ. of Twente); Mulder, Alex (Univ. of Twente); Rietman, Johan S (Roessingh Research & Development, Univ. of Twente, The Netherlands); Veltink, Peter (Univ. of Twente)</i>	

WeC11: 13:00-14:30	Wellesley Marriott
5.8.8 Cardiac Electrophysiology (Oral Session)	
Chair: Trayanova, Natalia (<i>Johns Hopkins Univ.</i>)	
Co-Chair: Bianchi, Anna Maria (<i>Pol. di Milano</i>)	

13:00-13:15	WeC11.1
Image-Based Estimation of Ventricular Fiber Orientations for Patient-Specific Simulations	1672-1675
<i>Vadakkumpadan, Fijoy* (Johns Hopkins Univ.); Arevalo, Hermenegild (Johns Hopkins); Ceritoglu, Can (Johns Hopkins Univ.); Miller, Michael (Johns Hopkins Univ.); Trayanova, Natalia (Johns Hopkins Univ.)</i>	
13:15-13:30	WeC11.2
Experimental Validation of Alternating Transillumination for Imaging Intramural Wave Propagation	1676-1679
<i>Walton, Richard David* (Univ. of Leeds); Lawrence Xavier, Christopher Dilip (Univ. of Leeds); Tachtsidis, Ilias (Univ. College London); Bernus, Olivier (Univ. of Leeds)</i>	
13:30-13:45	WeC11.3
An Optimization Framework for Inversely Estimating Myocardial Transmembrane Potentials and Localizing Ischemia	1680-1683
<i>Wang, Dafang* (Univ. of Utah); Kirby, Robert M. (Univ. of Utah); MacLeod, Rob (Univ. of Utah); Johnson, Chris (Univ. of Utah)</i>	
13:45-14:00	WeC11.4
Noninvasive Reconstruction of the Three-Dimensional Ventricular Activation Sequence During Pacing and Ventricular Tachycardia in the Rabbit Heart	1684-1687
<i>Han, Chengzong* (Univ. of Minnesota); Pogwizd, Steven (Univ. of Illinois at Chicago); Killingsworth, Cheryl (Dept. of Medicine, Univ. of Alabama at Birmingham); He, Bin (Univ. of Minnesota)</i>	

14:00-14:15	WeC11.5
Slowed Propagation across the Compacta-Trabeculata Interface: A Consequence of Fiber and Sheet Anisotropy 1688-1692	
<i>Gilbert, Stephen Henry* (Univ. of Leeds); Benson, Alan Philip (Univ. of Leeds); Walton, Richard David (Univ. of Leeds); Bernus, Olivier (Univ. of Leeds)</i>	
14:15-14:30	WeC11.6
Electrophysiological Models for the Heterogeneous Canine Atria: Computational Platform for Studying Rapid Atrial Arrhythmias 1693-1696	
<i>Aslanidi, Oleg* (Univ. of Manchester); Butters, Timothy (Univ. of Manchester); Ren, Christopher (Univ. of Manchester); Ryecroft, Gareth (Univ. of Manchester); Zhang, Henggui (Univ. of Manchester)</i>	
WeC19: 13:00-14:30	Salons AB Marriott
1.1.2 Recent Advances in Time-Frequency Analysis of Biosignals I (Oral Session)	
Chair: Anderson, John McCune (<i>Univ. of Ulster</i>)	
Co-Chair: Leonelli, Fabio (<i>Univ. of South Florida & Veterans Administration Hospital</i>)	
13:00-13:15	WeC19.1
Application of Higher Order Cumulants to ECG Signals for the Cardiac Health Diagnosis 1697-1700	
<i>Martis, Roshan Joy* (Indian Inst. of Tech., Kharagpur); Acharya, Rajendra (NgeeAnn Polytechnic); Ray, Ajoy Kumar (Indian Inst. of Tech., Kharagpur); Chakraborty, Chandan (Indian Inst. of Tech., Kharagpur)</i>	
13:15-13:30	WeC19.2
HRV Response of Vegetative State Patient with Music Therapy 1701-1704	
<i>Lee, Yaw-Chern* (Natl. Chiao Tung Univ. Hsinchu, Taiwan); Lei, Chun-Yang (Natl. Chiao Tung Univ.); Shih, Yi-Sen (Natl. Chiao Tung Univ.); Zhang, Wen-Chih (Natl. Chiao Tung Univ.); Tseng, Cheng-Lung (Natl. Chiao Tung Univ.); Hou, Mark Chun-Cheng (Changhua Christian Hospital & Natl. Chao Tung Univ.); Wang, Hui-Min (sense/tcm SOC Lab., Dept. of Elec. Eng., Natl. Chiao Tung Univ.); Huang, Sheng-Chieh (sense/tcm SOC Lab., Dept. of Elec. Eng., Natl. Chiao Tung Univ. Hsinchu, Taiwan)</i>	
13:30-13:45	WeC19.3
Twin-Peak Effect in Both Cardiac Response and Tempo of Popular Music 1705-1708	
<i>Shih, Yi-Sen* (Natl. Chiao Tung Univ.); Zhang, Wen-Chih (Natl. Chiao Tung Univ.); Lee, Yaw-Chern (Natl. Chiao Tung Univ. Hsinchu, Taiwan); Lei, Chun-Yang (Natl. Chiao Tung Univ.); Tseng, Cheng-Lung (Natl. Chiao Tung Univ.); Wang, Hui-Min (sense/tcm SOC Lab., Dept. of Elec. Eng., Natl. Chiao Tung Univ.); Huang, Sheng-Chieh (sense/tcm SOC Lab., Dept. of Elec. Eng., Natl. Chiao Tung Univ. Hsinchu, Taiwan)</i>	
13:45-14:00	WeC19.4
Detection of Cardiac Arrest Using a Simplified Frequency Analysis of the Impedance Cardiogram Recorded from Defibrillator Pads 1709-1712	
<i>Navarro, Cesar Oswaldo* (HeartSine Technologies); Cromie, Nick A. (Royal Victoria Hospital & Queens Univ., Belfast); Turner, Colin (Univ. of Ulster); Escalona, Omar Jacinto (Univ. of Ulster); Anderson, John McCune (Univ. of Ulster)</i>	
14:00-14:15	WeC19.5
Automatic Sleep Spindles Detection – Overview and Development of a Standard Proposal Assessment Method 1713-1716	
<i>Devuyst, Stéphanie* (Faculté polytechnique de Mons); Dutoit, Thierry (Faculté polytechnique de Mons); Stenuit, Patricia (CHU Vésale); Kerkhofs, Myriam (CHU Vésale)</i>	
14:15-14:30	WeC19.6
Induced Gamma Activity in EEG Represents Cognitive Control During Detecting Emotional Expressions 1717-1720	
<i>Tang, Yingying (Shanghai Mental Health Ctr., Shanghai Jiao Tong Univ. School of Medicine); Li, YingJie* (Shanghai Univ.); Wang, Jijun (Shanghai Mental Health Ctr., Shanghai Jiaotong Univ. School of Medicine); Tong, Shanbao (Shanghai Jiao Tong Univ.); Li, Hui (Shanghai Mental Health Ctr.)</i>	

WeC20: 13:00-14:30

Salons CD Marriott

1.2.26 Signal Processing in Physiological Systems III (Oral Session)

Chair: Kahya, Yasemin P. (*Bogazici Univ.*)

Co-Chair: James, Christopher (*Univ. of Warwick*)

13:00-13:15

WeC20.1

Correcting for Serial Dependence in Studies of Respiratory Dynamics 1721-1724

*Gong, Jen J** (*Harvard College*); *Wong, Kin Foon Kevin* (*Massachusetts General Hospital*);
Cotten, Joseph F (*Massachusetts General Hospital*); *Solt, Ken* (*Massachusetts General Hospital*);
Brown, Emery N (*MGH-Harvard Medical School-MIT*)

13:15-13:30

WeC20.2

Analysis of the Respiratory Flow Cycle Morphology in Chronic Heart Failure Patients Applying Principal Components Analysis 1725-1728

*Garde, Ainara** (*Univ. Politècnica de Catalunya*); *Giraldo, Beatriz* (*Univ. Politècnica de Catalunya*);
Sornmo, Leif (*Lund Univ.*); *Jané, Raimon* (*Univ. Politècnica de Catalunya*)

13:30-13:45

WeC20.3

Distilling Clinically Interpretable Information from Data Collected on Next-Generation Wearable Sensors 1729-1732

*Haslam, Bryan** (*Massachusetts Inst. of Tech.*); *Gordhandas, Ankit* (*Massachusetts Inst. of Tech.*);
Ricciardi, Catherine (*Massachusetts Inst. of Tech.*); *Verghese, George* (*Massachusetts Inst. of Tech.*);
Heldt, Thomas (*Massachusetts Inst. of Tech.*)

13:45-14:00

WeC20.4

Ensemble Classification for Robust Discrimination of Multi-Channel, Multi-Class Tongue-Movement Ear Pressure Signals 1733-1736

*Mace, Michael** (*Imperial College London*); *Abdullah-Al-Mamun, Khondaker* (*Univ. of Southampton, UK*); *Wang, Shouyan* (*Univ. of Southampton*); *Gupta, Lalit* (*Southern Illinois Univ.*); *Vaidyanathan, Ravi* (*Univ. of Bristol*)

14:00-14:15

WeC20.5

Improved Signal Processing Techniques for the Analysis of High Resolution Serosal Slow Wave Activity in the Stomach 1737-1740

*Paskaranandavadivel, Niranchan** (*Auckland BioEng. Inst., The Univ. of Auckland, New Zealand*);
Cheng, Leo K (*The Univ. of Auckland*); *Du, Peng* (*The Univ. of Auckland*); *O'Grady, Gregory* (*Univ. of Auckland*); *Pullan, Andrew* (*Univ. of Auckland*)

14:15-14:30

WeC20.6

A Framework for the Online Analysis of Multi-Electrode Gastric Slow Wave Recordings 1741-1744

*Bull, Simon H.** (*Univ. of Auckland*); *O'Grady, Gregory* (*Univ. of Auckland*); *Cheng, Leo K* (*The Univ. of Auckland*); *Pullan, Andrew* (*Univ. of Auckland*)

WeC21: 13:00-14:30

Salon E Marriott

1.3.33 Nonlinear Analysis of Biomedical Signals II (Oral Session)

Chair: Jones, Richard D. (*Van der Veer Inst.*)

Co-Chair: Mitsis, Georgios D. (*Univ. of Cyprus*)

13:00-13:15

WeC21.1

Analysis of Nocturnal Oxygen Saturation Recordings Using Kernel Entropy to Assist in Sleep Apnea-Hypopnea Diagnosis 1745-1748

*Marcos, J. Victor** (*Univ. of Valladolid*); *Hornero, Roberto* (*Univ. of Valladolid*); *Nabney, Ian T.* (*Aston Univ.*);
Álvarez, Daniel (*Univ. of Valladolid*); *del Campo, Félix* (*Hospital del Río Hortega*)

13:15-13:30

WeC21.2

Do Anthropometric Parameters Change the Characteristics of Snoring Sound? 1749-1752

*Azarbarzin, Ali** (*The Univ. of Manitoba*); *Moussavi, Zahra* (*Univ. of Manitoba*)

13:30-13:45

WeC21.3

Synchronization of Sacral Skin Blood Flow Oscillations in Response to Local Heating 1753-1756

*Jan, Yih-Kuen** (*Univ. of Oklahoma Health Sciences Ctr.*); *Liao, Fuyuan* (*Univ. of Oklahoma Health Sciences Ctr.*)

13:45-14:00 WeC21.4
Matrix Completion Based ECG Compression 1757-1760
Polania, Luisa F. (Univ. of Delaware); Carrillo, Rafael E. (Univ. of Delaware); Blanco-Velasco, Manuel (Univ. of Alcala); Barner, Kenneth E. (Univ. of Delaware)*

14:00-14:15 WeC21.5
Low-Complexity R-Peak Detection in ECG Signals: A Preliminary Step towards Ambulatory Fetal Monitoring 1761-1764
Rooijackers, Michael Johannes (Eindhoven Univ. of Tech.); Rabotti, Chiara (Eindhoven Univ. of Tech.); Bennebroek, Martijn (Philips Research); van Meerbergen, Jef (Philips Research); Misch, Massimo (Eindhoven Univ. of Tech.)*

14:15-14:30 WeC21.6
Regularity Analysis of Spontaneous MEG Activity in Attention-Deficit/Hyperactivity Disorder 1765-1768
Gomez, Carlos (Univ. of Valladolid); Poza, Jesús (Univ. of Valladolid); Garcia, Maria (Univ. of Valladolid); Fernandez, Alberto (Univ. Complutense de Madrid); Hornero, Roberto (Univ. of Valladolid)*

WeC23: 13:00-14:30 Salon G Marriott
10.5.9 Ambient Assisted Living and Smart Homes I (Oral Session)
Chair: Traver, Vicente (*Inst. ITACA*)
Co-Chair: Amft, Oliver (*Eindhoven Univ. of Tech.*)

13:00-13:15 WeC23.1
Use of Electrical Devices Reveals Our Well Being 1769-1772
Noury, Norbert (Univ. Claude Bernard Lyon 1)*

13:15-13:30 WeC23.2
Towards a Single Sensor Passive Solution for Automated Fall Detection 1773-1776
Belshaw, Michael Sweeney (Toronto Rehabilitation Inst. & Univ. of Toronto); Taati, Babak (Toronto Rehabilitation Inst. & Univ. of Toronto); Snoek, Jasper (Univ. of Toronto); Mihailidis, Alex (Univ. of Toronto)*

13:30-13:45 WeC23.3
Smart Homes to Improve the Quality of Life for All 1777-1780
Aiello, Marco (Univ. of Groningen); Aloise, Fabio (Fondazione Santa Lucia IRCCS); Baldoni, Roberto (Sapienza Univ. of Rome); Cincotti, Febo (Fondazione Santa Lucia IRCCS); Guger, Christoph (g.tec medical Eng. GmbH); Lazovik, Alexander (Univ. of Groningen); Mecella, Massimo (Sapienza Univ. of Rome); Pucci, Paolo (Elsag Datamat); Rinsma, Johanna (Thuiszorg Het Friese Land); Santucci, Giuseppe (Sapienza Univ. of Rome); Taglieri, Massimiliano (Elsag Datamat S.p.A.)*

13:45-14:00 WeC23.4
Distributed Activity Recognition in the Home Environment 1781-1784
Amft, Oliver (Eindhoven Univ. of Tech.)*

14:00-14:15 WeC23.5
Ambient Assisted Living Spaces Validation by Services and Devices Simulation 1785-1788
Fernandez-Llatas, Carlos (Univ. Politecnica de Valencia); Juan Bautista, Mocholi (TSB-ITACA Univ. Politecnica de Valencia); Sala, Pilar (Inst. ITACA); Juan Carlos, Naranjo (TSB-ITACA Univ. Politecnica de Valencia); Pileggi, Salvatore Flavio (TSB-ITACA Univ. Politecnica de Valencia); Guillen, Sergio (Inst. Itaca Valencia); Traver, Vicente (Inst. ITACA)*

14:15-14:30 WeC23.6
Review of Wireless Sensors Networks in Health Applications 1789-1793
Dorronzoro Zubieta, Enrique (Univ. de Sevilla); Fernandez-Luque, Luis (Northern Research Inst. Tromsø (Norut)); Medina Rodriguez, Ana Veronica (Univ. de Sevilla); Gomez Gonzalez, Isabel Maria (Univ. de Sevilla)*

WeC24: 13:00-14:30	Salon HI Marriott
10.2.11 Wireless Health Technologies and Body Sensor Networks Applications (Oral Session)	
Chair: Penders, Julien (<i>imec</i>)	
Co-Chair: Patel, Shyamal (<i>Harvard Medical School</i>)	

13:00-13:15 WeC24.1
A Semi-Supervised Hidden Markov Model-Based Activity Monitoring System 1794-1797
Xu, Min (Blue Highway LLC); Zuo, Long (Blue Highway LLC); Iyengar, Satish (Blue Highway LLC); Goldfain, Albert (Blue Highway LLC); DelloStritto, Jim (Blue Highway LLC)*

13:15-13:30 WeC24.2
Towards Mental Stress Detection Using Wearable Physiological Sensors 1798-1801
Wijsman, Jacqueline (Univ. of Twente, Holst Ctr.); Penders, Julien (imec); Grundlehner, Bernard (Holst Ctr.); Liu, Hao (IMEC-NL); Hermens, H.J. (RRD)*

13:30-13:45 WeC24.3
Wearable Sensor Platform and Mobile Application for Use in Cognitive Behavioral Therapy for Drug Addiction and PTSD 1802-1805
Fletcher, Richard Ribon (Massachusetts Inst. of Tech.); Tam, Sharon (Massachusetts Inst. of Tech.); Omojola, Olufemi Abidemi (MIT); Redemske, Richard (MIT Media Lab); Kwan, Joyce (Massachusetts Inst. of Tech.)*

13:45-14:00 WeC24.4
A Low-Power Multi-Modal Body Sensor Network with Application to Epileptic Seizure Monitoring 1806-1809
Altini, Marco (imec/Holst Ctr.); Del Din, Silvia (Univ. of Padova); Patel, Shyamal (Harvard Medical School); Schachter, Steven (Beth Israel Deaconess Medical Ctr., Harvard Medical School); Penders, Julien (imec); Bonato, Paolo (Harvard Medical School)*

14:00-14:15 WeC24.5
Assessment of Bradykinesia in Parkinson's Disease Patients through a Multi-Parametric System 1810-1813
Pastorino, Matteo (Univ. Politecnica de Madrid); Cancela, Jorge (Univ. Politécnica de Madrid); Arredondo, María Teresa (Technical Univ. of Madrid); Pansera, Mario (Univ. Politecnica de Madrid); Pastor, Laura (Univ. Politécnica de Madrid); Villagra, Federico (Univ. of Navarra); Pastor, María A. (Univ. of Navarra, Ctr. for Applied Medical Research); Martín, José Antonio (Technical Univ. of Madrid (UPM))*

14:15-14:30 WeC24.6
Evaluation of a Radio Based ADL Interaction Recognition System in a Day Hospital for Old Age Psychiatry with Healthy Probands 1814-1818
Neuhaeuser, Jakob (TU Muenchen); Diehl-Schmid, Janine (TU Muenchen); Lueth, Tim (Technical Univ. of Munich)*

WeC25: 13:00-14:30	Salon JK Marriott
10.4.20 Home Based Systems for Telerehabilitation (Oral Session)	
Chair: Keshner, Emily (<i>Temple Univ.</i>)	
Co-Chair: Durfee, William (<i>Univ. of Minnesota</i>)	

13:00-13:15 WeC25.1
A Telerehabilitation Platform for Home-Based Automated Therapy of Arm Function 1819-1822
Brennan, David (Natl. Rehabilitation Hospital); Lum, Peter (Natl. Rehabilitation Hospital, Catholic Univ. of America, Veteran Affairs); Uswatte, Gitendra (Univ. of Alabama at Birmingham); Taub, Ed (Univ. of Alabama at Birmingham); Gilmore, Brendan (Arettech LLC); Barman, Joydip (Univ. of Alabama at Birmingham)*

13:15-13:30 WeC25.2
Home-Based System for Stroke Rehabilitation 1823-1826
Durfee, William (Univ. of Minnesota)*

13:30-13:45 WeC25.3
A Low Cost, Adaptive Mixed Reality System for Home-Based Stroke Rehabilitation 1827-1830
Chen, Yinpeng (Arizona State Univ.); Baran, Michael (Arizona State Univ.); Sundaram, Hari (Arizona State Univ.); Rikakis, Thanassis (Arizona State Univ.)*

13:45-14:00 WeC25.4
Development and Evaluation of Low Cost Game-Based Balance Rehabilitation Tool Using the Microsoft Kinect Sensor 1831-1834
*Lange, Belinda** (Univ. of Southern California); *Chang, Chien-Yen* (Inst. for Creative Technologies, Univ. of Southern California); *Suma, Evan* (Inst. for Creative Technologies, Univ. of Southern California); *Newman, Bradley* (Inst. for Creative Technologies, Univ. of Southern California); *Rizzo, Albert* (Inst. for Creative Technologies, Univ. of Southern California); *Bolas, Mark* (Inst. for Creative Technologies, Univ. of Southern California)

14:00-14:15 WeC25.5
Long-Term Hand Tele-Rehabilitation on the PlayStation 3: Benefits and Challenges 1835-1838
*Burdea, Grigore** (Rutgers Univ.); *Jain, Abhishek* (Rutgers Univ.); *Rabin, Bryan* (Rutgers Univ.); *Golomb, Meredith* (Indiana Univ. School of Medicine)

14:15-14:30 WeC25.6
Usability Testing of a Mobile Robotic System for In-Home Telerehabilitation 1839-1842
*Boissy, Patrick** (Univ. de Sherbrooke); *Brière, Simon* (Research Ctr. on Aging CSSS-IUGS); *Corriveau, Hélène* (Univ. Sherbrooke); *Grant, Andrew* (Univ. de Sherbrooke); *Lauria, Michel* (Univ. of Applied Sciences Western Switzerland); *Michaud, François* (Univ. de Sherbrooke)

WeC26: 13:00-14:30 Provincetown Marriott
4.2.3 Systems in Synthetic Biology III (Minisymposium)
Chair: Tidor, Bruce (Massachusetts Inst. of Tech.)
Co-Chair: Weiss, Ron (MIT)

13:00-13:30 WeC26.1
Integral Feedback Control in a Synthetic Gene Network *
*McMillen, David** (Univ. of Toronto Mississauga)

13:30-14:00 WeC26.2
Using Evolution to Guide the Rewiring of Two-Component Signal Transduction Systems *
*Laub, Michael T.** (Howard Hughes Medical Inst. & Massachusetts Inst. of Tech.)

14:00-14:30 WeC26.3
Rational Design of Microbial Chemical Factories *
*Prather, Kristala Jones** (Massachusetts Inst. of Tech.)

WeC27: 15:30-16:30 Provincetown Marriott
4.2.4 Systems in Synthetic Biology IV (Minisymposium)
Chair: Tidor, Bruce (Massachusetts Inst. of Tech.)
Co-Chair: Weiss, Ron (MIT)

15:30-16:00 WeC27.1
Engineering Microbial Genomes with MAGE: New Genetic Codes *
*Carr, Peter** (MIT)

16:00-16:30 WeC27.2
Integration of Instrumental, Computational, Molecular, Organismal & Ecological Engineering *
*Church, George** (Harvard Medical School)

WeP21: 15:30-17:00 America Ballroom Westin
3.3.18 Recent Developments in Bioelectric Sensing II (Poster Session)

15:30-17:00 WeP21.1
Cole Parameter Estimation from Total Right Side Electrical Bioimpedance Spectroscopy Measurements – Influence of the Number of Frequencies and the Upper Limit 1843-1846
*Buendia, Ruben** (Univ. of Alcala); *Gil Pita, Roberto* (Univ. of Alcala); *Seoane, Fernando* (Univ. of Boràs)

15:30-17:00	WeP21.2
A Band-Tunable, Multichannel Amplifier for Neural Recording with AP/LFP Separation and Dual-Threshold Adaptive AP Detector	1847-1850
<i>Wu, Jo-Yu* (Natl. Tsing Hua Univ.); Tang, Kea Tiong (Natl. Tsing Hua Univ.)</i>	
15:30-17:00	WeP21.3
Comparison of Performance Parameters for Conventional and Localized Surface Plasmon Resonance Graphene Biosensors	1851-1854
<i>Islam, Md. Saiful* (Deakin Univ.); Kouzani, Abbas Z. (Deakin Univ.)</i>	
15:30-17:00	WeP21.4
Effect of Temperature Changes on the Performance of Ionic Strength Biosensors Based on Hydrogels and Pressure Sensors	1855-1858
<i>Avula, Mahender (Univ. of Utah); Busche, Nora (Technical Univ. of Berlin); Cho, Seung Hei (Univ. of Utah); Tathireddy, Prashant* (Univ. of Utah); Loren, Rieth (Univ. of Utah); Magda, Jules (Univ. of Utah); Solzbacher, Florian (Univ. of Utah)</i>	
15:30-17:00	WeP21.5
An Ultra-Low-Power Filtering Technique for Biomedical Applications	1859-1862
<i>Zhang, TanTan* (Univ. of Macau); Mak, Pui-In (Univ. of Macau); Vai, Mang I. (Univ. of Macau); Mak, Peng Un (Univ. of Macau); Wan, Feng (Univ. of Macau)</i>	
15:30-17:00	WeP21.6
Efficient Magnetic Torque Transduction in Biological Environments Using Tunable Nanomechanical Resonators	1863-1866
<i>Javaheri, Hooman* (Northeastern Univ.); Noubir, Guevara (Northeastern Univ.); Barbiellini, Bernardo (Northeastern Univ.)</i>	
15:30-17:00	WeP21.7
Skin-Electrode Contact Area in Electrical Bioimpedance Spectroscopy. Influence in Total Body Composition Assessment	1867-1870
<i>Márquez Ruiz, Juan Carlos (KTH Royal Inst. of Tech.); Seoane, Fernando* (Univ. of Borås); Lindecrantz, Kaj (Royal Inst. of Tech.)</i>	
15:30-17:00	WeP21.8
Assessing Electrical Impedance Alterations in Spinal Muscular Atrophy via the Finite Element Method	1871-1874
<i>Jafarpoor, Mina (Beth Israel Deaconess Medical Ctr.); Li, Jia (Beth Israel Deaconess Medical Ctr.); Spieker, Andrew (Beth Israel Deaconess Medical Ctr.); Sung, Minhee (Beth Israel Deaconess Medical Ctr.); Darras, Basil (Children's Hospital Boston); Rutkove, Seward* (Beth Israel Deaconess Medical Ctr., Harvard Medical School)</i>	

WeP22: 15:30-17:00	America Ballroom Westin
3.4.4 Advances in Physiological Monitoring I (Poster Session)	

15:30-17:00	WeP22.1
Heart Rate, Oxygen Saturation, and Skin Conductance: A Comparison Study of Acute Pain in Brazilian Newborns	1875-1879
<i>de Jesus, Jose Alfredo Lacerda (Univ. de Brasilia, Brazil); Tristao, Rosana Maria (Univ. de Brasilia Brazil); Storm, Hanne (Univ. of Oslo, Norway); da Rocha, Adson F.* (Univ. of Brasilia); Campos Junior, Dioclécio (Univ. de Brasilia Brazil)</i>	
15:30-17:00	WeP22.2
A Miniaturized Pressure Sensor with Inherent Biofouling Protection Designed for in Vivo Applications .	1880-1883
<i>Clausen, Ingelin* (SINTEF ICT, Norway); Moe, Sigurd T (SINTEF ICT, Norway); W Tvedt, Lars Geir (SINTEF ICT, Norway); Vogl, Andreas (SINTEF ICT, Norway); Wang, Dag Torstein (SINTEF ICT, Norway)</i>	
15:30-17:00	WeP22.3
Design of a Instrumentation Module for Monitoring Ingestive Behavior in Laboratory Studies	1884-1887
<i>Fontana, Juan M.* (Univ. of Alabama); Lopez-Meyer, Paulo (The Univ. of Alabama); Sazonov, Edward (Univ. of Alabama)</i>	

15:30-17:00 WeP22.4
Low Cost Electroencephalographic Acquisition Amplifier to Serve as Teaching and Research Tool 1888-1891
Jain, Ankit (The Pennsylvania State Univ.); Kim, Insoo (The Pennsylvania State Univ.); Gluckman, Bruce J. (Pennsylvania State Univ.)*

15:30-17:00 WeP22.5
2-Scale Topography Dry Electrode for Biopotential Measurements 1892-1895
Vanlerberghe, Filip (imec/Catholic Univ. Leuven); De Volder, Michael (Catholic Univ. of Leuven); Op de Beeck, Maaïke (IMEC); Penders, Julien (imec); Reynaerts, Dominiek (Catholic Univ. of Leuven); Puers, Robert (Catholic Univ. of Leuven); Van Hoof, Chris (IMEC)*

15:30-17:00 WeP22.6
An Embedded Reconfigurable Architecture for Patient-Specific Multi-Parameter Medical Monitoring 1896-1900
Alemzadeh, Homa (Univ. of Illinois at Urbana-Champaign); Jin, Zhanpeng (Univ. of Illinois at Urbana-Champaign); Kalbarczyk, Zbigniew (Univ. of Illinois at Urbana-Champaign); Iyer, Ravishankar (Univ. of Illinois at Urbana-Champaign)*

WeP23: 15:30-17:00 America Ballroom Westin
3.4.5 Advances in Physiological Monitoring II (Poster Session)

15:30-17:00 WeP23.1
A Work-Loop Calorimeter for Measuring the Force-Length-Heat Relationship of Working Excised Cardiac Muscle Fibers 1901-1904
Taberner, Andrew (The Univ. of Auckland); Han, June-Chiew (The Univ. of Auckland); Loïsele, Denis (The Univ. of Auckland); Nielsen, Poul (The Univ. of Auckland)*

15:30-17:00 WeP23.2
Towards Unified Electromagnetic Tracking System Assessment—Static Errors 1905-1908
Haidegger, Tamas (Budapest Univ. of Tech. & Economics); Fenyvesi, Gábor (Budapest Univ. of Tech. & Economics); Sirokai, Beáta (Budapest Univ. of Tech. & Economics); Kelemen, Márton (Budapest Univ. of Tech. & Economics); Nagy, Melinda (Budapest Univ. of Tech. & Economics); Takács, Barnabás (Budapest Univ. of Tech. & Economics); Kovacs, Levente (Budapest Univ. of Tech. & Economics); Benyo, Balazs Istvan (Szechenyi Istvan Univ.); Benyo, Zoltan (Budapest Univ. of Tech. & Economics)*

15:30-17:00 WeP23.3
DC Coupled Doppler Radar Physiological Monitor 1909-1912
Zhao, Xi (Univ. of Hawaii at Manoa); Song, Chenyan (Concentris Systems, LLC); Lubecke, Victor (Univ. of Hawaii Manoa); Boric-Lubecke, Olga (Univ. of Hawaii Manoa)*

15:30-17:00 WeP23.4
System-On-Chip Based Doppler Radar Occupancy Sensor 1913-1916
Yavari, Ehsan (Univ. of Hawaii Manoa); Song, Chenyan (Concentris Systems, LLC); Lubecke, Victor (Univ. of Hawaii Manoa); Boric-Lubecke, Olga (Univ. of Hawaii Manoa)*

15:30-17:00 WeP23.5
Cardio-Respiratory and Daily Activity Monitor Based on FMCW Doppler Radar Embedded in a Wheelchair 1917-1920
Postolache, Octavian (Instituto de Telecomunicações); Girão, Pedro (Instituto de Telecomunicações, & Instituto Superior Técnico, Technical Univ. of Lisbon); Postolache, Octavian (Instituto de Telecomunicações)*

WeP24: 15:30-17:00 America Ballroom Westin
5.1.15 Autonomic Nervous System/Heart Rate Variability (Poster Session)

15:30-17:00 WeP24.1
Effect of Respiratory Modulation on Relationship between Heart Rate Variability and Motion Sickness 1921-1924
Lin, Chin-Teng (Natl. Chiao-Tung Univ.); Lin, Chun-Ling (Natl. Chiao-Tung Univ., Taiwan); Duann, Jeng-Ren (Univ. of California San Diego); Chiu, Tzai-Wen (Natl. Chiao-Tung Univ.); Jung, Tzyy-Ping (Univ. of California San Diego)*

15:30-17:00	WeP24.2
Physiological Variables and Subjective Symptoms by 60 Hz Magnetic Field in EHS and Non-EHS Persons	
	1925-1928
<i>Nam, Ki Chang (Yonsei Univ. College of Medicine); Choi, Jae Lim (Yonsei Univ.); Kwon, Min Kyung (Yonsei Univ.); Jang, Kyung Hwan (Yonsei Univ.); Kim, Deok Won* (Yonsei Univ. College of Medicine)</i>	
15:30-17:00	WeP24.3
Short-Term Heart Rate Dynamics of Women During Labor	
	1929-1932
<i>Reyes Lagos, Jose Javier* (UAM Iztapalapa); Peña Castillo, Miguel Ángel (UAM IZTAPALAPA); Echeverría Arjonilla, Juan Carlos (UAM IZTAPALAPA); García González, María Teresa (UAM IZTAPALAPA); Ortiz-Pedroza, Ma Rocio (Univ. Autónoma Metropolitana-Iztapalapa); Vargas Garcia, Carlos (CIMIGen); Gonzalez-Camarena, Ramon (Univ. Autonoma Metropolitana)</i>	
15:30-17:00	WeP24.4
The Effect of Electrocardiographic Lead Choice on RR Time Series	
	1933-1936
<i>Garcia-Gonzalez, Miguel A.* (Univ. Politècnica de Catalunya); Ramos-Castro, Juan (Univ. Politècnica de Catalunya); Fernandez-Chimeno, Mireya (Technical Univ. of Catalonia)</i>	
15:30-17:00	WeP24.5
Cerebral Near-Infrared Spectroscopy Analysis in Preterm Infants with Intraventricular Hemorrhage	
	1937-1940
<i>Zhang, Ying (Univ. of New South Wales); Chan, Gregory S H* (The Univ. of New South Wales); Tracy, Mark (Westmead Hospital); Lee, Qim Yi (The Univ. of New South Wales); Hinder, Murray (Nepean Hospital); Savkin, Andrey (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales)</i>	
15:30-17:00	WeP24.6
A Method for Characterizing Circadian Changes in QT Intervals of Diabetic Patients	
	1941-1944
<i>Seki, Ryota (Hosei Univ.); Yoshino, Kunihiro (Hosei Univ.); Yana, Kazuo* (Hosei Univ.); Ono, Takuya (Nippon Medical School)</i>	
15:30-17:00	WeP24.7
Autonomic Nervous System Driven Cardiomyocytes in Vitro	
	1945-1948
<i>Takeuchi, Akimasa* (The Univ. of Tokyo); Mori, Masahide (The Univ. of Tokyo); Kitagawa, Kana (The Univ. of Tokyo); Shimba, Kenta (Univ. of Tokyo); Takayama, Yuzo (Univ. of Tokyo); Moriguchi, Hiroyuki (Univ. of Tokyo); Miwa, Keiko (Nagoya Univ.); Kotani, Kiyoshi (Univ. of Tokyo); Lee, Jong-Kook (Nagoya Univ.); Noshiro, Makoto (Kitasato Univ.); Jimbo, Yasuhiko (Univ. of Tokyo)</i>	
15:30-17:00	WeP24.8
Oscillatory Patterns of Respiration: Consequences for the Stability and Control of Cardiac Electrophysiology	
	1949-1952
<i>Western, David* (Univ. College London); Hanson, Ben Mark (Univ. College London, UK); Gill, Jaswinder (St. Thomas Hospital); Taggart, Peter (Univ. College London)</i>	
15:30-17:00	WeP24.9
Effect of Atrioventricular Conduction on Heart Rate Variability	
	1953-1956
<i>Ahmad, Talha Jamal (King Abdullah Univ. of Science & Tech.); Ali, Hussnain* (Univ. of Texas at Dallas); Khan, Shoab (CASE-Ctr. for Advanced Studies)</i>	
15:30-17:00	WeP24.10
Robust Heart Rate Measurement with Phonocardiogram by On-Line Template Extraction and Matching	
	1957-1960
<i>Chen, Yu-Hsin* (Natl. Taiwan Univ.); Chen, Hong-Hui (Natl. Taiwan Univ.); Chen, Tung-Chien (Natl. Taiwan Univ.); Chen, Liang-Gee (NTU)</i>	
15:30-17:00	WeP24.11
Effects of RF Fields Emitted from Smart Phones on Cardio-Respiratory Parameters: A Preliminary Provocation Study	
	1961-1964
<i>Kwon, Min Kyung (Yonsei Univ.); Nam, Ki Chang (Yonsei Univ. College of Medicine); Lee, Da Som (Yonsei Univ.); Jang, Kyung Hwan (Yonsei Univ.); Kim, Deok Won* (Yonsei Univ. College of Medicine)</i>	

15:30-17:00		WeP24.12
Multiscale Analysis of Acceleration and Deceleration of the Instantaneous Heart Rate Using Symbolic Dynamics		1965-1968
<i>Cysarz, Dirk* (Univ. of Witten/Herdecke); Edelhäuser, Friedrich (Univ. of Witten/Herdecke); Van Leeuwen, Peter (Chair Radiology/Microtherapy, Univ. of Witten/Herdecke)</i>		
15:30-17:00		WeP24.13
Experimental Jet Lag Causes Sympathoexcitation via Oxidative Stress through AT1 Receptor in the Brainstem		1969-1972
<i>Kishi, Takuya* (Kyushu Univ. Graduate School of Medical sciences); Sunagawa, Kenji (Kyushu Univ.)</i>		
15:30-17:00		WeP24.14
Time-Frequency Heart Rate Variability Characteristics of Young Adults During Physical, Mental and Combined Stress in Laboratory Environment		1973-1976
<i>Taelman, Joachim (Katholieke Univ. Leuven); Vandeput, Steven (Dept. of Elec. Eng., Division SCD-SISTA, Katholieke Univ. Leuven, Leuven 3001, Belgium); Gligorijevic, Ivan* (Katholieke Univ. Leuven); Spaepen, Arthur (Katholieke Univ. Leuven); Van Huffel, Sabine (Katholieke Univ. Leuven)</i>		
WeP25: 15:30-17:00		America Ballroom Westin
6.11.57 Neurological Disorders (Poster Session)		
15:30-17:00		WeP25.1
Determining the Effects of Electrical Stimulation on Functional Recovery of Denervated Rat Gastrocnemius Muscle Using Motor Unit Number Estimation		1977-1980
<i>Willand, Michael P.* (McMaster Univ.); Holmes, Michael (McMaster Univ.); Bain, James R. (McMaster Univ.); Fahnestock, Margaret (McMaster Univ.); de Bruin, Hubert (McMaster Univ.)</i>		
15:30-17:00		WeP25.2
Phase-Based Measures of Cross-Frequency Coupling in Brain Electrical Dynamics under General Anesthesia		1981-1984
<i>Mukamel, Eran A* (Univ. of California, San Diego); Wong, Kin Foon Kevin (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT); Purdon, Patrick L (Massachusetts General Hospital)</i>		
15:30-17:00		WeP25.3
Fabrication of a Prototype Magnetic Stimulator Equipped with Eccentric Spiral Coils		1985-1988
<i>Kato, Takuya* (The Univ. of Tokyo); Sekino, Masaki (Univ. of Tokyo); Matsuzaki, Taiga (Teijin Pharma Limited); Nishikawa, Atsushi (Shinshu Univ.); Saitoh, Youichi (Osaka Univ.); Ohsaki, Hiroyuki (The Univ. of Tokyo)</i>		
15:30-17:00		WeP25.4
On Handling the Layered Structure of the Skull in Transcranial Direct Current Stimulation Models		1989-1992
<i>Rampersad, Sumientra (Dept. Clinical Neurophysiology, Radboud Univ. Nijmegen Medical Ctr.); Stegeman, Dick (Radboud Univ. Nijmegen Medical Ctr.); Oostendorp, Thom* (Radboud Univ. Nijmegen Medical Ctr.)</i>		
15:30-17:00		WeP25.5
Transcranial Magnetic Stimulation Coil with Electronically Switchable Active and Sham Modes		1993-1996
<i>Deng, Zhi-De* (Columbia Univ.); Peterchev, Angel V (Duke Univ.)</i>		
15:30-17:00		WeP25.6
Dorsolateral Prefrontal Cortex Sensitivity to Rtms		1997-2000
<i>de Bruin, Hubert* (McMaster Univ.); Hasey, Gary (McMaster Univ.); Hemily, Julie (McMaster Univ.)</i>		
15:30-17:00		WeP25.7
Statistical Model Applied to Motor Evoked Potentials Analysis		2001-2004
<i>Ma, Ying (Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.); Jia, Xiaofeng* (Johns Hopkins School of Medicine)</i>		
15:30-17:00		WeP25.8
Plasticity Associated Changes in Cortical Somatosensory Evoked Potentials Following Spinal Cord Injury in Rats		2005-2008
<i>Bazley, Faith A.* (Johns Hopkins Univ.); All, Angelo (Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.); Maybhathe, Anil (Johns Hopkins Univ.)</i>		

15:30-17:00	WeP25.9
Innovative Pattern Reversal Displays for Visual Electrophysiological Studies	2009-2012
<i>Toft-Nielsen, Jonathon, A* (Univ. of Miami); Bohorquez, Jorge (Univ. of Miami); Ozdamar, Ozcan (Univ. of Miami)</i>	
15:30-17:00	WeP25.10
Effects of Auditory Selective Attention on Chirp Evoked Auditory Steady State Responses	2013-2016
<i>Bohr, Andreas* (Systems Neuroscience & NeuroTech. Unit); Bernarding, Corinna (Computational Diagnostics & Biocybernetics Unit); Strauss, Daniel J. (Comp. Diagn. & Biocyb. Unit); Corona-Strauss, Farah I. (Saarland Univ. Hospital)</i>	
15:30-17:00	WeP25.11
Instrumented Toys for Studying Power and Precision Grasp Forces in Infants	2017-2020
<i>Serio, Stefano Marco* (Scuola Superiore Sant'Anna); Cecchi, Francesca (Scuola Superiore Sant'Anna); Boldrini, Elisa (Scuola Superiore Sant'Anna); Laschi, Cecilia (Scuola Superiore Sant'Anna); Sgandurra, Giuseppina (Scuola Superiore Sant'Anna); Cioni, Giovanni (Stella Maris Scientific Inst.); Dario, Paolo (IIT Italian Inst. of Tech.)</i>	
15:30-17:00	WeP25.12
HRV and EEG Based Indicators of Stress in Children with Asperger Syndrome in Audio-Visual Stimulus Test	2021-2024
<i>Tiinanen, Suvi* (Univ. of Oulu); Määttä, Antti (Univ. of Oulu); Silfverhuth, Minna (Univ. of Oulu); Suominen, Kalervo (Oulu Univ. Hospital); Jansson-Verkasalo, Eira (Univ. of Oulu); Seppänen, Tapio (Univ. of Oulu)</i>	
15:30-17:00	WeP25.13
A Computerized Perimeter for Assessing Modality-Specific Visual Field Loss	2025-2028
<i>Calabro, Finnegan J. (Boston Univ.); Vaina, Lucia* (Brain & Vision Research Lab, Boston Univ. Dept. of Biomedical Eng., Boston, MA & Harvard Medical School, Ma)</i>	
15:30-17:00	WeP25.14
Computational Modeling to Evaluate Helical Electrode Designs	2029-2032
<i>Cowley, Anthony (Cyberonics Inc.); Szlavik, Robert* (California Polytechnic State Univ.)</i>	
15:30-17:00	WeP25.15
Analysis of Complexity Based EEG Features for the Diagnosis of Alzheimer's Disease	2033-2036
<i>Staudinger, Tyler (Rowan Univ.); Polikar, Robi* (Rowan Univ.)</i>	
15:30-17:00	WeP25.16
A Modelling Study on Transmission of the Central Oscillator in Tremor by a Motor Neuron Pool	2037-2040
<i>Rocon, Eduardo* (CSIC)</i>	
15:30-17:00	WeP25.17
Vibrotactile Pattern Perception As a Method for the Assessment of Brain Dysfunction	2041-2044
<i>Mortimer, Bruce John Peter* (Eng. Acoustics Inc.)</i>	
15:30-17:00	WeP25.18
Development of Intelligent Model to Determine Favorable Wheelchair Tilt and Recline Angles for People with Spinal Cord Injury	2045-2048
<i>Fu, Jicheng* (Univ. of Central Oklahoma); Jan, Yih-Kuen (Univ. of Oklahoma Health Sciences Ctr.); Jones, Maria (Univ. of Oklahoma Health Sciences Ctr.)</i>	
15:30-17:00	WeP25.19
Laser Speckle Imaging Reveals Multiple Aspects of Cerebral Vascular Responses to Whole Body Mild Hypothermia in Rats	2049-2052
<i>Li, Nan* (Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.); Jia, Xiaofeng (Johns Hopkins School of Medicine)</i>	
15:30-17:00	WeP25.20
Characterization of the Tendon Vibration Reflex Response in Hemi-Spastic Stroke Individuals	2053-2056
<i>Suresh, Nina* (Rehabilitation Inst. of Chicago); Wang, Inga (Univ. of Wisconsin-Milwaukee); Heckman, Heckman (Feinberg School of Medicine, Northwestern Univ., Dept. of Physiology); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)</i>	

15:30-17:00 WeP25.21
Frequency Interactions in Human Epileptic Brain **2057-2060**
Cotic, Marija (Univ. of Toronto); Zalay, Osbert (Univ. of Toronto); Valiante, Taufik A. (Univ. of Toronto); Carlen, Peter L. (Univ. of Toronto); Bardakjian, Berj Luther (Univ. of Toronto)*

15:30-17:00 WeP25.22
Capturing the State Transitions of Seizure-Like Events Using Hidden Markov Models **2061-2064**
Guirgis, Mirna (Univ. of Toronto); Serletis, Demitre (Univ. of Toronto); Carlen, Peter L. (Univ. of Toronto); Bardakjian, Berj Luther (Univ. of Toronto)*

15:30-17:00 WeP25.23
Employing Neuronal Networks to Investigate the Pathophysiological Basis of Abnormal Cortical Oscillations in Alzheimer's Disease **2065-2068**
Abuhassan, Kamal (Univ. of Ulster); Coyle, Damien (Univ. of Ulster); Maguire, Liam (Univ. of Ulster)*

WeP26: 15:30-17:00 America Ballroom Westin
8.3.18 Robotics in Therapeutic Rehabilitation (Poster Session)

15:30-17:00 WeP26.1
Absolute Position Calculation for a Desktop Mobile Rehabilitation Robot Based on Three Optical Mouse Sensors **2069-2072**
Zabaleta, Haritz (Tecnalia Research & Innovation); Keller, Thierry (Tecnalia Research & Innovation); Veneman, Jan Frederik (Univ. of Twente); Perry, Joel C. (Fatronik-Tecnalia); Valencia, David (Tecnalia Research & Innovation)*

15:30-17:00 WeP26.2
An Advanced Rehabilitation Robotic System for Augmenting Healthcare **2073-2076**
Hu, John (Hstar Technologies); Lim, Yi-Je (Hstar Technologies); Ding, Ye (Hstar Technologies); Paluska, Daniel (Hstar Technologies); Solochek, Aaron (Hstar Technologies); Laffery, David (Hstar Technologies); Bonato, Paolo (Harvard Medical School)*

15:30-17:00 WeP26.3
Test for Selecting Upper Limb Robot Treatment in Stroke Patients: Triggered High-Stiffness vs. Adaptive Low-Stiffness Assistance **B#5**
Carpinella, Ilaria (Foundation Don Carlo Gnocchi Onlus); Cattaneo, Davide (Foundation Don Carlo Gnocchi Onlus); Ferrarin, Maurizio (Foundation Don Carlo Gnocchi Onlus); Morasso, Pietro (Univ. of Genova); Squeri, Valentina (Istituto Italiano di Tecnologia)*

15:30-17:00 WeP26.4
Offaxis Neuromuscular Training of Knee Injuries Using an Offaxis Robotic Elliptical Trainer **2081-2084**
Lee, Song Joo (Rehabilitation Inst. of Chicago); Ren, Yupeng (Rehabilitation Inst. of Chicago); Geiger, François (RIC); Chang, Alison (Northwestern Univ., Dept. of Physical Therapy & Human Movement Sciences); Press, Joel (Rehabilitation Inst. of Chicago); Zhang, Li-Qun (Northwestern Univ.)*

15:30-17:00 WeP26.5
Improvement of Gait & Muscle Strength with Functional Electrical Stimulation in Sub-Acute & Chronic Stroke Patients **2085-2088**
Mahadevappa, Manjunatha (Indian Inst. of Technology); Sabut, Sukanta (SMST, Indian Inst. of Technology, Kharagpur); Kumar, Ratnesh (Natl. Inst. for the Orthopaedically Handicapped); Sikdar, Chanda (NIOH)*

15:30-17:00 WeP26.6
Young's Modulus Measurement on Pig Trachea and Bronchial Airways **2089-2092**
Wang, Jau-Yi (King's College of London)*

15:30-17:00 WeP26.7
Evaluation of a Wearable Tele-Echography Robot System: FASTele in a Vehicle Using a Mobile Network **2093-2096**
Ito, Keiichiro (Waseda Univ.); Tsuruta, Koichi (Waseda Univ.); Sugano, Shigeeki (Waseda Univ.); Iwata, Hiroyasu (Waseda Univ.)*

- 15:30-17:00 WeP27.1
Design of a Telerobot for Percutaneous Instrument Distal Tip Repositioning **2097-2100**
*Walsh, Conor** (Massachusetts General Hospital); *Slocum, Alexander* (MIT);
Gupta, Rajiv (Massachusetts General Hospital)
- 15:30-17:00 WeP27.2
Accuracy of Navigated Control Concepts Using an Er: Yag-Laser for Cavity Preparation **2101-2106**
*Wolff, Regine** (Technische Univ. München); *Weitz, Jochen* (Technische Univ. München);
Poitzsch, Luise (Technische Univ. München); *Hohlweg-Majert, Bettina* (Technische Univ. München);
Deppe, Herbert (Technische Univ. München); *Lueth, Tim* (Technical Univ. of Munich)
- 15:30-17:00 WeP27.3
Virtually Transparent Epidermal Imagery for Laparo-Endoscopic Single-Site Surgery **2107-2110**
*Sun, Yu** (Univ. of South Florida); *Anderson, Adam* (Brigham Young Univ.); *Castro, Cristian* (Univ. of south Florida); *Lin, Bingxiang* (Univ. of South Florida); *Gitlin, Richard* (USF)
- 15:30-17:00 WeP27.4
Reconfigurable MRI-Guided Robotic Surgical Manipulator: Prostate Brachytherapy and Neurosurgery Applications **2111-2114**
*Su, Hao** (Worcester Polytechnic Inst.); *lordachita, Iulian* (Johns Hopkins Univ.); *Yan, Xiaoran* (Worcester Polytechnic Inst.); *Fischer, Gregory* (Worcester Polytechnic Inst.)
- 15:30-17:00 WeP27.5
Surgical Assistance for Instruments' Power Control Based on Navigation and Neuromonitoring **2115-2118**
*Shi, Jiayi** (Technical Univ. Munich); *Strauss, Gero* (Univ. of Leipzig); *Heininger, Sebastian* (Technical Univ. Munich & ERGOSURG GmbH); *Lueth, Tim* (Technical Univ. of Munich)
- 15:30-17:00 WeP27.6
Sensors Management in Robotic Neurosurgery: The ROBOCAST Project **2119-2122**
*Vaccarella, Alberto** (Politecnico di Milano); *Comparetti, Mirko Daniele* (Politecnico di Milano); *Enquobahrie, Andinet* (Kitware Inc); *Ferrigno, Giancarlo* (Politecnico di Milano); *De Momi, Elena* (Politecnico di Milano)

- 15:30-17:00 WeP28.1
Elastic Properties and Yield Stress of Fetal Membranes **2123-2126**
*Wittenberg, George** (Dept. of Veterans Affairs; Univ. of Maryland)
- 15:30-17:00 WeP28.2
A Chance-Constrained Approach to Preoperative Planning of Robotics-Assisted Interventions **2127-2130**
*Azimian, Hamidreza** (Univ. of Western Ontario); *Patel, Rajni* (London Health Sciences Ctr.);
Naish, Michael D. (The Univ. of Western Ontario, Lawson Health Research Inst.)
- 15:30-17:00 WeP28.3
ECM versus ICP for Point Registration **2131-2135**
*Xie, Weiguo** (Univ. of Bern); *Nolte, Lutz-Peter* (Univ. of Bern); *Zheng, Guoyan* (Univ. of Bern)
- 15:30-17:00 WeP28.4
Development of a StandAlone Surgical Haptic Arm **2136-2139**
Jones, Daniel (Worcester Polytechnic Inst.); *Lewis, Andrew* (Worcester Polytechnic Inst.);
*Fischer, Gregory** (Worcester Polytechnic Inst.)
- 15:30-17:00 WeP28.5
Conceptual Design of a Miniaturized Hybrid Local Actuator for Minimally Invasive Robotic Surgery (MIRS) Instruments **2140-2143**
Saedi, Soheil (Sharif Univ. of Tech. Intl. Campus); *Mirbagheri, Alireza* (Sharif Univ. of Tech.);
*Farahmand, Farzam** (Sharif Univ. of Tech.)

15:30-17:00	WeP28.6
Method, Accuracy and Limitation of Computer Interaction in the Operating Room by a Navigated Surgical Instrument	2144-2147
<i>Hurka, Florian* (Technical Univ. Munich & ERGOSURG GmbH); Wenger, Thomas (Technical Univ. Munich & ERGOSURG GmbH); Heininger, Sebastian (Technical Univ. Munich & ERGOSURG GmbH); Lueth, Tim (Technical Univ. of Munich)</i>	
15:30-17:00	WeP28.7
Technical Accuracy of an O-Arm Registered Surgical Navigator	2148-2151
<i>Koivukangas, Tapani* (Univ. of Oulu); Katisko, Jani Petri Antton (Oulu Univ. Hospital); Koivukangas, John Pertti (Oulu Univ. Hospital)</i>	
15:30-17:00	WeP28.8
A Robotics-Based Flat-Panel Ultrasound Device for Continuous Intraoperative Transcutaneous Imaging	2152-2155
<i>Gumprecht, Jan* (Technische Univ. München); Bauer, Thomas (Technische Univ. München); Stolzenburg, Jens-Uwe (Univ. of Leipzig); Lueth, Tim (Technical Univ. of Munich)</i>	
15:30-17:00	WeP28.9
Active Tracking and Dynamic Dose Delivery for Robotic Couch in Radiation Therapy	2156-2159
<i>Buzurovic, Ivan* (Thomas Jefferson Univ.); Yu, Yan (Thomas Jefferson Univ. Hospital); Podder, Tarun (Thomas Jefferson Univ.)</i>	

WeP29: 15:30-17:00	America Ballroom Westin
10.2.18 Wireless Health Technologies and Body Sensor Networks (Poster Session)	

15:30-17:00	WeP29.1
Development of a Triage Engine Enabling Behavior Recognition and Lethal Arrhythmia Detection for Remote Health Care System	2160-2163
<i>Sugano, Hiroto (Osaka City Univ.); Hara, Shinsuke* (Osaka City Univ.); Tsujioka, Tetsuo (Osaka City Univ.); Nakajima, Shigeyoshi (Osaka City Univ.); Inoue, Tadayuki (Osaka City Univ.); Kozaki, Takaaki (Osaka City Univ.); Nakamura, Hajime (Osaka City Univ.); Takeuchi, Kazuhide (Osaka City Univ.)</i>	
15:30-17:00	WeP29.2
Eye-Screen Distance Monitoring for Computer Use	2164-2167
<i>Gale, Timothy John* (Univ. of Tasmania); Eastwood-Sutherland, Caillin (Univ. of Tasmania)</i>	
15:30-17:00	WeP29.3
Onboard Tagging for Smart Medical Devices	2168-2171
<i>Li, Kejia (Kansas State Univ.); Warren, Steve* (Kansas State Univ.)</i>	
15:30-17:00	WeP29.4
Development of an Integrated Obesity Management Waist Belt System Composed of Calorie Tracking and Waist Circumference Measuring Module for Long Term Monitoring	2172-2175
<i>Jang, Yongwon* (Elec. & Telecom Research Inst.); Noh, Hyung Wook (Elec. & Telecommunications Research Inst.); Lee, InBum (ETRI); Song, Yoonseon (Elec. & Telecom Research Inst.); Lee, Sooyeul (Elec. & Telecom Research Inst)</i>	
15:30-17:00	WeP29.5
UWB-WBAN Sensor Node Design	2176-2179
<i>Yuce, Mehmet Rasit* (Univ. of Newcastle); Ho, Chee Keong (Univ. of Newcastle, Australia)</i>	
15:30-17:00	WeP29.6
Radio Frequency Identification (RFID) in Medical Environment: Gaussian Derivative Frequency Modulation (GDFM) as a Novel Modulation Technique with Minimal Interference Properties	2180-2183
<i>Rieche, Marie* (Ilmenau Univ. of Tech.); Komenský, Tomáš (Ilmenau Univ. of Tech.); Husar, Peter (Ilmenau Univ. of Tech.)</i>	
15:30-17:00	WeP29.7
Scalable Customization of Atrial Fibrillation Detection in Cardiac Monitoring Devices: Increasing Detection Accuracy through Personalized Monitoring in Large Patient Populations	2184-2187
<i>Jang, Kuk Jin* (Princeton Univ.); Balakrishnan, Guha (Univ. of Michigan – Ann Arbor); Syed, Zeeshan (Univ. of Michigan); Verma, Naveen (Princeton Univ.)</i>	

15:30-17:00	WeP29.8
Towards Wireless Emotional Valence Detection from EEG	2188-2191
<i>Brown, Lindsay (Stichting IMEC Nederland); Grundlehner, Bernard (Holst Ctr.); Penders, Julien* (imec)</i>	
15:30-17:00	WeP29.9
Improving the Reliability of Wireless Body Area Networks	2192-2195
<i>Arrobo, Gabriel* (USF); Gitlin, Richard (USF)</i>	
15:30-17:00	WeP29.10
A Mixed Signal ECG Processing Platform with an Adaptive Sampling ADC for Portable Monitoring Applications	2196-2199
<i>Kim, Hyejung* (imec); Yazicioglu, Refet Firat (IMEC); Van Hoof, Chris (IMEC)</i>	
15:30-17:00	WeP29.11
Battery Friendly Packet Transmission for Body Sensor Networks	2200-2203
<i>Li, Hong-Gang (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Li, Ye* (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences)</i>	
15:30-17:00	WeP29.12
Power Allocation Strategies to Minimize Energy Consumption in Wireless Body Area Networks	2204-2207
<i>Kailas, Aravind* (The Univ. of North Carolina at Charlotte)</i>	
15:30-17:00	WeP29.13
RiBOMS: RFID-Based Object Management System for Home Environments	2208-2211
<i>Iraola, Hodei (Univ. of Massachusetts); Schafer, James (Univ. of Massachusetts Amherst); Yu, Xunyi (Univ. of Massachusetts); Ganz, Aura* (Univ. of Massachusetts, Amherst)</i>	
15:30-17:00	WeP29.14
A Warning System Based on the RFID Technology for Running-Out of Injection Fluid	2212-2215
<i>Huang, Chi-Fang* (Tatung Univ.); Lin, Jen-Hung (Inst. of Communication Eng., Tatung Univ.)</i>	
15:30-17:00	WeP29.15
Continuous Remote Vital Sign/Environment Monitoring for Returning Soldier Adjustment Assessment	2216-2219
<i>Genc, Sahika* (General Electric Global Research Ctr.); Cleary, Daniel J (General Electric Global Research); Yardibi, Tarik (General Electric Global Research); Wood, Joseph C (Dept. of Clinical Investigation, Dwight David Eisenhower Army Medical Ctr.); Stachura, Max E. (Ctr. for Telehealth, Medical College of Georgia); Astapova, Elena V. (Ctr. for Telehealth, Medical College of Georgia)</i>	
15:30-17:00	WeP29.16
Building Smart Sensor Nodes according to IEEE 1451.3 Standard	2220-2223
<i>Costa, Murilo (Pontifical Catholic Univ. of Goias); Corre da Silva Neto, Olegario (Pontifical Catholic Univ. of Goiás); Ferreira, José Olimpio (Pontifical Catholic Univ. of Goiás); da Rocha, Adson F. (Univ. of Brasilia); Barbosa, Talles* (Pontifical Catholic Univ. of Goiás)</i>	
15:30-17:00	WeP29.17
Interoperable and Diligent Body Area Networks Over IEEE802.15.6 for Real-Time Monitoring	2224-2227
<i>Kuroda, Masahiro* (Natl. Inst of Information & Comm); Tochikubo, Osamu (Yokohama City Univ.); Takizawa, Kenichi (NICT); Kaneda, Isami (NJ Techno); Shibata, Yoshiharu (Advanced Medical)</i>	
15:30-17:00	WeP29.18
CARER: Efficient Dynamic Sensing for Continuous Activity Monitoring	2228-2232
<i>Au, Lawrence (Univ. of California, Los Angeles); Bui, Alex (Univ. of California, Los Angeles); Batalin, Maxim (Univ. of California, Los Angeles); Xu, Xiaoyu* (Univ. of California, Los Angeles); Kaiser, William (Univ. of California, Los Angeles)</i>	
15:30-17:00	WeP29.19
Gait Assessment in Parkinson's Disease Patients through a Network of Wearable Accelerometers in Unsupervised Environments	2233-2236
<i>Cancela, Jorge* (Univ. Politécnica de Madrid); Pastorino, Matteo (Univ. Politécnica de Madrid); Arredondo, María Teresa (Technical Univ. of Madrid); Pansera, Mario (Univ. Politecnica de Madrid); Pastor, Laura (Univ. Politécnica de Madrid); Villagra, Federico (Univ. of Navarra); Pastor, María A. (Univ. of Navarra, Ctr. for Applied Medical Research); Gonzalez-Marcos, Ana Pilar (Technical Univ. of Madrid)</i>	

15:30-17:00 WeP29.20
Low-Power Sensor Module for Long-Term Activity Monitoring 2237-2241
Leuenberger, Kaspar (ETH Zuerich); Gassert, Roger (ETH Zurich)*

15:30-17:00 WeP29.21
Path-Loss Estimation of Wireless Channels in Capsule Endoscopy from X-Ray CT Images 2242-2245
Takizawa, Kenichi (NICT); Hamaguchi, Kiyoshi (Natl. Inst. of Information & CommunicationsTech.); Hagiwara, Hiroaki (Yokohama City Univ.)*

15:30-17:00 WeP29.22
Long-Term Performance of a CE-Approved Telemetric Intracranial Pressure Monitoring 2246-2249
Kiefer, Michael (Saarland Univ., Medical School); Antes, Sebastian (Saarland Univ., Medical School); Schmitt, Melanie (Saarland Univ., Medical School); Krause, Inga (Helmholtz-Inst., RWTH Aachen); Eymann, Regina (Saarland Univ., Medical School)*

WeD12: 17:15-18:45 Suffolk Marriott
10.8.25 Telemedicine and Interoperability: Improved Care for Wounded Warriors (Minisymposium)
Chair: Kennedy, Sean (*Massachusetts General Hospital*)

17:15-17:30 WeD12.1
Improving Care for Veterans: Telemedicine & Electronic Information Exchange *
Kennedy, Sean (Massachusetts General Hospital); Fredman, Steffany (Massachusetts General Hospital)*

WeD16: 17:15-18:45 Dartmouth Marriott
9.3.19 Psycho Behavioral Monitoring and Cyber Therapy in Mental Disorders (Minisymposium)
Chair: Paradiso, Rita (*Smartex srl*)
Co-Chair: De Rossi, Danilo (*Univ. of Pisa*)

17:15-17:30 WeD16.1
Wearable Monitoring Systems for Psychological and Physiological State Assessment in a Naturalistic Environment 2250-2253
Paradiso, Rita (Smartex srl); Faetti, Tommaso (Smartex s.r.l.)*

17:30-17:45 WeD16.2
Affective Computing and Autism *
Picard, Rosalind (Massachusetts Inst. of Tech.)*

17:45-18:00 WeD16.3
Neuroscience, Virtual Reality and Neurorehabilitation: Brain Repair As a Validation of Brain Theory 2254-2257
Verschure, Paul F M J (SPECS, ICREA & Univ. Pompeu Fabra)*

WeD26: 16:30-18:45 Provincetown Marriott
4.2.4 Systems Models in Biology I (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Weiss, Ron (*MIT*)

16:30-17:00 WeD26.1
A Light-Based Feedback Controller for Generating User-Defined Intracellular Signaling Dynamics *
Toettcher, Jared E. (Univ. of California, San Francisco); Gong, Delquin (Delquin Gong); Lim, Wendell A. (Wendell A. Lim); Weiner, Orion D. (Orion D. Weiner)*

17:15-17:45 WeD26.2
Sloppy Models, Information Geometry, and Data Fitting *
Transtrum, Mark (Cornell Univ., Lab. of Atomic & Solid State Physics); Sethna, James (Cornell Univ., Lab. of Atomic & Solid State Physics)*

17:45-18:15 WeD26.3
Optimal Experimental Design for Model Identification in Systems Biology *
Hagen, David R. (MIT)*

18:15-18:45

WeD26.4

Multi-Factorial Analysis of Receptor-Mediated Apoptosis *

Aldridge, Bree (Harvard School of Public Health); Gaudet, Suzanne (Suzanne Gaudet);
Lauffenburger, Douglas (Massachusetts Inst. of Tech.); Sorger, Peter (Harvard Medical School)*

Thursday, 1 September 2011

ThA01: 08:00-09:30 St. George AB Westin
6.4.13 Vestibular Protheses – Medical, Scientific and Ethical Issues (Oral Session)
Chair: Hoffmann, Klaus-Peter (*Fraunhofer Inst.*)
Co-Chair: Guinand, Nils (*Univ. of Geneva*)

08:00-08:15 ThA01.1
Finding Physiological Responses in Vestibular Evoked Potentials **2258-2261**
Nguyen, Thuy Anh Khoa (ETH Zurich); Koegler, Vinzenz (ETH Zurich); DiGiovanna, Jack (ETH Zurich);
Micera, Silvestro (École Polytechnique Fédérale de Lausanne)*

08:15-08:30 ThA01.2
Vestibular Implants: The First Steps in Humans **2262-2264**
Guinand, Nils (Univ. of Geneva); Guyot, Jean-Philippe (ENT Dept., Geneva Univ. Hospital);
Kingma, Herman (Univ. Hospital Maastricht); Kos, Izabel (ENT Dept., Geneva Univ. Hospital);
Pelizzone, Marco (ENT Dept., Geneva Univ. Hospital)*

08:30-08:45 ThA01.3
Ethical Issues in the Development of a Vestibular Prosthesis **2265-2268**
Poppendieck, Wigand (Fraunhofer Institut für Biomedizinische Technik); Hoffmann, Klaus-Peter (Fraunhofer
Institut); Merfeld, Daniel (Massachusetts Eye & Ear Infirmary/Harvard Medical School); Guyot, Jean-Philippe
(ENT Dept., Geneva Univ. Hospital); Micera, Silvestro (École Polytechnique Fédérale de Lausanne)*

08:45-09:00 ThA01.4
Secret Laws of the Labyrinth **2269-2272**
David, Romain (MNHN); Berthoz, Alain (LPPA CNRS); Bennequin, Daniel (Univ. Paris 7 & LPPA to the
College de France)*

09:00-09:15 ThA01.5
Nonlinear Galilean Vestibular Receptive Fields **2273-2276**
Bennequin, Daniel (Univ. Paris 7 & LPPA to the College de France); Berthoz, Alain (LPPA CNRS)*

09:15-09:30 ThA01.6
Vestibular Prosthesis Tested in Rhesus Monkeys **2277-2279**
Lewis, Richard (MEEI, Harvard Medical School); Haburcakova, Csilla (MEEI); Gong, Wangsong (MEEI); Lee,
Daniel (MEEI, Harvard Medical School); Wall, Conrad (Harvard Medical School); Thompson, Lara (Harvard MIT
SHBT); Merfeld, Daniel (Massachusetts Eye & Ear Infirmary/Harvard Medical School)*

ThA02: 08:00-09:30 St. George CD Westin
6.1.23 Implantable Systems I (Oral Session)
Chair: Nurmikko, Arto (*Brown Univ.*)
Co-Chair: Eberle, Wolfgang (*imec*)

08:00-08:15 ThA02.1
Chronic Cuff Electrode Recordings from Walking Göttingen Mini-Pigs **2280-2283**
Andersen, Mads Peter (Neurodan A/S); Munch, Majken (Aalborg Univ.); Jensen, Winnie (Ctr. for Sensory-
Motor Interaction); Sørensen, Preben (Aalborg Hospital); Eder, Clemens (Neurodan A/S)*

08:15-08:30 ThA02.2
Compact Wireless Neural Recording System for Small Animals Using Silicon-Based Probe Arrays **2284-2287**
Ruther, Patrick (Univ. of Freiburg); Holzhammer, Tobias (Univ. of Freiburg, Dept. of Microsystems Eng.);
Herwik, Stanislav (Univ. of Freiburg); Rich, P.D. (Univ. of Cambridge, Dept. of Experimental Psychology);
Dalley, Jeff W. (Univ. of Cambridge, Dept. of Experimental Psychology); Paul, Oliver (Univ. of Freiburg);
Holtzman, Tahl (Univ. of Cambridge, Dept. of Experimental Psychology)*

08:30-08:45 ThA02.3
Robust Intraocular Acquisition of the Accommodation Demand Using Eyeball Movements 2288-2291
*Rheinschmitt, Liane** (Karlsruhe Inst. of Tech. (KIT)); *Ritter, Fabian* (Karlsruhe Inst. of Tech. (KIT));
Nagel, Jörg André (Karlsruhe Inst. of Tech. (KIT)); *Gengenbach, Ulrich* (Karlsruhe Inst. of Tech. (KIT));
Guth, Helmut (Karlsruhe Inst. of Tech. (KIT)); *Bretthauer, G* (Inst. for Applied Computer Science)

08:45-09:00 ThA02.4
Chronic Behavior Evaluation of a Micro-Machined Neural Implant with Optimized Design Based on an Experimentally Derived Model 2292-2295
*Andrei, Alexandru** (IMEC); *Welkenhuysen, Marleen* (IMEC); *Ameye, Lieveke* (K.U.Leuven);
Nuttin, Bart (KU Leuven); *Eberle, Wolfgang* (imec)

09:00-09:15 ThA02.5
Ensuring Minimal Humidity Levels in Hermetic Implant Housings 2296-2299
Schuetzler, Martin (Univ. of Freiburg); *Schatz, Andreas* (Univ. of Freiburg); *Ordonez, Juan Sebastian** (Univ. of Freiburg); *Stieglitz, Thomas* (Univ. of Freiburg)

09:15-09:30 ThA02.6
A 32-Channel Fully Implantable Wireless Neurosensor for Simultaneous Recording from Two Cortical Regions 2300-2306
*Aceros, Juan** (Brown Univ.); *Yin, Ming* (Brown Univ.); *Borton, David* (Brown Univ.);
Patterson, William (Brown Univ.); *Nurmikko, Arto* (Brown Univ.)

ThA03: 08:00-09:30	Essex Ballroom South Westin
6.10.40 Analysis of Neural Signals I (Oral Session)	
Chair: Barbieri, Riccardo (Massachusetts General Hospital-Harvard Medical School-MIT)	
Co-Chair: Poon, Chi-Sang (Massachusetts Inst. of Tech.)	

08:00-08:15 ThA03.1
An Automated Method to Determine Angular Preferentiality Using LFPs Recorded from R at Barrel Cortex by Brain-Chip Interface under Mechanical Whisker Stimulation 2307-2310
*Mahmud, Mufti** (Univ. of Padova); *Girardi, Stefano* (NeuroChip Lab., Univ. of Padova);
Maschietto, Marta (NeuroChip Lab., Univ. of Padova); *Pasqualotto, Elisabetta* (Univ. of Padova);
Vassanelli, Stefano (NeuroChip Lab., Univ. of Padova)

08:15-08:30 ThA03.2
Point-Process Analysis of Neural Spiking Activity of Muscle Spindles Recorded from Thin-Film Longitudinal Intrafascicular Electrodes 2311-2314
*Citi, Luca** (MGH/Harvard Medical School); *Djilas, Milan* (Institut de la Vision); *Azevedo-Coste, Christine* (DEMAR INRIA/LIRMM); *Yoshida, Ken* (Indiana Univ.-Purdue Univ. Indianapolis); *Brown, Emery N* (MGH-Harvard Medical School-MIT); *Barbieri, Riccardo* (MGH-Harvard Medical School-MIT)

08:30-08:45 ThA03.3
Memory Efficient On-Line Streaming for Multichannel Spike Train Analysis 2315-2318
*Yu, Bo** (Tsinghua Univ.); *Mak, Terrence* (Newcastle Univ.); *Yakovlev, Alex* (Newcastle Univ.);
Poon, Chi-Sang (Massachusetts Inst. of Tech.)

08:45-09:00 ThA03.4
Simulations of Hearing Loss and Hearing Aid: Effects on Electrophysiological Correlates of Listening Effort 2319-2322
*Bernarding, Corinna** (Computational Diagnostics & Biocybernetics Unit); *Strauss, Daniel J.* (Comp. Diagn. & Biocyb. Unit); *Latzel, Matthias* (SIEMENS Audiology); *Corona-Strauss, Farah I.* (Saarland Univ. Hospital)

09:00-09:15 ThA03.5
The Effects of Age and Hearing Impairment on the Extraction of Listening Effort Correlates 2323-2326
*Bernarding, Corinna** (Computational Diagnostics & Biocybernetics Unit); *Strauss, Daniel J.* (Comp. Diagn. & Biocyb. Unit); *Latzel, Matthias* (SIEMENS Audiology); *Seidler, Harald* (MediClin Bosenberg Kliniken); *Corona-Strauss, Farah I.* (Saarland Univ. Hospital)

09:15-09:30 ThA03.6
EEG-Based Upper Alpha Neurofeedback Training Improves Working Memory Performance 2327-2330
Escolano, Carlos (Univ. of Zaragoza); Aguilar Herrero, Monica (Bit&Brain Technologies S.L.); Minguez, Javier (Zaragoza Univ.)*

ThA05: 08:00-09:30 Essex Ballroom North Westin
6.12.45 Brain Functional Imaging (Oral Session)
Chair: Babiloni, Fabio (*Univ. of Rome*)
Co-Chair: Dumont, Guy (*Univ. of British Columbia*)

08:00-08:15 ThA05.1
Subject Identification through Standard EEG Signals During Resting States 2331-2333
De Vico Fallani, Fabrizio (Univ. Sapienza); Astolfi, Laura (Univ. of Rome); Babiloni, Fabio (Univ. of Rome); Vecchiato, Giovanni (Univ. of Rome Sapienza)*

08:15-08:30 ThA05.2
Estimating Cortical Connectivity in Functional Near Infrared Spectroscopy Using Multivariate Autoregressive Modeling 2334-2337
Molavi, Behnam (Univ. of British Columbia); Gervain, Judit (Laboratoire Psychologie de la Perception, CNRS-Paris Descartes); Dumont, Guy (Univ. of British Columbia)*

08:30-08:45 ThA05.3
Study of the Functional Hyperconnectivity between Couples of Pilots During Flight Simulation: An EEG Hyperscanning Study 2338-2341
Astolfi, Laura (Univ. of Rome); Toppi, Jlenia (Univ. of Rome "Sapienza"); Babiloni, Fabio (Univ. of Rome); Vecchiato, Giovanni (Univ. of Rome Sapienza)*

08:45-09:00 ThA05.4
BOLD Correlations to Force in Precision Grip: An Event-Related Study 2342-2346
Sulzer, James (Swiss Federal Inst. of Tech., Zurich (ETHZ)); Chib, Vikram (California Inst. of Tech.); Hepp-Reymond, Marie-Claude (Swiss Federal Inst. of Tech., Zurich, Univ. of Zurich); Kollias, Spyros (Univ. Hospital Zurich); Gassert, Roger (ETH Zurich)*

09:00-09:15 ThA05.5
ECoG Based Cortical Function Mapping Using General Linear Model 2347-2350
Qian, Tianyi (Tsinghua Univ.); Wu, Wei (Tsinghua Univ.); Zhou, WenJing (Tsinghua Univ.); Gao, Shangkai (Tsinghua Univ.); Hong, Bo (Tsinghua Univ.)*

09:15-09:30 ThA05.6
Task-Related MEG Source Localization via Discriminant Analysis 2351-2354
Zhang, Jinyin (Carnegie Mellon Univ.); Sudre, Gustavo (Carnegie Mellon Univ.); Li, Xin (Carnegie Mellon Univ.); Wang, Wei (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh); Bagic, Anto (Univ. of Pittsburgh)*

ThA07: 08:00-09:30 Boylston Marriott
6.6.17 What Is Motor Skill and Can Technology Enhance It? (Oral Session)
Chair: Sanguineti, Vittorio (*Univ. of Genoa*)
Co-Chair: Krakauer, John W. (*Johns Hopkins Univ.*)

08:00-08:15 ThA07.1
Toward 'optimal' Schemes of Robot Assistance to Facilitate Motor Skill Learning 2355-2358
Basteris, Angelo (Univ. of Genoa, Italy); Sanguineti, Vittorio (Univ. of Genoa)*

08:15-08:30 ThA07.2
Motor Skills: Exploiting Stability, Channeling Variability, and Optimizing Safety Margins *
Sternad, Dagmar (Northeastern Univ.)*

08:30-08:45 ThA07.3
Defining Motor Skill Learning As Improvement in Movement Execution *
Shmuelof, Lior (Motor performance lab, Columbia Univ.); Krakauer, John W. (Johns Hopkins Univ.); Mazzoni, Pietro (Columbia Univ.)*

08:45-09:00 ThA07.4
MusicGlove: Motivating and Quantifying Hand Movement Rehabilitation by Using Functional Grips to Play Music 2359-2363
Friedman, Nizan (Univ. of California, Irvine); Chan, Vicky (Univ. of California in Irvine); Zondervan, Danny (Univ. of California, Irvine); Bachman, Mark (Univ. of California, Irvine); Reinkensmeyer, David J. (Univ. of California)*

09:00-09:15 ThA07.5
Enhancing Motor Skill Learning with Noninvasive Brain Stimulation *
Schambra, Heidi (Columbia Univ.)*

09:15-09:30 ThA07.6
Classification of Strategies for Disturbance Attenuation in Human-Human Collaborative Tasks 2364-2367
Melendez-Calderon, Alejandro (Imperial Collge of Science, Tech. & Medicine); Komisar, Vicki (Imperial College of Science, Tech. & Medicine); Ganesh, Gowrishankar (NICT, ATR_CNS); Burdet, Etienne (Imperial Collge of Science, Tech. & Medicine)*

ThA10: 08:00-09:30 Simmons Marriott
10.6.6 Health Information Management and Electronic Health Records (Oral Session)
Chair: Nikita, Konstantina (*Natl. Tech. Univ. of Athens*)
Co-Chair: Jafari, Roozbeh (*Univ. of Texas at Dallas*)

08:00-08:15 ThA10.1
MEDIFRAME – Remote Volume Rendering Visualization Framework 2368-2371
Unterhinninghofen, Roland (Karlsruhe Inst. of Tech. (KIT)); Giesel, Frederik (Univ. of Heidelberg); Dillmann, Rüdiger (Karlsruhe Inst. of Tech. (KIT))*

08:15-08:30 ThA10.2
A Semantically-Aided Approach for Online Annotation and Retrieval of Medical Images 2372-2375
Kyrgiazos, George (Natl. Technical Univ. of Athens); Gerostathopoulos, Ilias (Natl. Technical Univ. of Athens (NTUA)); Koliass, Vassileios (Natl. Technological Univ. of Athens); Stoitsis, John (Inst. of Communication); Nikita, Konstantina (Natl. Technical Univ. of Athens)*

08:30-08:45 ThA10.3
Biomedical Devices and Systems Security 2376-2379
Arney, David (CIMIT, Univ. of Pennsylvania); Venkatasubramanian, Krishna Kumar (Univ. of Pennsylvania); Lee, Insup (Univ. of Pennsylvania); Sokolsky, Oleg (Univ. of Pennsylvania)*

08:45-09:00 ThA10.4
Assessing HIPAA Standard in Practice: PHRs Privacy Policies 2380-2383
Carrión Señor, Inmaculada (Univ. of Murcia); Fernandez Aleman, Jose Luis (Univ. of Murcia); Toval, Ambrosio (Univ. of Murcia)*

09:00-09:15 ThA10.5
Study on Self Hearing Assessment Using Speech Sounds 2384-2387
Sohn, Junil (Samsung Advanced Inst. of Tech.); Kim, Dongwook (Samsung Advanced Inst. of Tech.); Ku, Yunseo (with Samsung Advanced Inst. of Tech. (SAIT), Korea); Lee, Kyungwon (Hallym Univ. of Graduate Studies, Korea); Lee, Junghak (Hallym Univ. of Graduate Studies, Korea)*

09:15-09:30 ThA10.6
WiiPD – An Approach for the Objective Home Assessment of Parkinson's Disease 2388-2391
Synnott, Jonathan (Univ. of Ulster); Chen, Liming (Univ. of Ulster); Nugent, Chris (Univ. of Ulster); Moore, George (Univ. of Ulster)*

ThA11: 08:00-09:30 Wellesley Marriott
10.1.22 Rethinking Health: ICT Enabled Services for People to Be Responsible for Their Health (Minisymposium)
Chair: Saranummi, Niilo (*VTT Tech. Res. Centre*)
Co-Chair: Meneu, Teresa (*Univ. Pol. de Valencia*)

08:00-08:15 ThA11.1
Rethinking Health 2392-2394
Saranummi, Niilo (VTT Technical Research Ctr.)*

08:15-08:30	ThA11.2
HealthPGS, Guiding Patients and Citizens in the Co-Production of Health	*
<i>Meneu, Teresa* (Univ. Politécnica de Valencia); Sanchez-Calzon, Ana Belen (Univ. Politecnica de Valencia); Traver, Vicente (Inst. ITACA)</i>	
08:30-08:45	ThA11.3
Health Guidance: Supporting Behavior Change in Personal Context	*
<i>Kaipainen, Kirsikka* (VTT Technical Research Ctr. of Finland)</i>	
08:45-09:00	ThA11.4
Profiling and Personalization: Identifying Individual Needs to Support Healthy Behaviour	*
<i>Honka, Anita* (VTT Technical Research Ctr. of Finland)</i>	
09:00-09:15	ThA11.5
Rules of the Game for ICT Enabled Primary Prevention – Understanding the Ecosystem	*
<i>Traver, Vicente* (Inst. ITACA); Navarro, Maria Amparo (ITACA-TSB Univ. Politécnica de Valencia); Martínez-Piqueras, Maria (ITACA-TSB Univ. Politécnica de Valencia); Meneu, Teresa (Univ. Politécnica de Valencia)</i>	

ThA12: 08:00-09:30	Suffolk Marriott
5.5.6 Cardiovascular and Pulmonary Modeling (Oral Session)	
Chair: Magjarevic, Ratko (<i>Univ. of Zagreb</i>)	
Co-Chair: Ursino, Mauro (<i>Univ. of Bologna</i>)	

08:00-08:15	ThA12.1
Transient Respiratory Response to Hypercapnia: Analysis via a Cardiopulmonary Simulation Model	2395-2398
<i>Albanese, Antonio (Columbia Univ.); Chbat, Nicolas* (Philips Research North America); Ursino, Mauro (Univ. of Bologna)</i>	
08:15-08:30	ThA12.2
The Impact of Gravity During Head-Up Tilt	2399-2402
<i>Olufsen, Mette* (North Carolina State Univ.); Kaye Smith, Brittany (North Carolina State Univ.); Mehlsen, Jesper (Frederiksberg Hospital, Denmark); Ottesen, Johnny T (Roskilde Univ., Denmark)</i>	
08:30-08:45	ThA12.3
Modeling Study of the Failing Heart and its Interaction with an Implantable Rotary Blood Pump	2403-2409
<i>Ramachandran, Deepa (Rice Univ.); Luo, Chuan (Rice Univ.); Ma, Tony (VA Medical Ctr.); Clark, John W.* (Rice Univ.)</i>	
08:45-09:00	ThA12.4
Toward Online, Noninvasive, Nonlinear Assessment of Cerebral Autoregulation	2410-2413
<i>Aoi, Mikio* (North Carolina State Univ.); Matzuka, Brett (North Carolina State Univ., Biomathematics Program); Olufsen, Mette (North Carolina State Univ.)</i>	
09:00-09:15	ThA12.5
A Multiscale Bidirectional Coupling Framework	2414-2417
<i>Kabilan, Senthil* (Pacific Northwest Natl. Lab.); Kuprat, Andrew (Pacific Northwest Natl. Lab.); Hlastala, Michael (Univ. of Washington, Seattle, WA); Corley, Richard (Pacific Northwest Natl. Lab.); Einstein, Daniel (Pacific Northwest Natl. Lab.)</i>	
09:15-09:30	ThA12.6
Modeling Cardio-Respiratory System Response to Inhaled CO2 in Patients with Congestive Heart Failure	2418-2421
<i>Batzel, Jerry (Medical Univ. Graz); Ellwein, Laura (Marquette Univ.); Olufsen, Mette* (North Carolina State Univ.)</i>	

ThA13: 08:00-09:30 Arlington Marriott
4.5.14 Models of Biological Networks and Gene Regulation (Oral Session)
Chair: Zoltowski, Mariusz, Leslaw (*CM UMK in Bydgoszcz (Univ. of Torun)*)
Co-Chair: Amar, Salomon (*Boston Univ.*)

08:00-08:15 ThA13.1
Robustness of Inverse Perturbation for Discrete Event Control 2422-2425
*Bouaynaya, Nidhal** (*Univ. of Arkansas at Little Rock*); *Schonfeld, Dan* (*Univ. of Illinois at Chicago*);
Shterenberg, Roman (*Univ. of Alabama at Birmingham*)

08:15-08:30 ThA13.2
An Analytical Study of Relay Neuron's Reliability: Dependence on Input and Model Parameters 2426-2429
*Agarwal, Rahul** (*Johns Hopkins Univ.*); *Sarma, Sridevi V.* (*Johns Hopkins Univ.*)

08:30-08:45 ThA13.3
An Application of Monotone Functions Decomposition to the Reconstruction of Gene Regulatory Networks 2430-2433
Chang, H.J. (*Imperial College London*); *Richard, Guilhem** (*Boston Univ.*); *Julius, Agung* (*Rensselaer Polytechnic Inst.*); *Belta, Calin* (*Boston Univ.*); *Amar, Salomon* (*Boston Univ.*)

08:45-09:00 ThA13.4
GIST: A Gibbs Sampler to Identify Intracellular Signal Transduction Pathways 2434-2437
*Gu, Jinghua** (*Virginia Polytechnic Inst. & State Univ.*); *Chen, Wang* (*Virginia Polytechnic Inst. & State Univ.*);
Shih, Ie-Ming (*John Hopkins Univ.*); *Wang, Tian-Li* (*John Hopkins Univ.*); *Wang, Yue* (*Virginia Polytechnic Inst. & State Univ.*); *Clarke, Robert* (*Lombardi Comprehensive Cancer Ctr., Georgetown Univ.*);
Xuan, Jianhua (*Virginia Polytechnic Inst. & State Univ.*)

09:00-09:15 ThA13.5
Insight into DNA Periodicity by a Single-Channel Sequence Data Approach 2438-2441
*Zoltowski, Mariusz, Leslaw** (*CM UMK in Bydgoszcz (Univ. of Torun)*)

09:15-09:30 ThA13.6
GPU-Accelerated Protein Sequence Alignment 2442-2446
*Hasan, Laiq** (*TU Delft*); *Kentie, Marijn* (*TU Delft*); *Al-Ars, Zaid* (*TU Delft*)

ThA15: 08:00-09:30 Clarendon Marriott
7.9.1 Vascular Tissue Engineering (Oral Session)
Chair: Arjunan, Krishna (*Drexel Univ.*)
Co-Chair: Nukavarapu, Syam (*Univ. of Connecticut*)

08:00-08:15 ThA15.1
Non-Thermal Dielectric Barrier Discharge Plasma Induces Angiogenesis through Reactive Oxygen Species 2447-2450
*Morss Clyne, Alisa** (*Drexel Univ.*); *Arjunan, Krishna* (*Drexel Univ.*)

08:15-08:30 ThA15.2
Electrical Detachment of Cells for Engineering Capillary-Like Structures in a Photocrosslinkable Hydrogel 2451-2454
Osaki, Tatsuya (*Univ. of Tsukuba*); *Kakegawa, Takahiro* (*Univ. of Tsukuba*); *Suzuki, Hiroaki* (*Univ. of Tsukuba*);
*Fukuda, Junji** (*Univ. of Tsukuba*)

08:30-08:45 ThA15.3
A Study on the Cellular Structure During Stress Solicitation Induced by BioMEMS 2455-2458
*Fior, Raffaella** (*Univ. of Trieste*); *Maggiolino, Stefano* (*Univ. of Trieste Dept. of Industrial Eng. & Information Tech.*); *Codan, Barbara* (*Univ. of Trieste Dept. of Industrial Eng. & Information Tech.*); *Sbaizero, Orfeo* (*Univ. of Trieste Dept. of Industrial Eng. & Information Tech.*)

08:45-09:00 ThA15.4
Fabrication of Interpenetrate Chitosan: Bioactive Glass, Using Dense Gas CO₂ 2459-2463
Fathi, Ali (*the Univ. of Sydney, School of Chemical & Biomolecular Eng.*);
*Ravarian, Roya** (*the Univ. of Sydney, School of Chemical & Biomolecular Eng.*)

09:00-09:15 ThA15.5
Optimal Scaffolds and Effective Progenitor Cells for the Regeneration of Vascularized Bone 2464-2467
Nukavarapu, Syam (Univ. of Connecticut); Amini, Ami (Univ. of Connecticut)*

09:15-09:30 ThA15.6
The Use of Sonication Treatment to Completely Decellularize Blood Arteries: A Pilot Study 2468-2471
Azhim, Azran (Tokyo Denki Univ.); Yamagami, Kazuki (Division of Life Science & Eng., Tokyo Denki Univ.); Muramatsu, Kazuaki (Division of Life Science & Eng., Tokyo Denki Univ.); Morimoto, Yuji (Dept. Int. Physiol. Bio-Nano Medicine, Natl. Defense Medical College); Tanaka, Masato (Tokyo Denki Univ.)*

ThA16: 08:00-09:30 Darthmouth Marriott
9.4.6 Cardiovascular Diagnostic and Therapeutic Devices and Modeling (Oral Session)
Chair: Poon, Carmen CY (*The Chinese Univ. of Hong Kong*)
Co-Chair: Scheffer, Cornie (*Stellenbosch Univ.*)

08:00-08:15 ThA16.1
Multi-Signal Electromechanical Cardiovascular Monitoring on a Modified Home Bathroom Scale 2472-2475
Inan, Omer (Stanford Univ.); Park, Dookun (Stanford Univ.); Kovacs, Gregory T.A. (Stanford Univ.); Giovangrandi, Laurent (Stanford Univ.)*

08:15-08:30 ThA16.2
Beating-Heart Mitral Valve Chordal Replacement 2476-2479
Laing, Genevieve (Boston Univ.); Dupont, Pierre (Children's Hospital/Harvard Medical School)*

08:30-08:45 ThA16.3
Preferred Patterns of Diastolic Timed Vibrations for Pre-Hospitalization Treatment of Acute Coronary Ischemia 2480-2483
Kajbafzadeh, Behrad (Simon Fraser Univ.); Marzencki, Marcin (Simon Fraser Univ.); Alavi, Nezam (Simon Fraser Univ.); Khosrow-khavar, Farzad (Simon Fraser Univ.); Tavakolian, Kouhyar (Simon Fraser Univ.); Kaminska, Bozena (Simon Fraser Univ.); Menon, Carlo (Simon Fraser Univ.)*

08:45-09:00 ThA16.4
The Impact of Various Backboard Configurations on Compression Stiffness in a Manikin Study of CPR ... 2484-2487
Cloete, Garth (Stellenbosch Univ.); Dellimore, Kiran (Stellenbosch Univ.); Scheffer, Cornie (Stellenbosch Univ.)*

09:00-09:15 ThA16.5
Designing for Reliable Textile Neonatal ECG Monitoring Using Multi-Sensor Recordings 2488-2491
Bouwstra, Sibrecht (Eindhoven Univ. of Tech.); Chen, Wei (Eindhoven Univ. of Tech.); Feijs, Loe (Eindhoven Univ. of Tech.); Bambang Oetomo, Sidarto (Máxima Medical Ctr.); Cluitmans, Pierre J.M. (Eindhoven Univ. of Tech.)*

09:15-09:30 ThA16.6
Blood Pressure Estimation Using Oscillometric Pulse Morphology 2492-2496
Mafi, Majid (Univ. of Ottawa); Rajan, Sreeraman (School of Information Tech. & Eng. (SITE), Univ. of Ottawa); Bolic, Miodrag (Univ. of Ottawa); Groza, Voicu (Univ. of Ottawa); Dajani, Hilmi (Univ. of Ottawa)*

ThA17: 08:00-09:30 Exeter Marriott
3.6.1 Intelligent eHealth Monitoring Systems (Oral Session)
Chair: Pattichis, Constantinos (*Univ. of Cyprus*)
Co-Chair: Cafazzo, Joseph (*Univ. Health Network*)

08:00-08:15 ThA17.1
Fabric Circuit Board-Based Dry Electrode and Its Characteristics for Long-Term Physiological Signal Recording 2497-2500
Yoo, Jerald (Masdar Inst. of Science & Tech.); Yoo, Hoi-Jun (KAIST)*

08:15-08:30 ThA17.2
eEmergency Health Care Information Systems 2501-2504
Kyriacou, Efthymoulos (Frederick Univ. Cyprus); Constantinides, Panos (Frederick Univ. Cyprus); Pattichis, Constantinos (Univ. of Cyprus); Pattichis, Marios (Univ. of New Mexico.); Panayides, Andreas (Univ. of Cyprus)*

08:30-08:45	ThA17.3
A Web Services-Based Exergaming Platform for Senior Citizens: The Long Lasting Memories Project Approach to E-Health Care 2505-2509	
<i>Bamidis, Panagiotis (Aristotle Univ.); Konstantinidis, Evdokimos (Aristotle Univ. of Thessaloniki); Billis, Antonis (Aristotle Univ. of Thessaloniki); Frantzidis, Christos (Aristotle Univ. of Thessaloniki); Hlauschek, Walter (CEIT RALTEC, Inst. for Rehabilitation & Assisted Living Technologies, Schwechat, Austria); Kyriacou, Efthymoulos (Frederick Univ. Cyprus); Pattichis, Constantinos* (Univ. of Cyprus)</i>	
08:45-09:00	ThA17.4
A Low-Power Wireless ECG Necklace for Reliable Cardiac Activity Monitoring On-The-Move *	
<i>Penders, Julien* (imec); van de Molengraft, Jef (Holst Ctr.); Altini, Marco (imec/Holst Ctr.); Yazicioglu, Refet Firat (IMEC); Van Hoof, Chris (IMEC)</i>	
09:00-09:15	ThA17.5
Wearable Healthcare with Attachable Sensors *	
<i>Yoo, Hoi-Jun* (KAIST); Yoo, Jerald (Masdar Inst. of Science & Tech.); Yan, Long (KAIST); Lee, Seulki (KAIST); Joonsung, Bae (KAIST)</i>	
09:15-09:30	ThA17.6
The Evolution of Remote Patient Monitoring: From Physician Management to Patient Self-Care *	
<i>Cafazzo, Joseph* (Univ. Health Network); Seto, Emily (Univ. Health Network)</i>	
ThA19: 08:00-09:30	Salons AB Marriott
3.4.1 Physiological Monitoring I (Oral Session)	
Chair: Bragos, Ramon (<i>Tech. Univ. of Catalonia (UPC)</i>)	
Co-Chair: Jayaraman, Sundaresan (<i>Georgia Inst. of Tech.</i>)	
08:00-08:15	ThA19.1
Recording of Electrohysterogram Laplacian Potential 2510-2513	
<i>Alberola-Rubio, Jose (Univ. Politècnica de València); Garcia-Casado, Javier* (Univ. Politècnica de València); Ye Lin, Yiyao (Univ. Politècnica de València); Prats-Boluda, Gema (Univ. Politècnica de València); Perales, Alfredo (Hospital Univ. y Politécnico La Fe de Valencia)</i>	
08:15-08:30	ThA19.2
Novel Approach to Admittance to Volume Conversion for Ventricular Volume Measurement 2514-2517	
<i>Kottam, Anil* (Scisense Inc.); Dubois, John (Scisense); McElligott, Andrew (Loyola Univ.); Henderson, Kyle (Loyola Univ.)</i>	
08:30-08:45	ThA19.3
In-Cycle Myocardium Tissue Electrical Impedance Monitoring Using Broadband Impedance Spectroscopy 2518-2521	
<i>Sanchez, Benjamin* (Technical Univ. of Catalonia, Barcelona, SPAIN); Vandersteen, Gerd (Vrije Univ. Brussels, Brussels, BELGIUM); Rosell-Ferrer, Javier (Technical Univ. of Catalonia); Cinca, Joan (Cardiology Unit, Hospital Santa Creu i Sant Pau (HSCSP)); Bragos, Ramon (Technical Univ. of Catalonia (UPC))</i>	
08:45-09:00	ThA19.4
An Unpowered, Wireless Contact Lens Pressure Sensor for Point-Of-Care Glaucoma Diagnosis 2522-2525	
<i>Yan, John* (Univ. of California, Davis)</i>	
09:00-09:15	ThA19.5
Impedance Changes According to the Degree of Atopi Dermatitis in Mice 2526-2529	
<i>Kim, Soochan* (Hankyong Natl. Univ.)</i>	
09:15-09:30	ThA19.6
Fitting the Frequency Response in Acoustic Reflectometry for an in Vitro Model of a Human Upper Airway 2530-2533	
<i>Vazquez Ceron, Ernesto R.* (Univ. Autonoma Metropolitana); Pierluissi, Joseph H (Univ. of Texas @ El Paso); Barrales Guadarrama, Victor Rogelio (Univ. Autonoma Metropolitana); Rodriguez Rodriguez, Ezequiel Meliton (Univ. Autonoma Metropolitana); Barrales Guadarrama, Raymundo (Univ. Autónoma Metropolitana–Azcapotzalco)</i>	

ThA20: 08:00-09:30 Salons CD Marriott
1.4.39 Multivariate Signal Processing (Oral Session)
Chair: Aviyente, Selin (*Michigan State Univ.*)
Co-Chair: Signorini, Maria G. (*Politecnico di Milano*)

08:00-08:15 ThA20.1
**Multivariate Synchrony Modules Identified through Multiple Subject
Community Detection in Functional Brain Networks** 2534-2537
*Bolanos, Marcos** (*Michigan State Univ.*); *Aviyente, Selin* (*Michigan State Univ.*);
Bernat, Edward (*Univ. of Minnesota*)

08:15-08:30 ThA20.2
**Assessment of Linear Regression Techniques for Modeling Multisensor Data for
Non-Invasive Continuous Glucose Monitoring** 2538-2541
*Zanon, Mattia** (*Univ. of Padova*); *Riz, Michela* (*Univ. of Padova*); *Sparacino, Giovanni* (*Univ. of Padova*);
Facchinetti, Andrea (*Univ. of Padova*); *Suri, Roland Erwin* (*Solianis Monitoring AG*); *Talary, Mark* (*Solianis
Monitoring AG*); *Cobelli, Claudio* (*Univ. of Padova*)

08:30-08:45 ThA20.3
**Parallel Independent Component Analysis Using an Optimized Neurovascular
Coupling for Concurrent EEG-Fmri Sources** 2542-2545
*Wu, Lei** (*Univ. of New Mexico*); *Eichele, Tom* (*Univ. of Bergen*); *Calhoun, Vince* (*The Mind Research
Network/Univ. of New Mexico*)

08:45-09:00 ThA20.4
Statistical Characterization of Complex-Valued EEG Spectrum During Mental Imagery Tasks 2546-2549
*S. Aghaei, Amirhossein** (*Univ. of Toronto*); *Mahanta, Mohammad Shahin* (*Univ. of Toronto*);
Plataniotis, Konstantinos (*Univ. of Toronto*); *Pasupathy, Subbarayan* (*Univ. of Toronto*)

09:00-09:15 ThA20.5
System Identification of Baroreflex Response to Mild Lower Body Negative Pressure 2550-2553
*Aletti, Federico** (*Politecnico di Milano*); *Ferrario, Manuela* (*Politecnico di Milano*); *Xu, Da* (*Univ. of Waterloo*);
Danielle, Greaves (*Faculty of Applied Health Sciences, Univ. of Waterloo*); *Shoemaker, Kevin* (*the Univ. of
Western Ontario*); *Arbeille, Philippe* (*Univ. of Tours*); *Cerutti, Sergio* (*Politecnico di Milano*); *Hughson, Richard*
(*Faculty of Applied Health Sciences, Univ. of Waterloo*); *Baselli, Giuseppe* (*Politecnico di Milano*)

09:15-09:30 ThA20.6
**Factors Influencing Differences between Invasive and Spontaneous
Baroreflex Estimates: Distinct Methods or Different Data?** 2554-2557
*Gouveia, Sonia** (*Univ. do Porto*); *Rocha, Ana Paula* (*Univ. do Porto/CMUP*); *Van de Borne, Philippe* (*Hôpital
Erasmus*); *Laguna, Pablo* (*Zaragoza Univ. & CIBER-BBN*)

ThA21: 08:00-09:30 Salon E Marriott
1.3.31 Nonlinear Analysis of Biomedical Signals III (Oral Session)
Chair: Bardakjian, Berj Luther (*Univ. of Toronto*)
Co-Chair: Fazel-Rezai, Reza (*Univ. of North Dakota*)

08:00-08:15 ThA21.1
**A Waveform Independent Cell Identification Method to Study Long-Term
Variability of Spike Recordings** 2558-2561
Chah, Ehsan (*Trinity College Dublin*); *Hok, Vincent* (*Trinity College Inst. of Neuroscience, Trinity College
Dublin, Ireland*); *O'Mara, Shane M.* (*Trinity College Inst. of Neuroscience, Trinity College Dublin, Ireland*);
*Reilly, Richard** (*Trinity College Dublin*)

08:15-08:30 ThA21.2
**Changes in Dynamical Characteristics of Epileptic EEG in Rats Using
Recurrence Quantification Analysis** 2562-2565
Rabbi, Ahmed Fazle (*Univ. of North Dakota*); *Jaiswal, Manoj Kumar* (*Univ. of North Dakota*);
Lei, Saobo (*Univ. of North Dakota*); *Fazel-Rezai, Reza** (*Univ. of North Dakota*)

08:30-08:45 ThA21.3
Seizure Prediction in Intracranial EEG: A Patient-Specific Rule-Based Approach 2566-2569
Aarabi, Ardalan (Univ. of Minnesota); He, Bin (Univ. of Minnesota)*

08:45-09:00 ThA21.4
EEG Analysis for Estimation of Duration and Inter-Event Intervals of Seizure-Like Events Recorded In-Vivo from Mice 2570-2573
Colic, Sinisa (Univ. of Toronto); Wither, Rob (Univ. of Toronto); Eubanks, James (Univ. of Toronto); Zhang, Liang (Univ. of Toronto); Bardakjian, Berj Luther (Univ. of Toronto)*

09:00-09:15 ThA21.5
Auto-Mutual Information Function of the EEG As a Measure of Depth of Anesthesia 2574-2577
Julitta, Barbara (Univ. Politècnica de Catalunya); Vallverdu, Montserrat (Univ. Politècnica de Catalunya); Melia, Umberto Sergio Pio (Univ. Politècnica de Catalunya); Tupaika, Nadine (Univ. Politècnica de Catalunya); Jospin, Mathieu (Technical Univ. of Catalonia (UPC)); Jensen, Erik Weber (Aircraft Medical Medical); Struys, Michel (Ghent Univ. Hospital); Vereecke, Hugo (Ghent Univ. Hospital); Caminal, Pere (Technical Univ. of Catalonia (UPC))*

09:15-09:30 ThA21.6
Phase-Based Features for Motor Imagery Brain-Computer Interfaces 2578-2581
Hamner, Benjamin (EPFL); Leeb, Robert (Ecole Polytechnique Fédérale de Lausanne); Tavella, Michele (Ecole Polytechnique Fédérale de Lausanne); Millán, José del R. (Swiss Federal Inst. of Tech., Lausanne)*

ThA22: 08:00-09:30 Salon F Marriott
1.4.37 Advances in Biomedical Signal Classification (Oral Session)
Chair: Voss, Andreas (*Univ. of Applied Sciences Jena*)
Co-Chair: Verma, Naveen (*Princeton Univ.*)

08:00-08:15 ThA22.1
Time-Domain ECG Signal Analysis Based on Smart-Phone 2582-2585
Zhou, Shijie (Dalhousie Univ.); Zhang, Zichen (Dalhousie Univ.); Gu, Jason (Dalhousie Univ.)*

08:15-08:30 ThA22.2
Topographic Imaging of the Atrial Electrical Activity During Atrial Fibrillation for the Analysis of Uniform Distributions of the Surface Electrical Potentials 2586-2589
Bonizzi, Pietro (Maastricht Univ.); Meste, Olivier (UNSA-CNRS); Zarzoso, Vicente (Univ. Nice Sophia Antipolis – CNRS); Westra, Ronald (Univ. Maastricht); Karel, Joël (Maastricht Univ.); Guillem, Maria S. (Univ. Politècnica de Valencia); Castells, Francisco (Univ. Politècnica de Valencia)*

08:30-08:45 ThA22.3
Preliminary Feasibility Analysis of Remote Subject Identification During Hemodynamic Monitoring by Radio Frequency Impedance 2590-2593
O Griofa, Marc (Univ. of Limerick; Noninvasive Medical Technologies, Inc.); Blue, Rebecca (Orlando Health); Friedman, Robert (Noninvasive Medical Technologies, Inc); Hamski, Phillip (Noninvasive Medical Technologies, Inc); Bhagavatula, Madhusudan (Carnegie Mellon Univ.); Jaech, Aaron (Carnegie Mellon Univ.); Hu, Si Ying (Carnegie Mellon Univ.); Savvides, Marios (Carnegie Mellon Univ.)*

08:45-09:00 ThA22.4
Affective Assessment of Computer Users Based on Processing the Pupil Diameter Signal 2594-2597
Ren, Peng (Florida Intl. Univ.); Barreto, Armando (Florida Intl. Univ.); Gao, Ying (Univ. of Wisconsin – Platteville); Adjouadi, Malek (Florida Intl. Univ.)*

09:00-09:15 ThA22.5
Entropy Measures for Discrimination of ‘Awake’ vs ‘Anaesthetized’ State in Recovery from General Anesthesia 2598-2601
Nicolaou, Nicoletta (Univ. of Cyprus); Houris, Saverios (Nicosia General Hospital); Alexandrou, Pandelitsa (Nicosia General Hospital); Georgiou, Julio (Univ. of Cyprus)*

09:15-09:30 ThA22.6
Classification of Multichannel Uterine EMG Signals 2602-2605
Moslem, Bassam (Univ. Libanaise/Univ. de Technologie Compiègne); Diab, Mohamad (Univ. of Tech. of Compiègne); Khalil, Mohamad (Lebanese Univ.); Marque, Catherine (Univ. of Tech. of Compiègne)*

ThA23: 08:00-09:30 Salon G Marriott
2.8.38 Retinal Image Analysis I (Oral Session)
Chair: Ruggeri, Alfredo (*Univ. of Padua*)
Co-Chair: Hubschman, Jean Pierre (*UCLA*)

08:00-08:15 ThA23.1
Automatic Retinal Vessel Profiling Using Multi-Step Regression Method 2606-2609
Aliahmad, Behzad (RMIT Univ.); Kant Kumar, Dinesh (RMIT Univ.); Janghorban, Samira (RMIT Univ.);
Che Azemin, Mohd Zulfaezal (RMIT Univ.); Hao, Hao (RMIT Univ.); kawasaki, Ryo (Royal Victorian Eye & Ear
Hospital, Univ. of Melbourne)*

08:15-08:30 ThA23.2
**Scale-Invariant Vesselness Filtering for Simultaneous Extraction of Optimal Medial and
Boundary Paths in Retinal Images 2610-2613**
Zhu, Tao (AT&T); Schaefer, Gerald (Loughborough Univ.)*

08:30-08:45 ThA23.3
Improving Vessel Segmentation in Ultra-Wide Field-Of-View Retinal Fluorescein Angiograms 2614-2617
*Perez-Rovira, Adria (Univ. of Dundee); Zutis, Kris (Univ. of Dundee); Hubschman, Jean Pierre (UCLA);
Trucco, Emanuele* (Univ. of Dundee)*

08:45-09:00 ThA23.4
**Joint Spatio-Temporal Registration and Microvasculature Segmentation of
Retinal Angiogram Sequences 2618-2621**
Cao, Shuoying (Imperial College London); Bharath, Anil (Imperial College London); Parker, Kim (Imperial
College London); Ng, Jeffrey (Imperial College London); Arnold, John (Hammersmith Hospital, Imperial College
Healthcare NHS Trust); McGregor, Alison (Imperial College London); Hill, Adam (Imperial College London)*

09:00-09:15 ThA23.5
**Computerized Analysis of Narrow-Field ROP Images for the Assessment of
Vessel Caliber and Tortuosity 2622-2625**
Fiorin, Diego (Univ. of Padova); Ruggeri, Alfredo (Univ. of Padua)*

09:15-09:30 ThA23.6
Model-Based Optic Nerve Head Segmentation on Retinal Fundus Images 2626-2629
Yin, Fengshou (Inst. for Infocomm Research); Liu, Jiang (Inst. for Infocomm Research, A STAR);
Ong, Sim Heng (Natl. Univ. of Singapore); Sun, Ying (Natl. Univ. of Singapore); Wong, Damon (Inst. for
Infocomm Research); Tan, Ngan Meng (A*STAR, Inst. for Infocomm Research); Cheung, Carol (Singapore Eye
Research Inst.); Baskaran, Mani (Singapore Eye Research Inst.); Aung, Tin (Singapore Eye Research Inst.);
Wong, Tien Yin (Natl. Univ. of Singapore)*

ThA24: 08:00-09:30 Salon HI Marriott
2.7.25 Rigid-Body Image Registration (Oral Session)
Chair: Chung, Albert C. S. (*The Hong Kong Univ. of Sci & Tech.*)
Co-Chair: Jhunjhunwala, Priyavrat (*GE Global Res.*)

08:00-08:15 ThA24.1
**Hextuple Registration of Interim and Follow-Up PET-CT Images for the Accurate
Tracking of Patient Recovery After Therapy 2630-2633**
Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.); Bandi, Peter (Mediso Medical Imaging Systems Ltd.);
Garai, Ildiko (Medical Univ. of Debrecen, Scanomed Ltd.); Papp, Laszlo (Mediso Medical Imaging Systems Ltd.)*

08:15-08:30 ThA24.2
Image Geometric Corrections for a New EMCCD-Based Dual Modular X-Ray Imager 2634-2637
Qu, Bin (State Univ. of New York at Buffalo); Huang, Ying (Univ. at Buffalo); Wang, Weiyuan (Univ. at Buffalo);
Cartwright, Alexander (Elec. Eng., Univ. at Buffalo, SUNY); Titus, Albert (Univ. at Buffalo, The State Univ. of
New York); Bednarek, Daniel (Univ. at Buffalo); Rudin, Stephen (Univ. at Buffalo)*

08:30-08:45 ThA24.3
A Robust Registration Method for Real-Time Ultrasound Image Fusion with Pre-Acquired 3D Dataset ... 2638-2641
*Zhu, Liren (Tsinghua Univ.); Ding, Hui (Tsinghua Univ.); Zhu, Lei (Beijing Shen Mindray Medical Elec. Tech.
Acad.Co, Ltd.); Wang, Guangzhi* (Tsinghua Univ.)*

09:00-09:15

ThA24.4

Learning-Based Multi-Modal Rigid Image Registration by Using Bhattacharyya Distances 2642-2645
So, Wai King (The Hong Kong Univ. of Science & Tech.); Chung, Albert C. S. (The Hong Kong Univ. of Sci & Tech)*

ThA25: 08:00-09:30

Salon JK Marriott

2.8.32 Cardiac Image Analysis (Oral Session)

Chair: Laine, Andrew (*Columbia Univ.*)

Co-Chair: Po, Ming Jack (*Columbia Univ.*)

08:00-08:15

ThA25.1

Three-Dimensional Quantification of Regional Left-Ventricular Dyssynchrony by Magnetic Resonance Imaging 2646-2649

Mischi, Massimo (Eindhoven Univ. of Tech.); Kaklidou, Foteini (Eindhoven Univ. of Tech.); Houthuizen, Patrick (Maastricht Univ.); Aben, Jean-Paul (Pie Medical Imaging); Prinzen, Frits (Cardiovascular Research Inst. Maastricht); Bracke, Frank (Catharina Hospital Eindhoven); van den Bosch, Harrie (Catharina Hospital); Korsten, Erik (Catharina Hospital Eindhoven)*

08:15-08:30

ThA25.2

Myocardial Strain Estimated from Standard Cine MRI Closely Represents Strain Estimated from Dedicated Strain-Encoded MRI 2650-2653

Allan, Andrew (BHF Glasgow Cardiovascular Research Ctr., Univ. of Glasgow); Gao, Hao (Univ. of Strathclyde & Univ. of Glasgow); McComb, Christie (NHS Greater Glasgow & Clyde); Berry, Colin (Univ. of Glasgow)*

08:30-08:45

ThA25.3

Parameterization of Real-Time 3D Speckle Tracking Framework for Cardiac Strain Assessment 2654-2657

Lorsakul, Auranuch (Columbia Univ.); Duan, Qi (NIH); Po, Ming Jack (Columbia Univ.); Angelini, Elsa (Ecole Nat. Supérieure des Telecom); Homma, Shunichi (Columbia Univ.); Laine, Andrew (Columbia Univ.)*

08:45-09:00

ThA25.4

Manifold Learning for Shape Guided Segmentation of Cardiac Boundaries: Application to 3D+t Cardiac MR 2658-2662

Eslami, Abouzar (Technical Univ. of Munich); Yigitsoy, Mehmet (Technische Univ. München); Navab, Nasir (Technische Univ. München)*

09:00-09:15

ThA25.5

Comparison of Different Segmentation Approaches without Using Gold Standard. Application to the Estimation of the Left Ventricle Ejection Fraction from Cardiac Cine MRI Sequences 2663-2666

Lebenberg, Jessica (ESME-Sudria, INSERM UMR_S 678); Buvat, Irène (Inserm U494); Garreau, Mireille (INSERM, U642, Univ. de Rennes 1); Casta, Christopher (Univ. de Lyon, CNRS UMR5220, Inserm U1044); Constantinidès, Constantin (ESME-Sudria, INSERM UMR_S 678); Cousty, Jean (ESIEE, Univ. Paris-Est, UMR8049); Cochet, Alexandre (Univ. de Bourgogne, CNRS UMR 5158); Jehan-Besson, Stéphanie (Laboratoire LIMOS); Tilmant, Christophe (Univ. Blaise Pascal); Lefort, Muriel (INSERM UMR_S 678); Roullot, Elodie (ESME-Sudria); Najman, Laurent (ESIEE, Univ. Paris-Est, UMR 8049); Sarry, Laurent (Univ. d'Auvergne); Clarysse, Patrick (Univ. of Lyon); De Cesare, Alain (INSERM); Lalande, Alain (Univ. de Bourgogne, CNRS UMR 5158); Frouin, Frederique (INSERM)*

09:15-09:30

ThA25.6

Cubic Hermite Bezier Spline Based Reconstruction of Implanted Aortic Valve Stents from CT Images ... 2667-2670

Gessat, Michael (Univ. Hospital Zürich); Altwegg, Lukas (Univ. Hospital Zürich, Klinik für Kardiologie); Frauenfelder, Thomas (Univ. Hospital Zürich, Institut für Diagnostische und Interventionelle Radiologie); Plass, André (Univ. Hospital Zürich, Klinik für Herz- und Gefässchirurgie); Falk, Volkmar (Univ. Hospital Zürich, Klinik für Herz- und Gefässchirurgie)*

ThA27: 09:30-11:00

Provincetown Marriott

4.5.4 Systems Models in Biology II (Minisymposium)

Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)

Co-Chair: May, Elebeoba (*Sandia Natl. Lab.*)

09:30-10:00

ThA27.1

Stochastic Model of Cell Cycle Regulation in Budding Yeast *

Barik, Debashis (Memorial Sloan-Kettering Cancer Ctr.); Tyson, John J. (John J. Tyson)*

10:00-10:30	ThA27.2
Computational Design for Synthetic Biology	*
<i>Toni, Tina* (Massachusetts Inst. of Tech.)</i>	
10:30-11:00	ThA27.3
Robust Protocol Design for Cancer Immunotherapy	*
<i>White, Jacob K. (Massachusetts Inst. of Tech.); Tidor, Bruce (Massachusetts Inst. of Tech.); Kim, Bo* (Massachusetts Inst. of Tech.)</i>	

ThP11: 09:30-11:00	America Ballroom Westin
1.1.1 Nonstationary Processing of Biomedical Signals (Poster Session)	

09:30-11:00	ThP11.1
Testing for Nonlinearity in Non-Stationary Physiological Time Series	2671-2674
<i>Guarin, Diego Luis* (Univ. Tecnológica de Pereira); Delgado-Trejos, Edison (Instituto Tecnológico Metropolitano); Orozco, Alvaro (Univ. Tecnológica de Pereira)</i>	
09:30-11:00	ThP11.2
EEG Seizure Identification by Using Optimized Wavelet Decomposition	2675-2678
<i>Pinzon-Morales, Ruben-Dario (Univ. Tecnológica de Pereira); Orozco Gutierrez, Alvaro Angel* (Univ. Tecnológica de Pereira); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia)</i>	
09:30-11:00	ThP11.3
On the Automated Assessment of Levodopa-Induced Dyskinesia in Parkinson's Disease	2679-2682
<i>Tsipouras, Markos G. (Univ. of Ioannina); Tzallas, Alexandros* (Univ. of Ioannina); Fotiadis, Dimitrios I. (Univ. of Ioannina); Konitsiotis, Spiros (Medical School, Univ. of Ioannina)</i>	
09:30-11:00	ThP11.4
Discriminative Time-Frequency Kernels for Gait Analysis for Amyotrophic Lateral Sclerosis	2683-2686
<i>Sugavaneswaran, Lakshmi* (Ryerson Univ.); Umapathy, Karthikeyan (Ryerson Univ.); Krishnan, Sridhar (Ryerson Univ.)</i>	
09:30-11:00	ThP11.5
Optimal Two-Stage Filtering of Elastograms	2687-2690
<i>Subramaniam, Suba* (King's College London); Hon, Tsz Kin (King's College of London); Ling, Wing-Kuen (Univ. of Lincoln); Georgakis, Apostolos (King's College London)</i>	
09:30-11:00	ThP11.6
New Insight into Arrhythmia Onset Using HRV and BPV Analysis	2691-2694
<i>Postolache, Octavian* (Instituto de Telecomunicacoes); Postolache, Octavian (Instituto de Telecomunicações); Girão, Pedro (Instituto de Telecomunicações, & Instituto Superior Técnico, Technical Univ. of Lisbon)</i>	
09:30-11:00	ThP11.7
Quantification of Cardiovascular and Cardiorespiratory Coupling During Hypoxia with Joint Symbolic Dynamics	2695-2698
<i>Reulecke, Sina (Univ. of Applied Sciences Jena, Dept. Medical Eng. & BioTech.); Schulz, Steffen (Univ. of Applied Sciences Jena); Bauer, Reinhard (Friedrich Schiller Univ., Inst. of Molecular Cell Biology); Witte, Herbert (Friedrich Schiller Univ.); Voss, Andreas* (Univ. of Applied Sciences Jena)</i>	
09:30-11:00	ThP11.8
System Identification to Characterize Human Use of Ethanol Based on Generative Point-Process Models of Video Games with Ethanol Rewards	2699-2702
<i>Ozil, Ipek (Cornell Univ.); Plawecki, Martin (Purdue Univ.); Doerschuk, Peter C.* (Cornell Univ.); O'Connor, Sean (Indiana Univ. School of Medicine & Purdue Univ.)</i>	
09:30-11:00	ThP11.9
A 1.72μW, 23.2fj/conversion Step Successive Approach ADC for Bio-Medical Signal Acquisition	2703-2706
<i>Wang, Wei-Sheng* (Nation Tsing Hua Univ.); Tang, Kea Tiong (Natl. Tsing Hua Univ.)</i>	

1.3.12 Advances in Nonlinear Analysis of Biomedical Signals (Poster Session)

- 09:30-11:00 ThP12.1
Theoretical and Experimental Analysis of the Non Markov Parameter to Detect Synchronicity in Complex Time Signals 2707-2711
Varghese, John (The Univ. of Queensland); Weegink, Kristian (The Univ. of Queensland); Bellette, Paul (The Univ. of Queensland); Meehan, Paul A (The Univ. of Queensland)*
- 09:30-11:00 ThP12.2
ECG Baseline Wander Correction by Mean-Median Filter and Discrete Wavelet Transform 2712-2715
Hao, Wei Tuo (Beijing Inst of Tech); Chen, Yu (Beijing Inst of Tech); Xin, Yi (Beijing Inst of Tech)*
- 09:30-11:00 ThP12.3
Interpretation of Coarse-Graining of Lempel-Ziv Complexity Measure in ECG Signal Analysis 2716-2719
Zhou, Shijie (Dalhousie Univ.); Zhang, Zichen (Dalhousie Univ.); Gu, Jason (Dalhousie Univ.)*
- 09:30-11:00 ThP12.4
Analysis of Degree of Nonlinearity and Stochastic Nature of HRV Signal During Meditation Using Delay Vector Variance Method 2720-2723
Kuntamalla, Srinivas (Natl. Inst. of Tech., warangal); Lekkala, Ram Gopal Reddy (Natl. Inst. of Tech., warangal)*
- 09:30-11:00 ThP12.5
Recurrence Quantification Analysis of Heart Rate Variability and Respiratory Flow Series in Patients on Weaning Trials 2724-2727
Arcenales, Andrés (Univ. Politècnica de Catalunya); Giraldo, Beatriz (Univ. Politècnica de Catalunya); Caminal, Pere (Technical Univ. of Catalonia (UPC)); Benito, Salvador (Hospital de la Santa Creu i Sant Pau); Voss, Andreas (Univ. of Applied Sciences Jena)*
- 09:30-11:00 ThP12.6
Complexity-Based Analysis for the Detection of Heart Murmurs 2728-2731
Gómez-García, Jorge Andrés (Univ. Nacional de Colombia Sede Manizales); Martínez-Vargas, Juan David (Univ. Nacional de Colombia); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia)*
- 09:30-11:00 ThP12.7
Nonlinear Dynamics of Voices in Esophageal Phonation 2732-2735
Yan, Nan (The Univ. of Hong Kong)*
- 09:30-11:00 ThP12.8
E-Tube Regression: A New Method for Motion Artifact Reduction 2736-2739
Ansari, Sardar (Virginia Commonwealth Univ.); Ward, Kevin (Virginia Commonwealth Univ.); Najarian, Kayvan (Virginia Commonwealth Univ.)*
- 09:30-11:00 ThP12.9
An Improved Algorithm for Quantifying Real-Time Impedance Biosensor Signals 2740-2744
Messing, Dean (Sharp Laboratories of America); Ghindilis, Andrey (Sharp Laboratories of America); Schwarzkopf, Kevin (Sharp Laboratories of America)*

1.7.17 Biosignal Processing and Classification (Poster Session)

- 09:30-11:00 ThP13.1
ECG Biometric Using Multilayer Perceptron and Radial Basis Function Neural Networks 2745-2748
Mai, Vu (RMIT Univ.); Khalil, Ibrahim (RMIT Univ.)*
- 09:30-11:00 ThP13.2
Individual Identification with High Frequency ECG : Preprocessing and Classification by Neural Network 2749-2751
Tashiro, Futoshi (Tokyo City Univ.)*

09:30-11:00	ThP13.3
Using Artificial Neural Networks to Classify Unknown Volatile Chemicals from the Firings of Insect Olfactory Sensory Neurons	2752-2755
<i>Bachtiar, Luqman R (The Univ. of Auckland); Unsworth, Charles Peter* (Univ. of Auckland); Newcomb, Richard D (The New Zealand Inst. for Plant & Food Research); Crampin, Edmund (Univ. of Auckland)</i>	
09:30-11:00	ThP13.4
Predicting Odorant Chemical Class from Odorant Descriptor Values with an Assembly of Multi-Layer Perceptrons	2756-2759
<i>Bachtiar, Luqman R* (The Univ. of Auckland); Unsworth, Charles Peter (Univ. of Auckland); Newcomb, Richard D (The New Zealand Inst. for Plant & Food Research); Crampin, Edmund (Univ. of Auckland)</i>	
09:30-11:00	ThP13.5
Identification of Hypoglycemic States for Patients with T1DM Using Various Parameters Derived from EEG Signals	2760-2763
<i>Nguyen, Lien B.* (Univ. of Tech., Sydney); Ling, Steve (Univ. of Tech. Sydney); Jones, Timothy (Princess Margaret Hospital for Children); Nguyen, Hung T. (Univ. of Tech., Sydney)</i>	
09:30-11:00	ThP13.6
Detection of Arousals in Parkinson's Disease Patients	2764-2767
<i>Sorensen, Gertrud Laura* (Technical Univ. of Denmark); Kempfner, Jacob (Technical Univ. of Denmark); Sorensen, Helge B D (Technical Univ. of Denmark); Jennum, Poul (Danish Ctr. for Sleep Medicing)</i>	
09:30-11:00	ThP13.7
Classification of Morphological Features Extracted from Intracranial Pressure Recordings in the Diagnosis of Normal Pressure Hydrocephalus (NPH)	2768-2771
<i>Galeano, Massimiliano* (Univ. of Messina); Calisto, Andrea (Univ. of Messina); Bramanti, Alessia (Univ. of Messina); Angileri, Flavio Filippo (Univ. of Messina); Campobello, Giuseppe (Univ. of Messina); Serrano, Salvatore (Univ. of Messina); Azzerboni, Bruno (Univ. of Messina)</i>	
09:30-11:00	ThP13.8
Binary Particle Swarm Optimization for Feature Selection in Detection of Cries of Infants with Hypothyroidism	2772-2775
<i>Zabidi, Azlee (Univ. Teknologi Mara); Lee, Khuan Y.* (Univ. Teknologi MARA); Mansor, Wahidah (Univ. Teknologi MARA); Mohd Yassin, Ahmad Ihsan (Univ. Teknologi Mara); Sahak, Rohilah (Univ. Teknologi mara)</i>	
09:30-11:00	ThP13.9
Optimization of Head Movement Recognition Using Augmented Radial Basis Function Neural Network ...	2776-2779
<i>Yuwono, Mitchell* (Univ. of Tech. Sydney); Handojoseno, Aluysius Maria Ardi (Univ. of Tech., Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney)</i>	
09:30-11:00	ThP13.10
Development and Validation of a Prototypal Neural Networks-Based Tumor Tracking Method	2780-2783
<i>Seregni, Matteo* (Politecnico di Milano); Pella, Andrea (Politecnico di Milano); Riboldi, Marco (Politecnico di Milano); Baroni, Guido (Politecnico di Milano)</i>	

ThP14: 09:30-11:00	America Ballroom Westin
2.1.4 Magnetic Resonance Imaging (Poster Session)	

09:30-11:00	ThP14.1
Investigation of Acupoint Specificity by Whole Brain Functional Connectivity Analysis from fMRI Data .	2784-2787
<i>Feng, Yuanyuan (Inst. of Automation); Bai, Lijun (Life Science Research Ctr., Xidian Univ.); Zhang, Wensheng (Inst. of Automation, Chinese Acad. of Sciences); Xue, Ting (Life Science Research Ctr., Xidian Univ.); Wang, Hu (Inst. of Automation, Chinese Acad. of Sciences); Zhong, Chongguang (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie* (Chinese Acad. of Sciences)</i>	

- 09:30-11:00 ThP14.2
**High Temporal Resolution Dynamic Contrast-Enhanced MRI at 7 Tesla:
A Feasibility Study with Mouse Liver Model** 2788-2791
Hartono, Septian (Nanyang Technological Univ.); Thng, Choon Hua (Natl. Cancer Ctr.); Ng, Quan Sing (Natl. Cancer Ctr.); Yong, Cai Xian (Singapore Bioimaging Consortium); Yang, Chang-Tong (Singapore Bioimaging Consortium); Shi, Wen (Nanyang Technological Univ.); Chuang, Kai Hsiang (Singapore Bioimaging Consortium); Koh, Tong San (Nanyang Technological Univ.)*
- 09:30-11:00 ThP14.3
**In-Vivo MRI and In-Vivo Electro-Anatomical Voltage Map Characteristics of
Infarct Heterogeneity in a Swine Model** 2792-2795
Shokrollahi, Elnaz (Univ. of Toronto); Pop, Mihaela (Univ. of Toronto); Safri, Murtaza (Sunnybrook Research Inst.); Yang, Yuesong (Sunnybrook Health Sciences Ctr., Univ. of Toronto); Radau, Perry (Sunnybrook Research Inst.); Barry, Jennifer (Sunnybrook Research Inst.); Detsky, Jay (Univ. of Toronto); Griffin, Gregory (Univ. of Toronto); Crystal, Eugene (Sunnybrook Health Science Ctr.); Wright, Graham (Univ. of Toronto)*
- 09:30-11:00 ThP14.4
Diffusion Kurtosis Imaging Discriminates Patients with White Matter Lesions from Healthy Subjects 2796-2799
Soltanian-Zadeh, Hamid (Henry Ford Health System); Iraj, Armin (Univ. of Tehran)*
- 09:30-11:00 ThP14.5
**Accurate Positioning of Magnetic Microparticles Beyond the Spatial Resolution of
Clinical MRI Scanners Using Susceptibility Artifacts** 2800-2803
Olamaei, Nina (École Polytechnique Montréal); Cheriet, Farida (Ecole Polytechnique of Montreal); Martel, Sylvain (Ecole Polytechnique de Montreal)*
- 09:30-11:00 ThP14.6
Rapid Flow Quantification in Iliac Arteries with Spiral Phase-Contrast MRI 2804-2808
Negahdar, MJ (Univ. of Louisville); Kadbi, Mo (Univ. of Louisville); Kotys, Melanie (Philips Healthcare); Alshaher, Motaz (Univ. of Louisville Hospital); Fischer, Stefan (Philips Healthcare); Amini, Amir (Univ. of Louisville)*
- 09:30-11:00 ThP14.7
**Correlation between Hemodynamic Parameters and Intra-Arterial Septum Motion in
DeBakey Type III Aortic Dissections Using 2D Pcmri and 4D MRA** 2809-2812
Karmonik, Christof (The Methodist Hospital Neurological Inst); Duran, Cassidy (The Methodist Hospital); Davies, Mark (The Methodist DeBakey Heart & Vascular Ctr.); shah, dipan (The Methodist Hospital); Lumsden, Alan (The Methodist DeBakey Heart & Vascular Ctr.); Bismuth, Jean (The Methodist Hospital DeBakey Heart & Vascular Ctr.)*
- 09:30-11:00 ThP14.8
**Exploring the Evolution of Post-Acupuncture Resting-State Networks Combining
ICA and Multivariate Granger Causality** 2813-2816
Zhong, Chongguang (Inst. of Automation, Chinese Acad. of Sciences); Bai, Lijun (Life Science Research Ctr., Xidian Univ.); Dai, Ruwei (Inst. of Automation, Chinese Acad. of Sciences); Xue, Ting (Life Science Research Ctr., Xidian Univ.); Feng, Yuanyuan (Inst. of Automation); Wang, Hu (Inst. of Automation, Chinese Acad. of Sciences); Liu, Zhenyu (Inst. of Automation, Chinese Acad. of Sciences); You, Youbo (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie (Chinese Acad. of Sciences)*
- 09:30-11:00 ThP14.9
Venous Vessel Boundary Delineation at High Field Using Sigmoid-SWI 2817-2820
Ng, Amanda Ching Lih (Univ. of Melbourne); Egan, Gary (Howard Florey Inst.); Cho, Zang-Hee (Gachon Univ. of Medicine & Science); Johnston, Leigh A. (Univ. of Melbourne)*
- 09:30-11:00 ThP14.10
Model-Driven, Probabilistic Level Set Based Segmentation of Magnetic Resonance Images of the Brain 2821-2824
Verma, Nishant (Univ. of Texas at Austin); Muralidhar, Gautam (The Univ. of Texas at Austin); Bovik, Alan (The Univ. of Texas at Austin); Cowperthwaite, Matthew (NeuroTexas Inst., St. David's Healthcare); Markey, Mia (The Univ. of Texas at Austin)*

09:30-11:00	ThP14.11
A Combined HRV-Fmri Approach to Assess Cortical Control of Cardiovascular Modulation by Motion Sickness 2825-2828	
<i>Kim, Jieun* (MGH); Napadow, Vitaly (Massachusetts General Hospital); Kuo, Braden (Massachusetts General Hospital, Harvard Medical School); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)</i>	
09:30-11:00	ThP14.12
Ambiguity and Regularization in Parallel MRI 2829-2832	
<i>Gol, Derya* (The Ohio State Univ.); Potter, Lee (The Ohio State Univ., Dept Elec. & Computer Eng.)</i>	
09:30-11:00	ThP14.13
The Optimization of an 8-Channel Transceive Volume Array for Small Animal MRI at 9.4T 2833-2836	
<i>Li, Yu* (The Univ. of Queensland); Weber, Ewald (The Univ. of Queensland); Liu, Feng (The Univ. of Queensland); Li, Bing Keong Joe (The Univ. of Queensland); Crozier, Stuart (The Univ. of Queensland)</i>	
09:30-11:00	ThP14.14
A MOM/FEM-Based Coil Sensitivity Mapping Method for High-Field Parallel MRI 2837-2840	
<i>Jin, Jin (The Univ. of Queensland); Liu, Feng (The Univ. of Queensland); Li, Yu* (The Univ. of Queensland); Weber, Ewald (The Univ. of Queensland); Xu, Wenlong (Univ. of Science & Tech of China); Crozier, Stuart (The Univ. of Queensland)</i>	
09:30-11:00	ThP14.15
Visual Cortex Activation Induced by Tactile Stimulation in Late-Blind Individuals with Retinitis Pigmentosa 2841-2844	
<i>Cunningham, Samantha* (Univ. of Southern California); Weiland, James (Univ. of Southern California); Bao, Pinglei (Univ. of Southern California); Tjan, Bosco S. (Univ. of Southern California)</i>	
09:30-11:00	ThP14.16
3D Selective Pulse Design with Variable Spoke Trajectories for Parallel Excitation 2845-2848	
<i>Feng, Shuo* (Texas A&M Univ.); Ji, Jim Xiuquan (Texas A&M Univ.)</i>	

ThP15: 09:30-11:00	America Ballroom Westin
3.5.25 Chemical Biosensors (Poster Session)	

09:30-11:00	ThP15.1
A Novel Strategy for Long-Term Implantable Artificial Pancreas 2849-2853	
<i>Ricotti, Leonardo* (Scuola Superiore Sant'Anna); Assaf, Tareq (Biorobotics Inst., Scuola Superiore Sant'Anna); Menciassi, Arianna (Scuola Superiore Sant'Anna); Dario, Paolo (IIT Italian Inst. of Tech.)</i>	
09:30-11:00	ThP15.2
A SU-8-Based Compact Implantable Wireless Pressure Sensor for Intraocular Pressure Sensing Application 2854-2857	
<i>Xue, Ning* (Univ. of Texas at Dallas); Chang, Sung Pil (Inha Univ.); Lee, Jeong-Bong (Univ. of Texas at Dallas)</i>	
09:30-11:00	ThP15.3
Low Power Implantable Ultrasound Imager for Online Monitoring of Tumor Growth 2858-2861	
<i>Basak, Abhishek* (Case Western Reserve Univ.); Narasimhan, Seetharam (Case Western Reserve Univ.); Bhunia, Swarup (Case Western Reserve Univ.)</i>	
09:30-11:00	ThP15.4
A 64-Channel Neuron Recording System 2862-2865	
<i>Lo, Yi-Kai* (Univ. of California, Santa Cruz); Chen, Kuanfu (Univ. of California, Santa Cruz); Liu, Wentai (Univ. of California, Santa Cruz)</i>	
09:30-11:00	ThP15.5
In Vitro Study of Titanium Nitride Electrodes for Neural Stimulation 2866-2869	
<i>Pour Aryan, Naser* (Univ. of Ulm); Asad, Mohammad Imam Hasan Bin (Univ. of Ulm); Brendler, Christian (Univ. of Ulm); Kibbel, Steffen (Retina Implant AG); Heusel, Gerhard (Natural & Medical Sciences Inst. at Univ. of Tuebingen (NMI)); Rothermel, Albrecht (Univ. of Ulm)</i>	

09:30-11:00 ThP15.6
Hydrogel Optimization towards Fibroblast-Friendly Biomimetic Coatings for Implantable Devices 2870-2873
Sanchez Linde, Alicia (Katholieke Univ. Leuven (KUL), imec); O'Callaghan, John M. (Katholieke Univ. Leuven (KUL), imec); Op de Beeck, Maaïke (IMEC); Neves, Herc (imec); Van Hoof, Chris (IMEC); Mertens, Robert (Katholieke Univ. Leuven (KUL), imec)*

ThP16: 09:30-11:00 America Ballroom Westin
3.5.27 Recent Developments in Smart Clothes (Poster Session)

09:30-11:00 ThP16.1
Delivering Optical Power to Subcutaneous Implanted Devices 2874-2877
Ayazian, Sahar (Univ. of Texas at Austin); Hassibi, Arjang (Univ. of Texas at Austin)*

09:30-11:00 ThP16.2
Flexible PET/ITO Electrode Array for Implantable Biomedical Applications 2878-2881
Ahani, Asieh (Northeastern Univ., Boston, USA); Saadati-Fard, Laila (Integrated Circuits & Systems Lab., Elec. & Computer Eng. Dept., K.N. Toosi Univ. of Tech., Tehran, Iran); Sodagar, Amir M. (Univ. of Michigan); Boroumand, Farhad (Elec. & Computer Eng. Dept., K.N. Toosi Univ. of Tech.)*

09:30-11:00 ThP16.3
Design of Double Layer Printed Spiral Coils for Wirelessly-Powered Biomedical Implants 2882-2885
Ashoori, Ehsan (K.N. Toosi Univ. of Tech.); Asgarian, Farzad (K.N. Toosi Univ. of Tech.); Sodagar, Amir M. (Univ. of Michigan)*

09:30-11:00 ThP16.4
Implantable Radio Frequency Identification Sensors: Wireless Power and Communication 2886-2892
Hutchens, Chriswell (Oklahoma State Univ.); Rennaker, Robert (Univ. of Texas at Dallas); Venkataraman, Srinivasan (oklahoma state Univ.); Liao, Ran (Oklahoma State Univ.); Ahmed, Rehan (Oklahoma State Univ.)*

09:30-11:00 ThP16.5
Design and Implementation of a Volume Conduction Based RFID System for Smart Implants 2893-2896
Liu, Xiaoyu (Univ. of Pittsburgh); Ogirala, Ajay (Univ. of Pittsburgh); Berger, Lee (LB Medical); Mickle, Marlin (Univ. of Pittsburgh)*

09:30-11:00 ThP16.6
Ultra-High Density Packaging Technology for Injectable Medical Devices 2897-2900
McLaughlin, Bryan (Draper Lab.); Smith, Brian (Draper Lab.); John, Lachapelle (Draper Lab.); Traviglia, Daniel (Draper Lab.); Sriram, Tirunelveli (CS Draper Lab.); O'Dowd, David (Draper Lab.)*

09:30-11:00 ThP16.7
Biocompatible Nanolayered Polymerization of MEMS Devices 2901-2904
Divyala, Sri Divya (Dept. of Biomedical Eng., Nano Tech. Research & Teaching Facility, Univ. of Texas at Arlington); Asghar, Waseem (Dept. of Elec. Eng., Nano Tech. Research & Teaching Facility, Univ. of Texas at Arlington); Iqbal, Samir M (Univ. of Texas at Arlington)*

09:30-11:00 ThP16.8
Optimal Secondary Coil Design for Inductive Powering of the Artificial Accommodation System 2905-2908
Nagel, Jörg André (Karlsruhe Inst. of Tech. (KIT)); Krug, Markus (Karlsruhe Inst. of Tech. (KIT)); Gengenbach, Ulrich (Karlsruhe Inst. of Tech. (KIT)); Guth, Helmut (Karlsruhe Inst. of Tech. (KIT)); Bretthauer, G (Inst. for Applied Computer Science); Guthoff, Rudolf F. (Dept. of Ophthalmology Univ. of Rostock)*

09:30-11:00 ThP16.9
A MICS Telemetry Implant Powered by a 27MHz ISM Inductive Link 2909-2912
Laskovski, Anthony Nikola (Univ. of Newcastle); Yuce, Mehmet Rasit (Univ. of Newcastle)*

09:30-11:00 ThP16.10
Reactive Component Selection for TET Powered Medical Devices 2913-2916
Leung, Ho Yan (Univ. of Auckland); Budgett, David (Auckland Univ.); Hu, Aiguo Patrick (Univ. of Auckland)*

09:30-11:00 ThP16.11
Wireless Intra-Brain Communication for Image Transmission through Mouse Brain 2917-2920
Sasagawa, Kiyotaka (Nara Inst. of Science & Tech.); Matsuda, Takashi (Natl. Institute of Information and Communications Tech.); Davis, Peter (Telecognix corpolution); Zhang, Bing (Natl. Inst. of Information & Communications Tech.); Li, Keren (Natl. Inst. of Information & Communications Tech.); Kobayashi, Takuma (Nara Inst. of Science & Tech.); Noda, Toshihiko (Nara Inst. of Science & Tech.); Tokuda, Takashi (Nara Inst. of Science & Tech.); Ohta, Jun (Nara Inst. of Science & Tech.)*

ThP17: 09:30-11:00 America Ballroom Westin
3.5.30 Advances in Implantable Systems (Poster Session)

09:30-11:00 ThP17.1
Development of a Novel Six-Axis Force/Moment Sensor Attached to a Prosthetic Limb for the Unrestrained Gait Measurement 2921-2924
Hayashi, Yuichiro (Graduate School, Doshisha Univ.); Tsujiuchi, Nobutaka (Doshisha Univ.); Koizumi, Takayuki (Doshisha Univ.); Oshima, Hiroko (Doshisha Univ.); Tsuchiya, Youtaro (Tec Gihan Co., LTD)*

09:30-11:00 ThP17.2
MEMS-Based Bubble Pressure Sensor for Prosthetic Socket Interface Pressure Measurement 2925-2928
Wheeler, Jason (Sandia Natl. Laboratories); Dabling, Jeffrey (Sandia Natl. Laboratories); Chinn, Douglas (Sandia Natl. Laboratories); Turner, Timothy (Sandia Natl. Laboratories); Filatov, Anton (Sandia Natl. Laboratories); Anderson, Larry (Sandia Natl. Laboratories); Rohrer, Brandon (Sandia Natl. Laboratories)*

09:30-11:00 ThP17.3
Slip Detection and Grip Adjustment Using Optical Tracking in Prosthetic Hands 2929-2932
Roberts, Luke (Univ. of Maryland Baltimore County); Singhal, Girish (Infinite Biomedical Technologies, LLC); Kaliki, Rahul (Univ. of Southern California)*

09:30-11:00 ThP17.4
Ultra-High Photosensitivity Silicon Nanophotonics for Retinal Prosthesis: Electrical Characteristics 2933-2936
Khraiche, Massoud (Univ. of California, San Diego); Lo, Yu-Hwa (Univ. of California San Diego); Wang, Deli (UCSD); Cauwenberghs, Gert (Univ. of California San Diego); Silva, Gabriel (UCSD); Freeman, William (Jacob's Retina Ctr.)*

ThP18: 09:30-11:00 America Ballroom Westin
6.1.47 Neural Interfaces and Regeneration (Poster Session)

09:30-11:00 ThP18.1
A Transparent μ ECOG Array for Simultaneous Recording and Optogenetic Stimulation 2937-2940
Ledochowitsch, Peter (Univ. of California at Berkeley); Olivero, Elisa (Polytechnic of Turin); Blanche, Tim (Univ. of California at Berkeley); Maharbiz, Michel (Univ. of California, Berkeley)*

09:30-11:00 ThP18.2
Dynamically Characterizing Bioimpedance of Fingertip Skin through a Developed CVD Based Electrotactile Rendering System 2941-2944
Shen, Yantao (Univ. of Nevada, Reno); Gregory, John (Michigan State Univ.); Shelton, Claire (Univ. of Nevada Reno)*

09:30-11:00 ThP18.3
A 8.6 μ W 3-Bit Programmable Gain Amplifier for Multiplexed-Input Neural Recording Systems 2945-2948
Al-Ashmouny, Khaled (Univ. of Michigan); Chang, Sun-Il (Univ. of Michigan); Yoon, Euisik (Univ. of Michigan)*

09:30-11:00 ThP18.4
A Comparison of Tripolar Concentric Ring Electrode and Spline Laplacians on a Four-Layer Concentric Spherical Model 2949-2952
Liu, Xiang (Univ. of Rhode Island); Makeyev, Oleksandr (Univ. of Rhode Island); Besio, W. G. (Univ. of Rhode Island)*

09:30-11:00 ThP18.5
A Blister-Test Apparatus for Studies on the Adhesion of Materials Used for Neural Electrodes 2953-2956
Ordonez, Juan Sebastian (Univ. of Freiburg); Boehler, Christian (Univ. of Freiburg); Schuettler, Martin (Univ. of Freiburg); Stieglitz, Thomas (Univ. of Freiburg)*

09:30-11:00	ThP18.6
Single-Crystal Cubic Silicon Carbide: An in Vivo Biocompatible Semiconductor for Brain Machine Interface Devices	2957-2960
<i>Frewin, Christopher* (Univ. of South Florida); Locke, Christopher (Univ. of South Florida); Sadow, Stephen (Univ. of South Florida); Weeber, Edwin (Univ. of South Florida)</i>	
09:30-11:00	ThP18.7
The First Neural Probe Integrated with Light Source (Blue Laser Diode) for Optical Stimulation and Electrical Recording	2961-2964
<i>Park, HyungDal (Korea Inst. of Science & Tech.); Shin, Hyun-Joon (Korea Inst. of Science & Tech.); Cho, Il-Joo (Korea Inst. of Science & Tech. (KIST)); Yoon, Eui-Sung (Korea Inst. of Science & Tech.); Suh, Jun-Kyo (Korea Inst. of Science & Tech.); Im, Maesoon (Univ. of Michigan); Yoon, Euisik (Univ. of Michigan); Kim, Yongjun (Yonsei Univ.); Kim, Jinseok* (Korea Inst. of Science & Tech)</i>	
09:30-11:00	ThP18.8
Realization of an Active Book for Multichannel Intrathecal Root Stimulation in Spinal Cord Injury – Preliminary Results	2965-2968
<i>Schuettler, Martin* (Univ. of Freiburg); Vanhoestenbergh, Anne (Univ. College London); Saeidi, Nooshin (Univ. College London); Liu, Xiao (Univ. College London); Evans, Joe (Univ. College London); Colinge, Cindy (Tyndall Natl. Inst.); Demosthenous, Andreas (Univ. College London); Donaldson, Nicholas de Neufville (Univ. College London)</i>	
09:30-11:00	ThP18.9
Polymer-Based Shaft Microelectrodes with Optical and Fluidic Capabilities As a Tool for Optogenetics	2969-2972
<i>Rubehn, Birthe* (Univ. of Freiburg); Wolff, Steffen B.E. (Friedrich Miescher Inst. for Biomedical Research); Tovote, Philip (Friedrich Miescher Inst. for Biomedical Research); Schuettler, Martin (Univ. of Freiburg); Lüthi, Andreas (Friedrich Miescher Inst. for Biomedical Research); Stieglitz, Thomas (Univ. of Freiburg)</i>	
09:30-11:00	ThP18.10
A Novel Flex-Rigid and Soft-Release ECoG Array	2973-2976
<i>Tolstosheeva, Elena* (Univ. of Bremen); Gordillo-Gonzalez, Victor (Univ. of Bremen); Hertzberg, Thomas (IMSAS, Univ. of Bremen); Kempen, Ludger (IMSAS, Univ. Bremen Germany); Michels, Ingrid (Univ. Bremen, IMSAS); Lang, Walter (IMSAS, Univ. of Bremen)</i>	
09:30-11:00	ThP18.11
Process Development for Dry Etching Polydimethylsiloxane for Neural Electrodes	2977-2980
<i>Anenden, Melissa* (The Univ. of New South Wales, Sydney, Australia); Svehla, Martin (Cochlear); Lovell, Nigel (Univ. of New South Wales); Suaning, Gregg (The Univ. of New South Wales)</i>	
09:30-11:00	ThP18.12
A 1.5V 120nW CMOS Programmable Monolithic Reference Generator for Wireless Implantable System .	2981-2984
<i>Chang, Sun-II* (Univ. of Michigan); Al-Ashmouny, Khaled (Univ. of Michigan); Yoon, Euisik (Univ. of Michigan)</i>	
09:30-11:00	ThP18.13
Achievable Peak Electrode Voltage Reduction by Neurostimulators Using Descending Staircase Currents to Deliver Charge	2985-2988
<i>Halpern, Mark E* (NICTA Victoria Res. Lab.)</i>	
09:30-11:00	ThP18.14
Fascicle-Selective Multi-Contact Cuff Electrode	2989-2992
<i>Rossel, Olivier* (LIRMM – UMII/CNRS); Soulier, Fabien (Univ. Montpellier II); Coulombe, Jonathan (Ecole Polytechnique); Bernard, Serge (CNRS); Cathebras, Guy (Univ. Montpellier II)</i>	
09:30-11:00	ThP18.15
Chronic Recordings from the Rat Spinal Cord Descending Tracts with Microwires	2993-2996
<i>Prasad, Abhishek* (Univ. of Miami); Sahin, Mesut (New Jersey Inst. of Tech.)</i>	
09:30-11:00	ThP18.16
Real-Time Implementation of an Intent Recognition System for Artificial Legs	2997-3000
<i>Zhang, Fan* (Univ. of Rhode Island); Dou, Zhi (Univ. of Rhode Island); Nunnery, Michael (Nunnery Orthotic & Prosthetic Technologies, LLC); Huang, He (Univ. of Rhode Island)</i>	

09:30-11:00	ThP18.17
Surface Modification of Neural Stimulating/Recording Electrodes with High Surface Area Platinum-Iridium Alloy Coatings	3001-3004
<i>Petrosians, Artin* (Univ. of Southern California); Whalen, Jack (Univ. of Southern California); Weiland, James (Univ. of Southern California); Mansfeld, Florian (Univ. of Southern California)</i>	
09:30-11:00	ThP18.18
Analytical Design Equations for Self-Tuned Class-E Power Amplifier	3005-3008
<i>Hu, Zhe* (Illinois Inst. of Tech.); Troyk, Philip (Illinois Inst. of Tech.)</i>	
09:30-11:00	ThP18.19
Feasibility Study for Future Implantable Neural-Silicon Interface Devices	3009-3015
<i>Yu, Bo (Tsinghua Univ.); Mak, Terrence* (Newcastle Univ.)</i>	
09:30-11:00	ThP18.20
Modeling Two-Photon Calcium Fluorescence of Episodic V1 Recordings Using Multifrequency Analysis	3016-3019
<i>Zheng, Henry* (Yale Univ.); Malik, Wasim Q. (Massachusetts Inst. of Tech.); Runyan, Caroline (Dept. of Brain & Cognitive Science, MIT); Sur, Mriganka (MIT); Brown, Emery N (MGH-Harvard Medical School-MIT)</i>	
09:30-11:00	ThP18.21
Coupling Biotic and Abiotic Metrics to Create a Testbed for Predicting Neural Electrode Performance	3020-3023
<i>Prasad, Abhishek* (Univ. of Miami); Sankar, Viswanath (Univ. of Florida); Dyer, Aubrey T. (Univ. of Florida); Knott, Eric (Univ. of Florida); Xue, Qing-Shan (Univ. of Florida); Nishida, Toshikazu (Univ. of Florida); Reynolds, John (Univ. of Florida); Shaw, Gerry (Univ. of Florida); Streit, Wolfgang (Univ. of Florida); Sanchez, Justin C. (Univ. of Miami)</i>	
09:30-11:00	ThP18.22
Developing Implantable Neuroprosthetics: A New Model in Pig	3024-3030
<i>Borton, David* (Brown Univ.); Yin, Ming (Brown Univ.); Aceros, Juan (Brown Univ.); Agha, Naubahar (Brown Univ.); Minxha, Juri (Brown Univ.); Komar, Jacob (Brown Univ.); Patterson, William (Brown Univ.); Bull, Christopher (Brown Univ.); Nurmikko, Arto (Brown Univ.)</i>	
09:30-11:00	ThP18.23
Multi-Layer Coils for Efficient Transcutaneous Power Transfer	3031-3034
<i>Artan, Nabi Sertac* (Polytechnic Inst. of New York Univ.); Li, Xiaonin (Polytechnic Inst. of New York Univ.); Patel, Ramesh (Polytechnic Inst. of New York Univ.); Ning, Chengzhi (Polytechnic Inst. of New York Univ.); Ludvig, Nandor (Comprehensive Epilepsy Ctr., New York Univ. School of Medicine); Chao, Jonathan (Polytechnic Inst. of New York Univ.)</i>	
09:30-11:00	ThP18.24
A Programmable and Implantable Microsystem for Multimodal Processing of Ensemble Neural Recordings	3035-3038
<i>Zhang, Fei* (Michigan State Univ.); Aghagolzadeh, Mehdi (Michigan State Univ.); Oweiss, Karim (Michigan State Univ.)</i>	

ThB01: 11:15-12:45	St. George AB Westin
6.3.33 Neuromuscular Stimulation I (Oral Session)	
Chair: Prochazka, Arthur (<i>Univ. of Alberta</i>)	
Co-Chair: Triolo, Ronald J. (<i>US Dept. of Veterans Affairs & Case Western Res. Univ.</i>)	

11:15-11:30	ThB01.1
Optimization of Stimulus Parameters for Selective Peripheral Nerve Stimulation with Multi-Contact Electrodes	3039-3042
<i>Fisher, Lee* (Case Western Reserve Univ.); Anderson, James (MetroHealth Medical Ctr.); Tyler, Dustin (Case Western Reserve Univ.); Triolo, Ronald J. (US Dept. of Veterans Affairs & Case Western Reserve Univ.)</i>	

11:30-11:45 ThB01.2
Effect of Functional Electrical Stimulation (FES) Combined with Robotically Assisted Treadmill Training on the EMG Profile 3043-3046
Askari, Sina (Univ. of Southern California); Chao, Tekang (Student, California State Univ. Los Angeles); Conn, Lauren (Student, California State Univ. Los Angeles); Partida, Elizabeth (Student, California State Univ. Los Angeles); Lazzaretto, Teresa (Student, California State Univ. Los Angeles); Anne See, Pamela (Student, California State Univ. Los Angeles); Chow, Cheryl (Student, California State Univ. Los Angeles); de Leon, Ray (California State Univ. Los Angeles); Won, Deborah (California State Univ., Los Angeles)*

11:45-12:00 ThB01.3
A Hybrid Tool for Reaching and Grasping Rehabilitation: The ArmeoFES 3047-3050
Crema, Andrea (ETH Zurich); McNaught, Andrew Murray (Univ. of Cape Town, South Africa); Albisser, Urs (Balgrist Univ. Hospital); Bolliger, Marc (Balgrist Univ. Hospital); Micera, Silvestro (École Polytechnique Fédérale de Lausanne); Curt, Armin (Spinal Cord Injury Ctr., Balgrist Univ. Hospital); Morari, Manfred (Swiss Federal Inst. of Tech.)*

12:00-12:15 ThB01.4
First Permanent Human Implant of the Stimulus Router System, a Novel Neuroprosthesis: Preliminary Testing of a Polarity Reversing Stimulation Technique 3051-3054
Gan, Liu Shi (Univ. of Alberta); Ravid, Einat (Natalie) (Univ. of Alberta); Kowalczewski, Jan (Univ. of Alberta); Prochazka, Arthur (Univ. of Alberta)*

12:15-12:30 ThB01.5
Neuromuscular Electrical Stimulation to Augment Reach and Hand Opening after Stroke 3055-3058
Makowski, Nathaniel (Case Western Reserve Univ.); Knutson, Jayme (Case Western Reserve Univ.); Chae, John (Case Western Reserve Univ.); Crago, Patrick (Case Western Reserve Univ.)*

ThB02: 11:15-12:45 St. George CD Westin 6.13.46 Human Performance: II (Oral Session) Chair: Krebs, Hermano Igo (MIT) Co-Chair: Estep, Justin (Air Force Res. Lab.)

11:15-11:30 ThB02.1
Activity Level Classification Algorithm Using SHIMMER Wearable Sensors for Individuals with Rheumatoid Arthritis 3059-3062
Fortune, Emma (Intel Ireland Limited); Tierney, Marie (Univ. of Limerick); Ni Scanaill, Clíodhna (Intel Labs); Bourke, Alan (Univ. of Limerick); Kennedy, Norelee (Univ. of Limerick)*

11:30-11:45 ThB02.2
An Instrumented Sit-to-Stand Test used to Examine Differences between Older Fallers and Non-Fallers 3063-3066
Doheny, Emer (Intel); Fan, Chie Wei (St James's hospital); Foran, Tim (St.James's Hospital); Greene, Barry R. (Intel); Cunningham, Clodagh (St James' Hospital); Kenny, Rose Anne (Trinity College Dublin)*

11:45-12:00 ThB02.3
Locating the Sources for Cross-Modal Interactions and Decision Making During Judging the Visual-Affected Auditory Intensity Change 3067-3070
Li, Xuan (Shanghai Jiao Tong Univ.); Ge, Xiaoli (Shanghai Jiao Tong Univ.); Sun, Junfeng (Shanghai Jiao Tong Univ.); Tong, Shanbao (Shanghai Jiao Tong Univ.)*

12:00-12:15 ThB02.4
Switching Rate Changes Associated with Mental Fatigue for Assistive Technologies 3071-3074
Craig, Ashley (Univ. of Tech., Sydney); Tran, Yvonne (Univ. of Tech., Sydney); Wijesuriya, Nirupama (The Univ. of Sydney); Thuraisingham, Ranjit Arulnayagam (Univ. of Tech. Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney)*

12:15-12:30 ThB02.5
Vigilance Estimation by Using Forehead EOG Features 3075-3078
Cai, Haoyu (Shanghai Jiao Tong Univ., BCMI Lab); Ma, Jiabin (Shanghai Jiaotong Univ.); Shi, Lichen (Shanghai Jiao Tong Univ.); Lu, Bao-Liang (Shanghai Jiao Tong Univ.)*

12:30-12:45 ThB02.6
Implicit Visual Distortion Modulates Human Gait **3079-3082**
Kim, Seung-Jae (Massachusetts Inst. of Tech.); Krebs, Hermano Igo (MIT)*

ThB03: 11:15-12:45 Essex Ballroom South Westin
6.10.41 Analysis of Neural Signals II (Oral Session)
Chair: Butera, Robert (*Georgia Inst. of Tech.*)
Co-Chair: Jones, Richard D. (*Van der Veer Inst.*)

11:15-11:30 ThB03.1
The Impact of Electrode Characteristics on Electrocorticography (ECoG) **3083-3086**
Wodlinger, Brian (Univ. of Pittsburgh); Degenhart, Alan (Univ. of Pittsburgh); Collinger, Jennifer (Univ. of Pittsburgh); Tyler-Kabara, Elizabeth (Univ. of Pittsburgh); Wang, Wei (Univ. of Pittsburgh)*

11:30-11:45 ThB03.2
A Method for Real-Time Cortical Oscillation Detection and Phase-Locked Stimulation **3087-3090**
Chen, L. Leon (Harvard Medical School); Madhavan, Radhika (Georgia Inst. of Tech.); Rapoport, Benjamin Isaac (Massachusetts Inst. of Tech.); Anderson, William S. (Dept. of Neurosurgery, Brigham & Women's Hospital, Boston, MA)*

11:45-12:00 ThB03.3
An Unsupervised Method for Identifying Regions That Initiate Seizures on Intracranial EEG **3091-3094**
Wulsin, Drausin (Univ. of Pennsylvania); Litt, Brian (Univ. of Pennsylvania)*

12:00-12:15 ThB03.4
Discrete Gamma Oscillations Identify the Seizure Onset Zone in Some Pediatric Epilepsy Patients **3095-3098**
Gupta, Jay (Univ. of Pennsylvania); Marsh, Eric (Children's Hospital of Philadelphia, Univ. of Pennsylvania); Nieh, Horng-An (Univ. of Pennsylvania); Porter, Brenda (Children's Hospital of Philadelphia, Univ. of Pennsylvania); Litt, Brian (Univ. of Pennsylvania)*

12:15-12:30 ThB03.5
Spectral Features of Electroencephalogram in Characterizing Various Brain States under Anesthesia .. **3099-3102**
Kang, Eunji E. (Univ. of Toronto); Zalay, Osbert (Univ. of Toronto); El Beheiry, Hossam (Trillium Health Ctr.); Wong, Jean (Univ. Health Network); Carlen, Peter L. (Univ. of Toronto); Bardakjian, Berj Luther (Univ. of Toronto)*

12:30-12:45 ThB03.6
Fibre-Selective Recording from Peripheral Nerves Using a Multiple-Contact Cuff: Report on Pilot Pig Experiments **3103-3106**
Schuetzler, Martin (Univ. of Freiburg); Seetohul, Vipin (Univ. of Warwick); Rijkhoff, Nico (Aalborg Univ.); Møller, Flemming (Surgical Research Unit, Dept. of Surgery P, Aarhus Univ. Hospital, Denmark); Donaldson, Nicholas de Neufville (Univ. College London); Taylor, John (Univ. of Bath)*

ThB05: 11:15-12:45 Essex Ballroom North Westin
6.6.36 Motor Learning, Neural Control, and Neuromuscular Systems (Oral Session)
Chair: Adamovich, Sergei (*NJIT*)
Co-Chair: Keshner, Emily (*Temple Univ.*)

11:15-11:30 ThB05.1
Selective Control of Physiological Responses by Temporally-Patterned Electrical Stimulation of the Canine Vagus Nerve **3107-3110**
Yoo, Paul (Duke Univ.); Hincapie, Juan Gabriel (Boston Scientific Corp.); Jason, Hamann (Boston Scientific Corp.); Ruble, Stephen (Boston Scientific Corp.); Wolf, Patrick (Duke Univ.); Grill, Warren (Duke Univ.)*

11:30-11:45 ThB05.2
Haptically Facilitated Bimanual Training Combined with Augmented Visual Feedback in Moderate to Severe Hemiplegia **3111-3114**
Boos, Amy (New Jersey Inst. of Tech.); Qiu, Qinyin (NJIT); Fluet, Gerard (UMDNJ); Adamovich, Sergei (NJIT)*

11:45-12:00 ThB05.3
Expert Strategy Switching in the Control of a Bimanual Manipulandum with an Unstable Task **3115-3118**
Zenzeri, Jacopo (Fondazione Istituto Italiano di Tecnologia); Morasso, Pietro (Univ. of Genova); Saha, Devjani (Northwestern Univ.)*

12:00-12:15 ThB05.4
Development of a Network FES System for Stroke Rehabilitation 3119-3122
Qu, Hongen (MED-X Research Inst. of Shanghai Jiao Tong Univ.); Wang, Ting (Med-x Research Inst. of Shanghai Jiao Tong Univ.); Hao, Manzhao (Med-x Research Inst. of Shanghai Jiao Tong Univ.); Shi, Ping (Med-x Research Inst. of Shanghai Jiao Tong Univ.); Zhang, Weifeng (Shanghai Jiaotong Univ.); Wang, Guoxing (Shanghai Jiao Tong Univ.); Lan, Ning (Shanghai Jiao Tong Univ.)*

12:15-12:30 ThB05.5
Development of a Progressive Task Regulation Algorithm for Robot-Aided Rehabilitation 3123-3126
Colombo, Roberto (Fondazione Salvatore Maugeri, IRCCS, Rehabilitation Inst. of Pavia); Sterpi, Irma (Fondazione Salvatore Maugeri, IRCCS, Rehabilitation Inst. of Pavia, Italy); Mazzone, Alessandra (Fondazione Salvatore Maugeri, IRCCS, Rehabilitation Inst. of Veruno(NO), Italy); Delconte, Carmen (Fondazione Salvatore Maugeri, IRCCS, Rehabilitation Inst. of Veruno(NO), Italy); Pisano, Fabrizio (Fondazione Salvatore Maugeri, IRCCS, Rehabilitation Inst. of Veruno(NO), Italy)*

12:30-12:45 ThB05.6
Bilateral Transfer in Active and Passive Guidance-Reproduction Based Bimanual Tasks: Effect of Proprioception and Handedness 3127-3130
Park, Keunyoung (Nagoya Univ.); Kim, Youngwoo (Nagoya Univ.); Obinata, Goro (Nagoya Univ.)*

ThB07: 11:15-12:45 Boylston Marriott
6.4.12 Next Generation Sensory Replacement Implants (Oral Session)
Chair: Merfeld, Daniel (*Massachusetts Eye & Ear Infirmary/Harvard Medical School*)
Co-Chair: Weiland, James (*Univ. of Southern California*)

11:15-11:30 ThB07.1
The Next Generation of Visual Neuroprostheses: A Two-Wire, Split-System Approach *
Suaning, Gregg (The Univ. of New South Wales)*

11:30-11:45 ThB07.2
Low Power Sensing for Vestibular Prostheses 3131-3134
Bhatti, Pamela (Georgia Inst. of Tech.); McClain, Maxine (Axion Biosystems)*

11:45-12:00 ThB07.3
Next Generation Retinal Prostheses *
Weiland, James (Univ. of Southern California)*

12:00-12:15 ThB07.4
Development of the Boston Retinal Prosthesis 3135-3138
Rizzo, Joseph F. (Boston VA Healthcare System); Shire, Douglas (Boston VA Healthcare System); Kelly, Shawn (Boston VA Healthcare System); Troyk, Philip (Illinois Inst. of Tech.); Gingerich, Marcus (Boston VA Healthcare System); McKee, Bruce (VA CIVR); Priplata, Attila (VA CIVR); Chen, Jinghua (Massachusetts Eye & Ear Infirmary); Drohan, William (Boston VA Healthcare System); Doyle, Patrick (Boston VA Research Inst.); Mendoza, Oscar (MIT); Theogarajan, Luke (Univ. of California); Cogan, Stuart (EIC Laboratories, Inc.); Wyatt, John (Massachusetts Inst. of Tech.)*

12:15-12:30 ThB07.5
Towards Optogenetic Sensory Replacement 3139-3141
Doroudchi, M. Mehdi (Eos Neuroscience, Inc., Los Angeles, California, USA); Greenberg, Kenneth (Eos Neuroscience, Inc., Los Angeles, California, USA & the Division of Neurobiology, Univ. of California Berkeley, Berkeley); Zorzos, Anthony (MIT Media Lab Synthetic Neurobiology Group, Depts. of Brain & Cognitive Sciences & Biological Eng., MIT McGovern); Hauswirth, William (Dept. of Ophthalmology, Univ. of Florida (UF), Gainesville, Florida); Fonstad, Clifton (MIT Microsystems Tech. Lab., MIT Dept. of Elec. Eng. & Computer Science, Massachusetts Inst. o); Horsager, Alan (Eos Neuroscience, Inc., Los Angeles, California, USA, & the Inst. for Genetic Medicine, Univ. of Southern California); Boyden, Edward (MIT)*

12:30-12:45

ThB07.6

Restoring the 3D Vestibulo-Ocular Reflex via Electrical Stimulation: The Johns Hopkins

Multichannel Vestibular Prosthesis Project 3142-3145

Rahman, Mehdi (Johns Hopkins Univ.); Dai, Chenkai (JHU); Fridman, Gene (Johns Hopkins Univ.); Davidovics, Natan (Johns Hopkins Univ.); Chiang, Bryce (Johns Hopkins Univ.); Ahn, JoongHo (Johns Hopkins Univ.); Hayden, Russell (Johns Hopkins Univ.); Melvin, Thuy-Anh (Johns Hopkins Univ.); Sun, Daniel (Johns Hopkins); Della Santina, Charles C. (Johns Hopkins School of Medicine)*

ThB10: 11:15-12:45

Simmons Marriott

10.4.4 eHealth and Telehealth (Oral Session)

Chair: Finkelstein, Joseph (*Johns Hopkins Univ.*)

Co-Chair: Barnes, Laura (*Univ. of South Florida*)

11:15-11:30

ThB10.1

Designing Patient-Centric Applications for Chronic Disease Management 3146-3149

Tsalatsanis, Athanasios (Univ. of South Florida); Gil-Herrera, Eleazar (Univ. of South Florida); Yalcin, Ali (Univ. of South Florida); Djulbegovic, Benjamin (Univ. of South Florida); Barnes, Laura (Univ. of South Florida)*

11:30-11:45

ThB10.2

Congestive Heart Failure Home Monitoring Pilot Study in Urban Denver 3150-3153

Bakhshi, Saba (Univ. of Denver); Xin, Li (Univ. of Denver); Semenov, Nikolay (Univ. of Denver); Apodaca-Madrid, Jesús (Univ. of Denver); Mahoor, Mohammad H. (Univ. of Denver); Newman, Kimberly (Univ. of Colorado at Boulder); Long, Carlin (Denver Health Medical Ctr.); Neuman, Christine (Denver Health Medical Ctr.)*

11:45-12:00

ThB10.3

Data Acquisition in a Wireless Diabetic and Cardiac Monitoring System 3154-3157

Harvey, Paul Dennis (Loughborough Univ.); Datta, Sekharjit (Loughborough Univ.); Mulvaney, David (Loughborough Univ.)*

12:00-12:15

ThB10.4

Implementing Home Telemanagement of Congestive Heart Failure Using Xbox Gaming Platform 3158-3163

Finkelstein, Joseph (Johns Hopkins Univ.); Wood, Jeffrey (Johns Hopkins Univ.)*

12:15-12:30

ThB10.5

Concept and Modular Telemedicine Platform for Measuring of Vital Signs, ADL and Behavioral Patterns of Elderly in Home Settings 3164-3167

Czabke, Axel (TU Muenchen); Loeschke, Jakob (Technical Univ. Munich); Lueth, Tim (Technical Univ. of Munich)*

12:30-12:45

ThB10.6

Caremote: The Design of a Cancer Reporting and Monitoring Telemedicine System for Domestic Care 3168-3171

Cheng, Chihwen (Georgia Inst. of Tech.); Stokes, Todd (Georgia Inst. of Tech.); Wang, May Dongmei (Georgia Tech & Emory Univ.)*

ThB11: 11:15-12:45

Wellesley Marriott

10.7.7 Data Mining, Information Processing, and Decision Support Systems (Oral Session)

Chair: Fotiadis, Dimitrios I. (*Univ. of Ioannina*)

Co-Chair: Akay, Metin (*Univ. of Houston*)

11:15-11:30

ThB11.1

Computerized Decision Support System for Kidney Paired Donation Program 3172-3175

Chen, Yanhua (Univ. of Michigan); Song, Peter (Univ. of Michigan)*

11:30-11:45

ThB11.2

Information Fusion for Diagnosis Coding Support 3176-3179

Lecornu, Laurent (GET ENST Bretagne); Le Guillou, Clara (Univ. Hospital); Le Saux, Frederic (Telecom Bretagne); Hubert, Matthieu (CHRU Brest); Puentes, John (TELECOM Bretagne – INSERM); Montagner, Julien (INSERM ; GET ENST Bretagne); Cauvin, Jean-Michel (Universitary Hospital (CHU))*

- 11:45-12:00 ThB11.3
Implementation of the 7-Point Checklist for Melanoma Detection on Smart Handheld Devices 3180-3183
Wadhawan, Tarun (Univ. of Houston); Situ, Ning (Univ. of Houston); Hu, Rui (Univ. of Houston); Lancaster, Keith (Univ. of Houston); Yuan, Xiaojing (Univ. of Houston); Zouridakis, George (Univ. of Houston)*
- 12:00-12:15 ThB11.4
Missing Data Imputation for Remote CHF Patient Monitoring Systems 3184-3187
Suh, Myung-kyung (Univ. of California, Los Angeles); Woodbridge, Jonathan (Univ. of California, Los Angeles); Bui, Alex (Univ. of California, Los Angeles); Evangelista, Lorraine (Univ. of California, Irvine); Sarrafzadeh, Majid (Univ. of California Los Angeles)*
- 12:15-12:30 ThB11.5
SVM-Based Multi-Sensor Fusion for Free-Living Physical Activity Assessment 3188-3191
Liu, Shaopeng (Univ. of Connecticut); Gao, Robert X. (Univ. of Connecticut); John, Dinesh (Univ. of Massachusetts Amherst); Staudenmayer, John (Univ. of Massachusetts, Amherst); Freedson, Patty (Univ. of Massachusetts Amherst)*
- 12:30-12:45 ThB11.6
Guideline-Driven Telemonitoring and Follow-Up of Cardiovascular Implantable Electronic Devices Using ISO/IEEE 11073, HL7 & IHE Profiles 3192-3196
Yang, Maohua (OFFIS); Chronaki, Catherine (Foundation for Research & Tech. Hellas); Lüpkes, Christian (OFFIS – Inst. for Information Tech., Oldenburg, Germany); Thiel, Andreas (OFFIS – Inst. for Information Tech., Oldenburg, Germany); Plößnig, Manuela (Salzburg Research, Salzburg, Austria); Hinterbuchner, Lynne (Salzburg Univ. Hospital, Salzburg, Austria); Arbelo, Elena (Hospital Clinic I Provincial de Barcelona, Spain); Laleci, Gokce Banu (Software Research, Development & Consultation Ltd); Kabak, Yildiray (Software Research, Development & Consultation Ltd., Ankara); Duarte, Fernandez (Medtronic, Madrid, Spain); Guillen, Alejandra (Medtronic Spain); Navarro, Xavier (Medtronic, Madrid, Spain); Dogac, Asuman (Software Research, Development & Consultation Ltd.); Eichelberg, Marco (OFFIS – Inst. for Information Tech., Oldenburg, Germany); Hein, Andreas (OFFIS – Inst. for Information Tech., Oldenburg, Germany)*

ThB12: 11:15-12:45	Suffolk Marriott
5.10.10 Sleep Apnea and Respiratory Monitoring (Oral Session)	
Chair: Penzel, Thomas (<i>Charite Univ. Hospital</i>)	
Co-Chair: Khoo, Michael (<i>Univ. of Southern California</i>)	

- 11:15-11:30 ThB12.1
Normal Non-Regular Snores as a Tool for Screening SAHS Severity 3197-3200
Mesquita, Joana (Univ. Politècnica de Catalunya); Fiz Fernandez, José Antonio (Navarra Hospital); Solà-Soler, Jordi (Univ. Politècnica de Catalunya); Morera Prat, Jose (Hospital Univ. Germans Trias i Pujol); Jané, Raimon (Univ. Politècnica de Catalunya)*
- 11:30-11:45 ThB12.2
Automated Unsupervised Respiratory Event Analysis 3201-3204
Robles-Rubio, Carlos Alejandro (McGill Univ.); Brown, Karen (McGill Univ.); Keamey, Robert Edward (McGill Univ.)*
- 11:45-12:00 ThB12.3
Comparison of Upper Airway Respiratory Resistance Measurements with the Esophageal Pressure/airflow Relationship During Sleep 3205-3208
Morgenstern, Christian (Institut de Bioenginyeria de Catalunya); Schwaibold, Matthias (MCC-Med GmbH & Co KG); Randerath, Winfried (Klinikum Bethanien); Bolz, Armin (Univ. of Karlsruhe); Jané, Raimon (Univ. Politècnica de Catalunya)*
- 12:00-12:15 ThB12.4
Concurrent Variations of Cerebral Blood Flow and Arterial Blood Pressure in Simulated Sleep Apnea ... 3209-3212
Alex, Raichel (Univ. of Texas Arlington); Bhawe, Gauri (Univ. of Texas at Arlington); Al-Abed, Mohammad (Univ. of Texas at Arlington); Bashaboyina, Aditya (Univ. of Texas at Arlington); Watenpugh, Donald (Sleep Consultants Inc.); Zhang, Rong (Univ. of Texas Southwestern Medical Ctr. at Dallas); Iyer, Swathi (Univ. of Texas at Arlington); Behbehani, Khosrow (Univ. of Texas at Arlington)*

12:15-12:30 ThB12.5
A Novel Respiratory Rate Estimation Method for Sound-Based Wearable Monitoring Systems 3213-3216
Zhang, Jianmin (Nanyang Technological Univ.); Ser, Wee (Nanyang Technological Univ.); Goh, Daniel (Natl. Univ. Hospital)*

12:30-12:45 ThB12.6
Respiratory Rate Detection Using a Wearable Electromagnetic Generator 3217-3220
Padasdao, Bryson (Univ. of Hawaii at Manoa); Boric-Lubecke, Olga (Univ. of Hawaii Manoa)*

ThB13: 11:15-12:45 Arlington Marriott
4.6.9 Structural Bioinformatics (Oral Session)
Chair: Ruggiero, Carmelina (*Univ. of Genova*)
Co-Chair: Vaisman, Iosif (*George Mason Univ.*)

11:15-11:30 ThB13.1
Structure-Based Prediction of Protein Activity Changes: Assessing the Impact of Single Residue Replacements 3221-3224
Masso, Majid (George Mason Univ.); Vaisman, Iosif (George Mason Univ.)*

11:30-11:45 ThB13.2
A Structure-Based Computational Mutagenesis Elucidates the Spectrum of Stability-Activity Relationships in Proteins 3225-3228
Masso, Majid (George Mason Univ.); Vaisman, Iosif (George Mason Univ.)*

11:45-12:00 ThB13.3
On Modeling Peptidomimetics in Complex with the SH2 Domain of Stat3 3229-3232
Dhanik, Ankur (Rice Univ.); McMurray, John S. (Univ. of Texas M. D. Anderson Cancer Ctr.); Kaviraki, Lydia (Rice Univ.)*

12:00-12:15 ThB13.4
An Identification and Prediction Methods for Feature-Subsets of CpG Islands Methylation Based on Human Peripheral Blood Leukocytes of Chromosomes 21q 3233-3236
Ali, Isse (De Monfort Univ.)*

12:15-12:30 ThB13.5
Drug Design for Cardiovascular Disease: The Effect of Solvation Energy on Rac1-Ligand Interactions .. 3237-3240
Maggi, Norbert (Univ. of Genoa); Arrigo, Patrizio (CNR Genova); Ruggiero, Carmelina (Univ. of Genova)*

ThB15: 11:15-12:45 Clarendon Marriott
7.6.3 Drug Delivery and Drug Activity (Oral Session)
Chair: Peng, Ching-An (*Michigan Tech. Univ.*)
Co-Chair: Seifalian, Alexander (*Univ. College London*)

11:15-11:30 ThB15.1
SN-38: B-Cyclodextrin Inclusion Complex for in Situ Solidifying Injectable Polymer Implants 3241-3244
Manaspon, Chawan (Mahidol Univ.); Nittayacharn, Pinunta (Mahidol Univ.); Vejjasilpa, Ketpat (Mahidol Univ.); Fongsuk, Chayut (Mahidol Univ.); Nasongkla, Norased (Faculty of Eng., Mahidol Univ.)*

11:30-11:45 ThB15.2
PEG-b-PCL and PEG-b-PLA Polymeric Micelles as Nanocarriers for Lamellarin N Delivery 3245-3248
Pungkhom, Hathaichanok (Mahidol Univ.); Swatdipakdi, Nattharin (Mahidol); Theerasilp, Man (Mahidol Univ.); Karnkla, Supattra (Chulabhorn Research Inst.); Chittchang, Montakarn (Chulabhorn Research Inst.); Ploypradith, Poonsakdi (Chulabhorn Research Inst.); Nasongkla, Norased (Faculty of Eng., Mahidol Univ.)*

11:45-12:00 ThB15.3
Anticancer Effectiveness of Polymeric Drug Nanocarriers on Colorectal Cancer Cells 3249-3252
Peng, Ching-An (Michigan Technological Univ.); Wang, Jiasheng (Michigan Technological Univ.)*

12:00-12:15 ThB15.4
Next Generation Brain Implant Coatings and Nerve Regeneration Biomaterials via Novel Conductive Nanocomposite Development 3253-3257
Antoniadou, Eleni (Univ. College of London); Seifalian, Alexander (Univ. College London)*

12:15-12:30 ThB15.5
Microfluidics-Mediated Isothermal Detection of Enzyme Activity at the Single Molecule Level 3258-3261
*Juul, Sissel** (Aarhus Univ., Duke Univ.); *Ho, Yi-Ping* (Duke Univ.); *Stougaard, Magnus* (Aarhus Univ. Hospital);
Koch, Jørn (Aarhus Univ. Hospital); *Andersen, Félicie F.* (Aarhus Univ.); *Leong, Kam W.* (Duke Univ.);
Knudsen, Birgitta R. (Aarhus Univ.)

12:30-12:45 ThB15.6
Development of an In Vitro Method for Modeling Drug Release and Subsequent Tissue Drug Uptake and Deposition in a Pulsatile Flow Network 3262-3265
*O'Brien, Caroline** (Univ. of New South Wales); *Finch, Charles* (Univ. of New South Wales);
Barber, Tracie (Univ. of New South Wales); *Simmons, Anne* (Univ. of New South Wales)

ThB16: 11:15-12:45 Darthmouth Marriott
9.4.20 Novel Clinical Applications for Non-Invasive Electrical Stimulation (Minisymposium)
Chair: Caulfield, Brian (UCD)
Co-Chair: Alon, Gad (Univ. of Maryland, School of Medicine)

11:15-11:30 ThB16.1
Clinical Application of Neuromuscular Electrical Stimulation Induced Cardiovascular Exercise 3266-3269
*Caulfield, Brian** (UCD); *Crowe, Louis* (Univ. College Dublin); *Coughlan, Garrett* (Univ. College Dublin);
Minogue, Conor M (Biomedical Research Ltd)

11:30-11:45 ThB16.2
Impact of Neuromuscular Electrical Stimulation Training on Skeletal Muscle Function *
*Maffiuletti, Nicola** (Schulthess Clinic)

11:45-12:00 ThB16.3
Functional Electrical Stimulation (FES) and Non-Invasive Electrical Brain Stimulation (ESB): On the Road to Personalized Intervention in Neuro-Rehabilitation *
*Alon, Gad** (Univ. of Maryland, School of Medicine)

ThB17: 11:15-12:45 Exeter Marriott
3.6.2 Reliable and Trustworthy Physiological Signal Monitoring in Daily-Life (Minisymposium)
Chair: Penders, Julien (imec)
Co-Chair: Patel, Shyamal (Harvard Medical School)

11:15-11:30 ThB17.1
Medical Application and Clinical Validation for Reliable and Trustworthy Physiological Monitoring Using Functional Textile: Experience from the HeartCycle and MyHeart Project 3270-3273
*Reiter, Harald** (Philips); *Muehlsteff, Jens* (Philips); *Sipilä, Auli* (Clothing+)

11:30-11:45 ThB17.2
Textile Electrodes and Integrated Smart Textile for Reliable Biomonitoring 3274-3277
*Paradiso, Rita** (Smartex srl); *Pacelli, Maria* (Smartex s.r.l.)

11:45-12:00 ThB17.3
Ultra-Low-Power Circuits for Monitoring and Reducing Artifacts in Portable and Wearable Bio-Potential Recordings *
*Yazicioglu, Refet Firat** (IMEC); *Kim, Hyejung* (imec); *Kim, Sunyoung* (KAIST); *van Helleputte, Nick* (IMEC);
Huisken, Jos (IMEC); *Van Hoof, Chris* (IMEC)

12:00-12:15 ThB17.4
Algorithms and Circuits for Truly Wearable Physiological Monitoring *
*Casson, Alexander James** (Imperial College London); *Rodriguez-Villegas, Esther* (Imperial College London)

ThB19: 11:15-12:45 Salons AB Marriott
3.4.2 Physiological Monitoring II (Oral Session)
Chair: Jayaraman, Sundaresan (*Georgia Inst. of Tech.*)
Co-Chair: Di Rienzo, Marco (*Fondazione Don Carlo Gnocchi*)

11:15-11:30 ThB19.1
Printed Organic Conductive Polymers Thermocouples in Textile and Smart Clothing Applications 3278-3281
Seeberg, Trine Margrethe (SINTEF ICT); Røyset, Arne (SINTEF); Jahren, Susannah (sintef); Strisland, Frode (SINTEF ICT)*

11:30-11:45 ThB19.2
AD5933-Based Electrical Bioimpedance Spectrometer. Towards Textile-Enabled Applications 3282-3285
Ferreira, Javier (Royal Inst. of Tech. (KTH)); Seoane, Fernando (Univ. of Borås); Lindecrantz, Kaj (Royal Inst. of Tech.)*

11:45-12:00 ThB19.3
Polymer Substrate Temperature Sensor Array for Brain Interfaces 3286-3289
Kim, Insoo (The Pennsylvania State Univ.); Fok, Raymond (Pennsylvania State Univ.); Li, Yuanyuan (Pennsylvania State Univ.); Jackson, Thomas N. (Pennsylvania State Univ.); Gluckman, Bruce J. (Pennsylvania State Univ.)*

12:00-12:15 ThB19.4
Human Thermoregulatory System State Estimation Using Non-Invasive Physiological Sensors 3290-3293
Buller, Mark (U.S. Army Research Inst. of Environmental Medicine); Castellani, John (U.S. Army Research Inst. of Environmental Medicine); Roberts, Warren (DSTO, Australia); Hoyt, Reed (US Army Research Inst. of Environmental Medicine); Jenkins, Odest Chadwicke (Brown Univ.)*

12:15-12:30 ThB19.5
The Development of Feedback Monitoring Device for CPR 3294-3297
Song, Yeong-Tak (Univ. of Ulsan); Chee, Youngjoon (Univ. of Ulsan)*

12:30-12:45 ThB19.6
Wireless Dry EEG for Drowsiness Detection 3298-3301
Park, Joon (UC San Diego); Xu, Ling (Massachusetts Inst. of Tech.); Sridhar, Vishnu (Univ. of California San Diego); Chi, Yu (UCSD); Cauwenberghs, Gert (Univ. of California San Diego)*

ThB20: 11:15-12:45 Salons CD Marriott
1.7.41 Applications of Support Vector Machines (Oral Session)
Chair: Simaan, Marwan (*Univ. of Central Florida*)
Co-Chair: Balestra, Gabriella (*Pol. di Torino*)

11:15-11:30 ThB20.1
On-Line Classification of Human Activity and Estimation of Walk-Run Speed from Acceleration Data Using Support Vector Machines 3302-3305
Mannini, Andrea (Scuola Superiore Sant'Anna); Sabatini, Angelo Maria (Scuola Superiore Sant'Anna)*

11:30-11:45 ThB20.2
Efficient Feature Selection for Sleep Staging Based on Maximal Overlap Discrete Wavelet Transform and SVM 3306-3309
Khalighi, Sirvan (Inst. of Systems & Robotics, Univ. of Coimbra); Silva, Sousa, Teresa Maria (Univ. of Coimbra); Oliveira, Dulce (Univ. of Coimbra); Pires, Gabriel (Univ. of Coimbra); Nunes, Urbano (Univ. of Coimbra)*

11:45-12:00 ThB20.3
Combined Multivariate Matching Pursuit and Support Vector Machine: A Way Forward to Classify Single-Sweep Evoked Potentials? 3310-3313
Graversen, Carina (Aalborg Hospital); Brock, Christina (Aalborg Hospital, Denmark); Drewes, Asbjørn Mohr (Aalborg Hospital, Mech-Sense, Dept. of Gastroenterology); Farina, Dario (Bernstein Ctr. for Computational Neuroscience, Univ. Medical Ctr. Göttingen)*

12:00-12:15	ThB20.4
Feature Extraction Using Time-Frequency/Scale Analysis and Ensemble of Feature Sets for Crackle Detection 3314-3317	
<i>Serbes, Gorkem* (Bahcesehir Univ.); Sakar, Cemal Okan (Bahcesehir Univ.); Kahya, Yasemin P. (Bogazici Univ.); Aydin, Nizamettin (Yildiz Technical Univ.)</i>	
12:15-12:30	ThB20.5
Detection of Ventricular Suction in an Implantable Rotary Blood Pump Using Support Vector Machines 3318-3321	
<i>Wang, Yu* (Univ. of Central Florida); Faragallah, George (Univ. of Central Florida); Divo, Eduardo (Daytona State College); Simaan, Marwan (Univ. of Central Florida)</i>	
12:30-12:45	ThB20.6
Customizing the Training Dataset to an Individual for Improved Heartbeat Recognition Performance in Long-Term ECG Signals 3322-3325	
<i>Ye, Can* (Carnegie Mellon Univ.); Pallauf, Johannes (Univ. do Porto); Bhagavatula, Vijayakumar (Dept. of Elec. & Computer Eng., Carnegie Mellon Univ.); Coimbra, Miguel (Instituto de Telecomunicações/Univ. do Porto)</i>	
ThB21: 11:15-12:45	Salon E Marriott
1.3.2 Nonlinear Modeling of Dynamic Biomedical Systems (Oral Session)	
Chair: Marmarelis, Vasilis (<i>Univ. of Southern California</i>)	
Co-Chair: Pack, Christopher C. (<i>Montreal Neurological Inst., McGill Univ.</i>)	
11:15-11:30	ThB21.1
Tracking the Changes of Hippocampal Population Nonlinear Dynamics in Rats Learning a Memory-Dependent Task 3326-3329	
<i>Chan, Rosa H.M.* (Univ. of Southern California); Song, Dong (Univ. of Southern California); Goonawardena, Anushka (Wake Forest Univ.); Bough, Sarah (Wake Forest Univ.); Sesay, John (Wake Forest Univ.); Hampson, Robert (Wake Forest School of Medicine); Deadwyler, Sam (Wake Forest Univ.); Berger, Theodore (Univ. of Southern California)</i>	
11:30-11:45	ThB21.2
Estimation and Statistical Validation of Event-Invariant Nonlinear Dynamic Models of Hippocampal CA3-CA1 Population Activities 3330-3333	
<i>Song, Dong* (Univ. of Southern California); Chan, Rosa H. M. (Univ. of Southern California); Marmarelis, Vasilis (Univ. of Southern California); Hampson, Robert (Wake Forest School of Medicine); Deadwyler, Sam (Wake Forest Univ.); Berger, Theodore (Univ. of Southern California)</i>	
11:45-12:00	ThB21.3
Dynamic Nonlinear Modeling of Interactions between Neuronal Ensembles Using Principal Dynamic Modes 3334-3337	
<i>Marmarelis, Vasilis* (Univ. of Southern California); Shin, Dae (Univ. of Southern California); Song, Dong (Univ. of Southern California); Hampson, Robert (Wake Forest School of Medicine); Deadwyler, Sam (Wake Forest Univ.); Berger, Theodore (Univ. of Southern California)</i>	
12:00-12:15	ThB21.4
Restorative Encoding Memory Integrative Neural Device: "REMIND" 3338-3341	
<i>Hampson, Robert (Wake Forest School of Medicine); Song, Dong (Univ. of Southern California); Chan, Rosa H. M. (Univ. of Southern California); Sweatt, Andrew (Wake Forest School of Medicine); Shin, Dae (Univ. of Southern California); Marmarelis, Vasilis (Univ. of Southern California); Gerhardt, Greg (Univ. of Kentucky Medical Ctr.); Granacki, John (Univ. of Southern California); Berger, Theodore (Univ. of Southern California); Deadwyler, Sam* (Wake Forest Univ.)</i>	
12:15-12:30	ThB21.5
Functional Connectivity During Surround Suppression in Macaque Area V4 3342-3345	
<i>Zanos, Theodoros* (Montreal Neurological Inst., McGill Univ.); Mineault, Patrick J (Montreal Neurological Inst., McGill Univ.); Monteon, Jachin A (Montreal Neurological Inst., McGill Univ.); Pack, Christopher C (Montreal Neurological Inst., McGill Univ.)</i>	

12:30-12:45 ThB21.6
**Fractal Behavior of Spontaneous Neurotransmitter Release:
 From Single-Synapse to Whole-Cell Recordings** 3346-3349
Lamanna, Jacopo (Politecnico di Milano); Esposti, Federico (Politecnico di Milano); Malgaroli, Antonio (Univ. Vita e Salute San Raffaele Milano); Signorini, Maria G. (Politecnico di Milano)*

ThB22: 11:15-12:45 Salon F Marriott
1.4.35 Pattern Recognition and Classification (Oral Session)
Chair: Ding, Mingzhou (*Univ. of Florida*)
Co-Chair: Hargrove, Levi (*Rehabilitation Inst. of Chicago*)

11:15-11:30 ThB22.1
**A Comparison of the Effects of Majority Vote and a Decision-Based Velocity Ramp on
 Real-Time Pattern Recognition Control** 3350-3353
Simon, Ann (Rehabilitation Inst. of Chicago); Hargrove, Levi (Rehabilitation Inst. of Chicago)*

11:30-11:45 ThB22.2
A Comparison of Proportional Control Methods for Pattern Recognition Control 3354-3357
Simon, Ann (Rehabilitation Inst. of Chicago); Stern, Ken (Northwestern Univ.); Hargrove, Levi (Rehabilitation Inst. of Chicago)*

11:45-12:00 ThB22.3
**Interpreting Sign Components from Accelerometer and sEMG Data for
 Automatic Sign Language Recognition** 3358-3361
Li, Yun (Univ. of Science & Tech. of China); Chen, Xiang (Univ. of Science & Tech. of China); Zhang, Xu (Rehabilitation Inst. of Chicago); Wang, Kong-qiao (Nokia); Yang, Jihai (Univ. of Science & Tech. of China)*

12:00-12:15 ThB22.4
**Sparse Representation via L1-Minimization for Underdetermined Systems in
 Classification of Tumors with Gene Expression Data** 3362-3366
Sanchez, Reinaldo (The Univ. of Texas at El Paso); Arguez, Miguel (The Univ. of Texas at El Paso); Guillen, Pablo (The Univ. of Texas at El Paso)*

12:15-12:30 ThB22.5
Classification of Upper Limb Motions in Stroke Using High Density Surface EMG 3367-3370
Zhang, Xu (Rehabilitation Inst. of Chicago); Zhou, Ping (Northwestern Univ. & Rehab Inst of Chicago)*

12:30-12:45 ThB22.6
Classification Performance of the Frequency-Related Parameters Derived from Uterine EMG Signals ... 3371-3374
Moslem, Bassam (Univ. Libanaise/Univ. de Technologie Compiègne); Diab, Mohamad (Univ. of Tech. of Compiègne); Khalil, Mohamad (Lebanese Univ.); Marque, Catherine (Univ. of Tech. of Compiègne)*

ThB23: 11:15-12:45 Salon G Marriott
2.3.16 Ocular Image Processing and Ocular Disease Diagnosis (Oral Session)
Chair: Wall, Conrad (*Harvard Medical School*)
Co-Chair: Della Santina, Charles C. (*Johns Hopkins School of Medicine*)

11:15-11:30 ThB23.1
Automated Diagnosis of Referable Maculopathy in Diabetic Retinopathy Screening 3375-3378
Hunter, Andrew (Univ. of Lincoln); James, Lowell (Foster Findlay Associates); Ryder, Bob (City Hospital Birmingham); Basu, Ansu (City Hospital Birmingham); Steel, David (Sunderland Eye Infirmary)*

11:30-11:45 ThB23.2
**From Laboratory to Clinic: The Development of Web-Based Tools for the
 Estimation of Retinal Diagnostic Parameters** 3379-3382
Ruggeri, Alfredo (Univ. of Padua); Poletti, Enea (Univ. of Padova); Fiorin, Diego (Univ. of Padova); Tramontan, Lara (Univ. of Padova)*

11:45-12:00	ThB23.3
Automatic Glaucoma Diagnosis from Fundus Image	3383-3386
<i>Liu, Jiang (Inst. for Infocomm Research, A STAR); Yin, Fengshou* (Inst. for Infocomm Research); Wong, Damon (Inst. for Infocomm Research); Zhang, Zhuo (A*STAR); Tan, Ngan Meng (A*STAR, Inst. for Infocomm Research); Cheung, Carol (Singapore Eye Research Inst.); Aung, Tin (Singapore Eye Research Inst.); Baskaran, Mani (Singapore Eye Research Inst.); Wong, Tien Yin (Natl. Univ. of Singapore)</i>	
12:00-12:15	ThB23.4
Automatic Measurement of Cup to Disc Ratio Based on Line Profile Analysis in Retinal Images	3387-3390
<i>Hatanaka, Yuji* (Univ. of Shiga Prefecture); Noudo, Atsushi (Gifu Univ.); Muramatsu, Chisako (Gifu Univ.); Sawada, Akira (Gifu Univ.); Hara, Takeshi (Gifu Univ. Graduate Sch of Medicine); Yamamoto, Tetsuya (Gifu Univ.); Fujita, Hiroshi (Gifu Univ.)</i>	
12:15-12:30	ThB23.5
VAMPIRE: Vessel Assessment and Measurement Platform for Images of the RETina	3391-3394
<i>Perez-Rovira, Adria (Univ. of Dundee); MacGillivray, Thomas (Univ. of Edinburgh); Trucco, Emanuele* (Univ. of Dundee); Chin, Khai Sing (Univ. of Dundee); Zutis, Kris (Univ. of Dundee); Lupascu, Carmen (Univ. of Palermo); Tegolo, Domenico (Univ. of Palermo, Dipartimento di Matematica e Informatica); Giachetti, Andrea (Univ. of Verona); Wilson, Peter (Dept. of Ophthalmology at Ninewells Hospital & Medical School, Dundee); Doney, Alex (Univ. of Dundee, Biomedical Research); Dhillon, Baljean (Princess Alexandra Eye Pavilion)</i>	
12:30-12:45	ThB23.6
3D Optical Coherence Tomography Super Pixel with Machine Classifier Analysis for Glaucoma Detection	3395-3398
<i>Xu, Juan* (Univ. of Pittsburgh, UPMC Eye Ctr.); Ishikawa, Hiroshi (Univ. of Pittsburgh School of Medicine); Wollstein, Gadi (Univ. of Pittsburgh School of Medicine); Schuman, Joel S. (Univ. of Pittsburgh School of Medicine)</i>	
<hr/>	
ThB24: 11:15-12:45	Salon HI Marriott
2.7.26 CT Image Segmentaion (Oral Session)	
Chair: Wu, Ed X. (<i>The Univ. of Hong Kong</i>)	
Co-Chair: Laine, Andrew (<i>Columbia Univ.</i>)	
<hr/>	
11:15-11:30	ThB24.1
A New Hierarchical Method for Multi-Level Segmentation of Bone in Pelvic CT Scans	3399-3402
<i>Wu, Jie* (Virginia Commonwealth Univ.); Davuluri, Pavani (Virginia Commonwealth Univ.); Ward, Kevin (Virginia Commonwealth Univ.); Cockrell, Charles (Virginia Commonwealth Univ.); Hobson, Rosalyn (Virginia Commonwealth Univ.); Najarian, Kayvan (Virginia Commonwealth Univ.)</i>	
11:30-11:45	ThB24.2
Centerline Extraction with Principal Curve Tracing to Improve 3D Level Set Esophagus Segmentation in CT Images	3403-3406
<i>Kurugol, Sila* (Northeastern Univ.); Bas, Erhan (Northeastern Univ.); Erdogmus, Deniz (Northeastern Univ.); Dy, Jennifer (Northeastern Univ.); Sharp, Gregory Charles (Massachusetts General Hospital & Harvard Medical School); Brooks, Dana (Northeastern Univ.)</i>	
11:45-12:00	ThB24.3
A Chance-Constrained Programming Level Set Method for Longitudinal Segmentation of Lung Tumors in CT	3407-3410
<i>Rouchdy, Youssef* (Telecom ParisTech); Bloch, Isabelle (Télécom ParisTech – CNRS UMR 5141 LTCI)</i>	
12:00-12:15	ThB24.4
Inter-Observer Variability Assessment of a Left Ventricle Segmentation Tool Applied to 4D MDCT Images of the Heart	3411-3414
<i>Silva, Samuel* (Univ. of Aveiro); Madeira, Joaquim (Univ. of Aveiro); Sousa Santos, Beatriz (Aveiro Univ.); Ferreira, Carlos Manuel Santos (Aveiro Univ.)</i>	
12:15-12:30	ThB24.5
Automated CT Liver Segmentation Using Improved Chan-Vese Model with Global Shape Constrained Energy	3415-3418
<i>Li, Changyang* (Univ. of Sydney); Zheng, Chaojie (Univ. of Sydney); Wang, Xiu Ying (The Univ. of Sydney); Yin, Yong (Shandong Tumor Hospital, China); Feng, Dagan (The Univ. of Sydney)</i>	

12:30-12:45

ThB24.6

Optimal Multiresolution 3D Level-Set Method for Liver Segmentation

Incorporating Local Curvature Constraints 3419-3422

Jimenez-Carretero, Daniel (Univ. Politécnica de Madrid); Fernandez-de-Manuel, Laura (Univ. Politécnica de Madrid); Pascau, Javier (Hospital General Univ. Gregorio Marañón); Tellado, José M. (Hospital General Univ. Gregorio Marañón); Ramón, Enrique (Hospital General Univ. Gregorio Marañón); Desco, Manuel (Hospital General Univ. Gregorio Marañón); Santos, Andres (Univ. Politecnica Madrid); Ledesma-Carbayo, Maria J. (Univ. Politécnica de Madri)*

ThB25: 11:15-12:45

Salon JK Marriott

2.8.33 Image Analysis in Cancer Detection (Oral Session)

Chair: Ji, Jim Xiuquan (Texas A&M Univ.)

Co-Chair: Madabhushi, Anant (Rutgers Univ.)

11:15-11:30

ThB25.1

An Algorithm for Cancer Nest Feature Extraction from Pathological Images 3423-3426

Hiroyasu, Tomoyuki (Doshisha Univ.); Yamaguchi, Hiroaki (Doshisha Univ.); Fujita, Sosuke (Doshisha Univ.); Miki, Mitsunori (Doshisha Univ.); Yoshimi, Masato (Doshisha Univ.); Ogura, Maki (NEC); Fukumoto, Manabu (Tohoku Univ.)*

11:30-11:45

ThB25.2

Detection of Prostate Cancer on Histopathology Using Color Fractals and

Probabilistic Pairwise Markov Models 3427-3430

Yu, Elaine (Rutgers Univ.); Monaco, James (Rutgers Univ.); Tomaszewski, John (Univ. of Pennsylvania); Shih, Natalie (Univ. of Pennsylvania); Feldman, Michael (Univ. of Pennsylvania); Madabhushi, Anant (Rutgers Univ.)*

11:45-12:00

ThB25.3

Automated Lymph Node Detection and Classification on Breast and

Prostate Cancer SPECT-CT Images 3431-3434

Papp, Laszlo (Mediso Medical Imaging Systems Ltd.); Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.); Loh, Charlotte (Medical Univ. of Kiel, Dept. of Nuclear Medicine); Ole, Baeumer (Medical Univ. of Kiel, Dept. of Nuclear Medicine); Egeler, Bernhard (Medical Univ. of Kiel, Dept. of Nuclear Medicine); Garai, Ildiko (Medical Univ. of Debrecen, Scanomed Ltd.); Luetzen, Ulf (Medical Univ. of Kiel, Dept. of Nuclear Medicine)*

12:00-12:15

ThB25.4

Computer Aided Analysis of Epi-Illumination and Transillumination Images of

Skin Lesions for Diagnosis of Skin Cancers 3435-3438

D'Alessandro, Brian (New Jersey Inst. of Tech.); Dhawan, Atam (New Jersey Inst. of Tech.); Mullani, Nizar (Translite, LLC)*

12:15-12:30

ThB25.5

Automated Analysis of Cervix Images to Grade the Severity of Cancer 3439-3442

Vajinepalli, Pallavi (Philips Research Asia – Bangalore); Keswarpu, Payal (PHILIPS)*

12:30-12:45

ThB25.6

An Integrated Texton and Bag of Words Classifier for Identifying Anaplastic Medulloblastomas 3443-3446

Galaro, Joseph (Rutgers Univ.); Judkins, Alexander (Children's Hospital of L.A.); Ellison, David (St. Jude Children's Research Hospital); Baccon, Jennifer (Penn State College of Medicine); Madabhushi, Anant (Rutgers Univ.)*

ThB26: 11:15-12:15

Provincetown Marriott

4.4.1 Systems Models in Biology III (Minisymposium)

Chair: Tidor, Bruce (Massachusetts Inst. of Tech.)

Co-Chair: May, Elebeoba (Sandia Natl. Laboratories)

11:15-11:45

ThB26.1

Investigating the Metabolic Dynamics of Pathogenic Organisms Using BioXyce *

May, Elebeoba (Sandia Natl. Laboratories)*

11:45-12:15

ThB26.2

An Open, Flexible Device Model Specification Framework with Applications to Neuron Modeling *

Amsallem, David (Berkeley); Roychowdhury, Jaijeet (Jaijeet Roychowdhury)*

ThC01: 13:00-14:30 St. George AB Westin
8.4.25 Haptics in Robotic Surgery (Oral Session)
Chair: Fung, Joyce (*McGill Univ.*)
Co-Chair: Mousavi, Parvin (*Queen's Univ.*)

- 13:00-13:15 ThC01.1
Experimental Evaluation of a Coaxial Needle Insertion Assistant with Enhanced Force Feedback 3447-3450
*De Lorenzo, Danilo** (*Politecnico di Milano*); *Koseki, Yoshihiko* (*AIST*); *De Momi, Elena* (*Politecnico di Milano*);
Chinzei, Kiyoyuki (*Natl. Inst. of Advanced Industrial Science & Tech.*); *Okamura, Allison* (*Johns Hopkins Univ.*)
- 13:15-13:30 ThC01.2
Assessing the Quality of Force Feedback in Soft Tissue Simulation 3451-3454
*Basafa, Ehsan** (*Johns Hopkins Univ.*); *Sefati, Shahin* (*Johns Hopkins Univ.*);
Okamura, Allison (*Johns Hopkins Univ.*)
- 13:30-13:45 ThC01.3
Design and Evaluation of a Multi-Modal Haptic Skin Stimulation Apparatus 3455-3458
*Damian, Dana** (*Univ. of Zurich, Johns Hopkins Univ.*); *Hernandez Arieta, Alejandro* (*Univ. of Tokyo*);
Okamura, Allison (*Johns Hopkins Univ.*)
- 13:45-14:00 ThC01.4
Towards an Augmented Ultrasound Guided Spinal Needle Insertion System 3459-3462
*Sutherland, Colin** (*Queen's Univ.*); *Hashtrudi-Zaad, Keyvan* (*Queen's Univ.*); *Abolmaesumi, Purang* (*UBC*);
Mousavi, Parvin (*Queen's Univ.*)
- 14:00-14:15 ThC01.5
Development of a Spatially Transparent Electrotactile Display and Its Performance in Grip Force Control 3463-3466
*Yoshimoto, Shunsuke** (*Osaka Univ.*); *Kuroda, Yoshihiro* (*Osaka Univ.*); *Imura, Masataka* (*Osaka Univ.*);
Oshiro, Osamu (*Osaka Univ.*)
- 14:15-14:30 ThC01.6
Characterization of an Air Jet Haptic Lump Display 3467-3470
*Bianchi, Matteo** (*Univ. of Pisa*); *Gwilliam, James* (*Johns Hopkins Univ.*); *Degirmenci, Alperen* (*Johns Hopkins Univ.*); *Okamura, Allison* (*Johns Hopkins Univ.*)

ThC02: 13:00-14:30 St. George CD Westin
8.10.15 New Technologies and Methodologies in Human Movement Analysis (Oral Session)
Chair: Porta, Alberto (*Univ. degli Studi di Milano*)
Co-Chair: Kulic, Dana (*Univ. of Waterloo*)

- 13:00-13:15 ThC02.1
Redundancy Resolution of a Human Arm for Controlling a Seven DOF Wearable Robotic System 3471-3474
*Kim, Hyunchul** (*Univ. of California Santa Cruz*); *Miller, Levi Makaio* (*Univ. of Washington*);
Al-Refai, Aimen (*UCSC*); *Rosen, Jacob* (*Univ. of California – Santa Cruz*)
- 13:15-13:30 ThC02.2
Detecting Changes in Human Motion Using Stochastic Distance Measures 3475-3478
*Choudry, Muhammad** (*Univ. of Waterloo*); *Pillar, Matthew* (*Univ. of Waterloo*); *Beach, Tyson* (*Univ. of Waterloo*);
Kulic, Dana (*Univ. of Waterloo*); *Callaghan, Jack* (*Univ. of Waterloo*)
- 13:30-13:45 ThC02.3
Joint Angle Estimation in Rehabilitation with Inertial Sensors and Its Integration with Kinect 3479-3483
*Padilha Lanari Bó, Antônio** (*Univ. de Brasília*); *Hayashibe, Mitsuhiro* (*INRIA*); *Poignet, Philippe* (*LIRMM, UMR CNRS 5506, Univ. of Montpellier II*)
- 13:45-14:00 ThC02.4
A Concurrent Comparison of Inertia Sensor-Based Walking Speed Estimation Methods 3484-3487
*Laudanski, Annemarie** (*Queen's Univ.*); *Yang, Shuozhi* (*Queen's Univ.*); *Li, Qingguo* (*Queen's Univ.*)

14:00-14:15 ThC02.5
An Optimization Algorithm for Joint Mechanics Estimate Using Inertial Measurement Unit Data During a Squat Task 3488-3491
Bonnet, Vincent (Univ. of Rome "Foro Italico"); Mazzà, Claudia (Univ. of Rome "Foro Italico"); Fraise, Philippe (Univ. of Montpellier 2, France); Cappozzo, Aurelio (Univ. of Rome "Foro Italico")*

14:15-14:30 ThC02.6
Using a Shoe Mounted Tri-Axial Accelerometer to Detect Kinematic Changes During Stiff Ankle Walking .. 3492-3495
Patterson, Matt (Univ. College Dublin); Caulfield, Brian (UCD)*

ThC03: 13:00-14:30 Essex Ballroom South Westin
6.8.20 Wearable Systems for Neuro-Rehabilitation – Reaching and Grasping (Oral Session)
Chair: Veltink, Peter (*Univ. of Twente*)
Co-Chair: Lymberis, Andreas (*European Commission*)

13:00-13:15 ThC03.1
Enhancing the Performance of Upper Limb Gesture Reconstruction Sensory Fusion 3496-3499
De Rossi, Danilo (Univ. of Pisa); Carbonaro, Nicola (Univ. of Pisa); Tognetti, Alessandro (Univ. of Pisa); Carbonaro, Nicola (Univ. of pisa); Anania, Gaetano (Centro Piaggio – Univ. di Pisa)*

13:15-13:30 ThC03.2
Load Identification During Object Handling 3500-3502
Kortier, Henk (Univ. of Twente); Veltink, Peter (Univ. of Twente)*

13:30-13:45 ThC03.3
Wearable Smart Systems: From Technologies to Integrated Systems 3503-3506
Lymberis, Andreas (European Commission)*

13:45-14:00 ThC03.4
A Comparison of Treatment Effects after Sensor-Based and Robot-Based Task-Oriented Arm Training in Highly Functional Stroke Patients 3507-3510
Timmermans, Annick A.A. (Adelante & Maastricht Univ.); Lemmens, Rianne J.M. (Maastricht Univ.); Geers, Richard P.J. (Adelante Ctr. of Expertise in Rehabilitation and Audiology); Smeets, Rob J.E.M. (Maastricht Univ.); Seelen, Henk A.M. (Adelante Ctr. of Expertise in Rehabilitation and Audiology)*

14:00-14:15 ThC03.5
Radio Frequency Identification – An Innovative Solution to Guide Dexterous Prosthetic Hands 3511-3514
Trachtenberg, Matthew (The Johns Hopkins Univ.); Singhal, Girish (Infinite Biomedical Technologies, LLC); Kaiiki, Rahul (Univ. of Southern California); Smith, Ryan J (The Johns Hopkins Univ.); Thakor, Nitish (Johns Hopkins Univ.)*

14:15-14:30 ThC03.6
Series Elastic Actuator Control of a Powered Exoskeleton 3515-3518
Ragonesi, Daniel (Univ. of Delaware); Agrawal, Sunil (Univ. of Delaware); Sample, Whitney (A.I. duPont Hospital for Children); Rahman, Tariq (Nemours)*

ThC05: 13:00-14:30 Essex Ballroom North Westin
6.4.15 Restoring or Augmenting Impaired Sensory Function for Posture and Gait II (Oral Session)
Chair: Loughlin, Patrick (*Univ. of Pittsburgh*)
Co-Chair: Sienko, Kathleen H. (*Univ. of Michigan*)

13:00-13:15 ThC05.1
Chronic Stimulation of the Semicircular Canals Using a Multichannel Vestibular Prosthesis: Effects on Locomotion and Angular Vestibulo-Ocular Reflex in Chinchillas 3519-3523
Sun, Daniel (Johns Hopkins); Rahman, Mehdi (Johns Hopkins Univ.); Fridman, Gene (Johns Hopkins Univ.); Dai, Chenkai (JHU); Chiang, Bryce (Johns Hopkins Univ.); Della Santina, Charles C. (Johns Hopkins School of Medicine)*

13:15-13:30 ThC05.2
The Design and Development of a Production Prototype Balance Belt 3524-3528
Wall, Conrad (Harvard Medical School); Lyford, Nicholas D. (CLC Consulting); Sienko, Kathleen H. (Univ. of Michigan); Balkwill, M. David (Massachusetts Eye & Ear Infirmary)*

13:30-13:45	ThC05.3
The Effects of Rotational Platform Training on Balance and ADLs	3529-3532
<i>Wrisley, Diane* (Lynchburg College); Stephens, Marilee (Univ. of Alberta)</i>	
13:45-14:00	ThC05.4
Effects of Attractive versus Repulsive Vibrotactile Instructional Cues During Motion Replication Tasks ...	3533-3536
<i>Lee, Beom-Chan (Univ. of Michigan); Sienko, Kathleen H.* (Univ. of Michigan)</i>	
14:00-14:15	ThC05.5
Real Time Communication of Head Velocity and Acceleration for an Externally Mounted Vestibular Prosthesis	3537-3541
<i>Phillips, James* (Univ. of Washington); Rubinstein, Jay T (Univ. of Washington)</i>	
14:15-14:30	ThC05.6
The Effect of Robot-assisted Lokomotor Training on Gait Recovery: A Multivariate Analysis	3542-3545
<i>Niu, Xun* (Rehabilitation Inst. of Chicago; Northwestern Univ.); Patel, Chirag (RIC/UIC); Varoqui, Deborah (Rehabilitation Inst. of Chicago; Northwestern Univ.); Mirbagheri, Mehdi (Northwestern Univ./RIC)</i>	
ThC10: 13:00-14:30 Simmons Marriott	
10.3.19 Recent Developments in mHealth (Oral Session)	
Chair: Guillen, Sergio (<i>Inst. Itaca Valencia</i>)	
Co-Chair: Eberle, Wolfgang (<i>imec</i>)	
13:00-13:15	ThC10.1
Accessing to Electronic Medical History Using a Mobility Intra Hospital System	3546-3549
<i>Guillen, Sergio* (Inst. Itaca Valencia); Traver, Vicente (Inst. ITACA); Monton, Eduardo (ITACA Inst. – Polytechnic Univ. of Valencia); Castellano, Elena (Tecnologías para la Salud y el Bienestar SA); Valdivieso, Bernardo (Hospital Univ. La Fe); Regaña, Manuel (Agencia Valenciana de la Salud)</i>	
13:15-13:30	ThC10.2
The Importance of Biosignal Quality Detection in Mhealth Telemonitoring Applications	*
<i>Lovell, Nigel* (Univ. of New South Wales); Redmond, Stephen James (Univ. of New South Wales); Wang, Ning (Univ. of New South Wales)</i>	
13:30-13:45	ThC10.3
A Mobile Feedback System for Integrated E-Health Platforms to Improve Self-Care and Compliance of Patients with Chronic Diseases	3550-3553
<i>Fioravanti, Alessio* (Technical Univ. of Madrid); Fico, Giuseppe (Technical Univ. of Madrid); Arredondo, María Teresa (Technical Univ. of Madrid); Leuteritz, Jan-Paul (Univ. Stuttgart IAT)</i>	
13:45-14:00	ThC10.4
METABO: A New Paradigm towards Diabetes Disease Management. an Innovative Business Model	3554-3557
<i>Guillen, Alejandra* (Medtronic Spain); Colas, Javier (Medtronic Iberica); Fico, Giuseppe (Technical Univ. of Madrid); Guillen, Sergio (Inst. Itaca Valencia)</i>	
14:00-14:15	ThC10.5
A Fully Integrated Continuous-Time 50-Hz Notch Filter with Center Frequency Tunability	3558-3562
<i>Haixi, Li* (Shenzhen Inst. of Advanced Tech. (SIAT)); Wang, Lei (Shenzhen Inst. of Advanced Tech.)</i>	
14:15-14:30	ThC10.6
Improvement of Fuzzy Vault Scheme for Securing Key Distribution in Body Sensor Network	3563-3567
<i>Cao, Cun-Zhang (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); He, Chen-Guang (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Bao, Shu-Di* (Shenzhen Inst. of Advance Tech., Chinese Acad. of Sciences)</i>	

ThC11: 13:00-14:30 Wellesley Marriott
10.4.24 Personal Health Systems and mHealth: Horizons Towards 2015 (Minisymposium)
Chair: Korhonen, Ilkka (*Tampere Univ. of Tech.*)
Co-Chair: Saranummi, Niilo (*VTT Tech. Res. Ctr.*)

13:00-13:15 ThC11.1
Connected Health: Tools to Promote Healthcare Access, Quality & Efficiency *
Kvedar, Joseph (Partners HealthCare)*

13:15-13:30 ThC11.2
Using ICT to Co-Produce Better Health Outcomes: A Paradigm Shift towards Health 2.0 *
Piniewski, Brigitte (PeaceHealth Laboratories); Codagnone, Cristiano (JRC Inst. for Prospective Technological Studies (IPTS)); Osimo, David (Tech4i2 Ltd.)*

13:30-13:45 ThC11.3
Mhealth Perspectives towards 2015 *
Korhonen, Ilkka (Tampere Univ. of Tech.)*

13:45-14:00 ThC11.4
Harnessing the Power of Platform Technologies to Enhance Decision Support through Coordinated Care and Patient Engagement *
Le Penske, David (Microsoft Corp.)*

ThC13: 13:00-14:30 Arlington Marriott
4.7.10 Biomedical Data-Driven Modelling (Oral Session)
Chair: Balestra, Gabriella (*Pol. di Torino*)
Co-Chair: Alterovitz, Gil (*Children's Hospital Informatics Program & Tech. Harvard Medical School*)

13:00-13:15 ThC13.1
Effect of Gravity on Learning and Memory of Prism Adaptation **3568-3572**
Kashima, Takafumi (Chubu Univ.); Wada, Yoshiro (Nara Medical Univ.); Inui, Takuo (Japan Air Self-Defense Force); Hirata, Yutaka (Chubu Univ., College of Eng)*

13:15-13:30 ThC13.2
Is the Reduction of Dimensionality to a Small Number of Features Always Necessary in Constructing Predictive Models for Analysis of Complex Diseases or Behaviours? **3573-3576**
Zollanvari, Amin (Children's Hospital Informatics Program at Harvard-MIT Division of Health Sciences & Tech., Harvard Medical School); Saccone, Nancy L. (Dept. of Genetics, Washington Univ. School of Medicine, St. Louis, MO); Bierut, Laura J. (Dept. of Psychiatry, Washington Univ. School of Medicine St. Louis, MO.); Ramoni, Marco F. (Children's Hospital Informatics Program, Harvard-MIT Division of Health Sciences & Tech., Harvard Medical School, & Par); Alterovitz, Gil (Children's Hospital Informatics Program, Harvard-MIT Division of Health Sciences & Tech., Harvard Medical School, Partner)*

13:30-13:45 ThC13.3
Data-Driven Prediction of Stem Cell Expansion Cultures **3577-3580**
Yin, Zhaozheng (Carnegie Mellon Univ.); Ker, Dai Fei (Carnegie Mellon Univ.); Junkers, Silvina (Carnegie Mellon Univ.); Kanade, Takeo (Carnegie Mellon Univ.); Chen, Mei (Carnegie Mellon Univ.); Weiss, Lee E. (Carnegie Mellon Univ.); Campbell, Phil G. (Carnegie Mellon Univ.)*

13:45-14:00 ThC13.4
Modeling Neuron-Glia Interactions: From Parametric Model to Neuromorphic Hardware **3581-3584**
Ghaderi, Viviane (Univ. of Southern California); Allam, Sushmita (Univ. of Southern California); Ambert, Nicolas (Rhenovia Pharma); Bouteiller, Jean-Marie Charles (Univ. of Southern California); Choma, John, Jr. (Univ. of Southern California); Berger, Theodore (Univ. of Southern California)*

14:00-14:15 ThC13.5
Quantitative Analysis of Viral Persistence and Transient Viral Load Rebound from HIV Clinical Data **3585-3588**
Luo, Rutao (Univ. of Delaware); Piovoso, Michael (Penn State Univ. Great Valley); Zurakowski, Ryan (Univ. of Delaware)*

14:15-14:30 ThC13.6
PhenOMIM: An OMIM-Based Secondary Database Purported for Phenotypic Comparison 3589-3592
van Triest, Han J. W. (Sino-Dutch School of Biomedical & Information Eng.); Chen, Danqi (China Medical Univ., Shenyang); Ji, Xinglai (Lab. for Conservation & Utilization of Bio-Resources & Key Lab. for Microbial Resources of the Ministry of Educati); Qi, Shouliang (Sino-Dutch School of Biomedical & Information Eng.); Li-Ling, Jesse (Sino Dutch School of Biomedical & Information Eng.)*

ThC15: 13:00-14:30 Clarendon Marriott
7.2.2 Bioreactivity Effects of Living Cells (Oral Session)
Chair: Celenk, Mehmet (*Ohio Univ.*)
Co-Chair: Khademhosseini, Ali (*Harvard-MIT*)

13:00-13:15 ThC15.1
Improving the Bioactivity of Bioglass/ (PMMA-Co-MPMA) Organic/Inorganic Hybrid 3593-3596
Ravarian, Roya (The Univ. of Sydney, School of Chemical & Biomolecular Eng.)*

13:15-13:30 ThC15.2
Nanostructured, Highly Aligned Poly(hydroxy Butyrate)electrospun Fibers for Differentiation of Skeletal and Cardiac Muscle Cells 3597-3600
Ricotti, Leonardo (Scuola Superiore Sant'Anna); Polini, Alessandro (NNL, Natl. Nano Tech. Lab.); Genchi, Giada Graziana (CRIM Lab, Scuola Superiore Sant'Anna); Ciofani, Gianni (Italian Inst. of Tech.); Iandolo, Donata (NNL, Natl. Nano Tech. Lab. of Istituto Nanoscienze-CNR); Mattoli, Virgilio (Scuola Superiore Sant'Anna); Menciacsi, Arianna (Scuola Superiore Sant'Anna); Dario, Paolo (IIT Italian Inst. of Tech.); Pisignano, Dario (Dipartimento di Ingegneria dell'Innovazione, Univ. del Salento)*

13:30-13:45 ThC15.3
An Implantable Electrical Bioreactor for Enhancement of Cell Viability 3601-3604
Kim, Jung Hoon (Seoul Natl. Univ.); Lee, Taehyung (Seoul Natl. Univ.); Song, Yun Mi (SNU); Kim, In Sook (Seoul Natl. Univ.); Cho, Tae Hyung (SNU); Hwang, Soon Jung (Seoul Natl. Univ.); Kim, Sung June (Seoul Natl. Univ.)*

13:45-14:00 ThC15.4
First Human Hnt Astrocytes Patterned to Single Cell Resolution on Parylene-C/Silicon Dioxide Substrates 3605-3608
Unsworth, Charles Peter (Univ. of Auckland); Scott, Euan Graham (Univ. of Auckland); Delivopoulos, Evangelos (Univ. of Cambridge); Murray, Alan Fraser (The Univ. of Edinburgh)*

14:00-14:15 ThC15.5
Cell Settling Effects on a Thermal Inkjet Bioprinter 3609-3612
Pepper, Matthew (Clemson Univ.); Seshadri, Vidya (Clemson Univ.); Burg, Timothy (Clemson Univ.); Booth, Brian (Clemson Univ.); Burg, Karen (Clemson Univ.); Groff, Richard E (Clemson Univ.)*

14:15-14:30 ThC15.6
Microfabrication and Microfluidics-Based Patterning of Cultured Neuronal Network 3613-3616
Takayama, Yuzo (Univ. of Tokyo); Kotake, Naoki (The Univ. of Tokyo); Haga, Tatsuya (the Univ. of Tokyo); Suzuki, Takafumi (The Univ. of Tokyo); Mabuchi, Kunihiko (The Univ. of Tokyo)*

ThC17: 13:00-14:30 Exeter Marriott
11.2.1 Novel Approaches to BME Education (Oral Session)
Chair: Wang, Xiaoqin (*Johns Hopkins Univ. School of Medicine*)
Co-Chair: Bhatia, Sujata (*Harvard Univ.*)

13:00-13:15 ThC17.1
A Disease-Centered Approach to Biomaterials Education and Medical Device Design 3617-3619
Bhatia, Sujata (Harvard Univ.)*

13:15-13:30 ThC17.2
Tsinghua-Johns Hopkins Joint Center for Biomedical Engineering Research: Scientific and Cultural Exchange in Undergraduate Engineering 3620-3623
Wisneski, Andrew (Johns Hopkins Univ., Dept. of Biomedical Eng.); Huang, Lixia (Tsinghua Univ., Dept. of Biomedical Eng.); Hong, Bo (Tsinghua Univ.); Wang, Xiaoqin (Johns Hopkins Univ. School of Medicine)*

13:30-13:45	ThC17.3
Integrative Learning through the Design of an Electrocardiogram Acquisition System	3624-3627
<i>Chan, Adrian (Carleton Univ.); Nizami, Shermeen* (Carleton Univ.)</i>	
13:45-14:00	ThC17.4
Biomedical Engineering Education in Developing Countries: Research Synthesis	3628-3630
<i>Douglas, Tania S* (Univ. of Cape Town)</i>	
14:00-14:15	ThC17.5
The Dilemma of BME Research Projects in Developing Countries: A Case Study	3631-3635
<i>Zahedi, Edmond* (Sharif Univ. of Tech.)</i>	

ThC19: 13:00-14:30	Salons AB Marriott
3.7.1 Wearable Sensors in Healthcare: Real Applications (Oral Session)	
Chair: Puiatti, Alessandro (<i>Univ. of Applied Science of Southern Switzerland</i>)	
Co-Chair: Albinali, Fahd (<i>MIT</i>)	

13:00-13:15	ThC19.1
Design of a Wearable Physical Activity Monitoring System Using Mobile Phones and Accelerometers ..	3636-3639
<i>Intille, Stephen* (Northeastern Univ.)</i>	

13:15-13:30	ThC19.2
Real-Time Monitoring of Occupational Stress of Nurses	3640-3643
<i>Jovanov, Emil* (Univ. of Alabama in Huntsville); Frith, Karen H (Univ. of Alabama in Huntsville); Anderson, E. Faye (Univ. of Alabama Huntsville); Milosevic, Mladen (Univ. of Alabama in Huntsville); Shrove, Michael (Univ. of Alabama Huntsville)</i>	

13:30-13:45	ThC19.3
Smartphone-Centred Wearable Sensors Network for Monitoring Patients with Bipolar Disorder	3644-3647
<i>Puiatti, Alessandro* (Univ. of Applied Science of Southern Switzerland); Mudda, Steven (Univ. of Applied Science of Southern Switzerland); Giordano, Silvia (Univ. of Applied Science of Southern Switzerland); Majora, Oscar (CREATE-NET)</i>	

13:45-14:00	ThC19.4
Wearable Sensor Systems: The Challenges	3648-3651
<i>McAdams, Eric* (INSA Lyon); Krupaviciute, Asta (MTIC-EA4171, INSA de Lyon, Univ. de Lyon 1); Gehin, Claudine (INSA Lyon); Grenier, Etienne (INSA Lyon); Massot, Bertrand (INSA Lyon); Dittmar, Andre (INSA Lyon); Rubel, Paul (INSA de Lyon ; Univ. de Lyon); Fayn, Jocelyne (INSERM)</i>	

14:00-14:15	ThC19.5
Wrist Actigraphy for Scratch Detection in the Presence of Confounding Activities	3652-3655
<i>Feuerstein, Johanna* (Oregon Health & Science Univ.); Austin, Daniel (Oregon Health & Science Univ.); Sack, Robert (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.)</i>	

14:15-14:30	ThC19.6
Effects of BMI and Abdominal Volume on the Accuracy of Step Count Obtained from a Tri-Axial Accelerometer	3656-3659
<i>Cleland, Ian* (Univ. of Ulster); Nugent, Chris (Univ. of Ulster); Finlay, Dewar (Univ. of Ulster); Burns, William Paul (Univ. of Ulster)</i>	

ThC20: 13:00-14:30	Salons CD Marriott
3.3.24 Advances in Chemical Biosensors (Oral Session)	
Chair: Voss, Andreas (<i>Univ. of Applied Sciences Jena</i>)	
Co-Chair: Mazzeo, Brian A. (<i>Brigham Young Univ.</i>)	

13:00-13:15	ThC20.1
Dielectric Spectroscopy of Molecular Interactions Based on the Avidin-Biotin Complex	3660-3663
<i>Mellor, Brett Lee (Brigham Young Univ.); Kellis, Nathan (Brigham Young Univ.); Mazzeo, Brian A.* (Brigham Young Univ.)</i>	

13:15-13:30	ThC20.2
Discrimination and Characterization of Breath from Smokers and Non-Smokers via Electronic Nose and GC/MS Analysis	3664-3667
<i>Witt, Katharina (Univ. of Applied Sciences Jena, Dept. Medical Eng. & BioTech.); Reulecke, Sina (Univ. of Applied Sciences Jena, Dept. Medical Eng. & BioTech.); Voss, Andreas* (Univ. of Applied Sciences Jena)</i>	
13:30-13:45	ThC20.3
A Point-Of-Care Instrument for Rapid Multiplexed Pathogen Genotyping	3668-3671
<i>Myers, Frank* (Univ. of California, Berkeley); Henrikson, Richard (Univ. of California, Berkeley); Xu, Liyi (Univ. of California, Berkeley); Lee, Luke (UC Berkeley)</i>	
13:45-14:00	ThC20.4
Raman Based Hepatocellular Carcinoma Biomarker Detection	3672-3675
<i>Santiago-Cordoba, Miguel* (The Pennsylvania State Univ.); Romano, Patrick (Drexel Inst. for BioTech. & Virology Research); MacKay, Andrew (Virology Research & The Inst. for Hepatitis & Virus Research); Demirel, Melik (Penn State)</i>	
14:00-14:15	ThC20.5
Development of a Point-Of-Care Device to Quantify Serum Zinc to Aid the Diagnosis and Follow-Up of Pediatric Septic Shock	3676-3679
<i>Sukhavasi, Sowmya (Univ. of Cincinnati School of Electronic & Computing Systems); Jothimuthu, Preetha (Univ. of Cincinnati School of Electronic & Computing Systems); Papautsky, Ian (Univ. of Cincinnati); Beyette, Fred R* (Univ. of Cincinnati)</i>	
14:15-14:30	ThC20.6
Out-of-Plane, High Strength, Polymer Microneedles for Transdermal Drug Delivery	3680-3683
<i>Paul Chaudhri, Buddhadev* (IMEC/KU Leuven, Belgium); Ceysens, Frederik (ESAT, Catholic Univ., Leuven, Belgium); Van Hoof, Chris (IMEC); Puers, Robert (Catholic Univ. of Leuven)</i>	
ThC21: 13:00-14:30	Salon E Marriott
1.4.36 Biomedical Signal Classification: Neurological Data (Oral Session)	
Chair: Perreault, Eric (Northwestern Univ.)	
Co-Chair: Nenadic, Zoran (UC Irvine)	
13:00-13:15	ThC21.1
A Vision-Free Brain-Computer Interface (BCI) Paradigm Based on Auditory Selective Attention	3684-3687
<i>Kim, Do-Won (Yonsei Univ.); Cho, Jae-Hyun (Yonsei Univ.); Hwang, Han-Jeong (Yonsei Univ.); Lim, Jeong-Hwan (Yonsei Univ.); Im, Chang-Hwan* (Yonsei Univ.)</i>	
13:15-13:30	ThC21.2
Accuracy of a BCI Based on Movement-Related and Error Potentials	3688-3691
<i>Artusi, Xavier* (Institut de Recherche en Communications et Cybernétique de Nantes); Niazi, Imran (Aalborg Univ.); Lucas, Marie-Françoise (Ecole Centrale de Nantes – Institut de Recherche en Communication et Cybernétique de Nantes); Farina, Dario (Bernstein Ctr. for Computational Neuroscience, Univ. Medical Ctr. Göttingen)</i>	
13:30-13:45	ThC21.3
Revealing the Neural Response to Imperceptible Peripheral Flicker with Machine Learning	3692-3695
<i>Porbadnigk, Anne Kerstin* (Berlin Inst. of Tech.); Scholler, Simon (TU Berlin); Blankertz, Benjamin (Berlin Inst. of Tech.); Ritz, Arnd (Philips Research Eindhoven); Born, Matthias (Philips Research Aachen, Germany); Scholl, Robert (Philips Research Aachen, Germany); Müller, Klaus-Robert (Berlin Inst. of Tech.); Curio, Gabriel (Charité – Univ. Medicine Berlin); Treder, Matthias Sebastian (Berlin Inst. of Tech.)</i>	
13:45-14:00	ThC21.4
Sensor-Fault Tolerant Control of a Powered Lower Limb Prosthesis by Mixing Mode-Specific Adaptive Kalman Filters	3696-3699
<i>Dutta, Anirban* (Georg-August-Univ.); Koerding, Konrad (Northwestern Univ.); Perreault, Eric (Northwestern Univ.); Hargrove, Levi (Rehabilitation Inst. of Chicago)</i>	

14:00-14:15 ThC21.5
A Pilot Study on Two Stage Decoding Strategies **3700-3703**
Jiang, Bo (Zhejiang Univ.); Wang, Rui (Zhejiang Univ.); Zhang, Qiaosheng (Zhejiang Univ.); Zhang, Jicai (Zhejiang Univ.); Zheng, Xiaoxiang (Zhejiang Univ.); Zhang, Shaomin (Zhejiang Univ.); Zhao, Ting (Zhejiang Univ.)*

14:15-14:30 ThC21.6
Matched Subspace Detector Based Feature Extraction for Sorting of Multi-Sensor Action Potentials **3704-3707**
Wu, Shun Chi (Univ. of California, Irvine); Swindlehurst, A. Lee (Univ. of California, Irvine); Nenadic, Zoran (UC Irvine)*

ThC23: 13:00-14:30 Salon G Marriott
1.9.1 Addressing Complexity in Biomedical Research: Data Processing and Mining for Large Biomedical Datasets (Oral Session)
Chair: Chatziioannou, Aristotelis (*Natl. Hellenic Research Foundation*)
Co-Chair: Maglogiannis, Ilias (*Univ. of Central Greece*)

13:00-13:15 ThC23.1
Using Semantic Web Technologies to Manage Complexity and Change in Biomedical Data **3708-3711**
Stevens, Robert (Univ. of Manchester); Jupp, Simon (Univ. of Manchester)*

13:15-13:30 ThC23.2
Modeling Signaling Pathways in Articular Cartilage **3712-3715**
Melas, Ioannis (Natl. Technical Univ. of Athens); Chairakaki, Aikaterini (Natl. Technical Univ. of Athens); Mitsos, Alexander (Massachusetts Inst. of Tech.); Dailiana, Zoe (Univ. Hospital of Larissa); Provatidis, Christopher, G. (Natl. Technical Univ. of Athens); Alexopoulos, Leonidas (Natl. Technical Univ. of Athens)*

13:30-13:45 ThC23.3
Unifying the Integration, Analysis and Interpretation of Multi-Omic Datasets: Exploration of the Disease Networks of Obstructive Nephropathy in Children **3716-3719**
Moulos, Panagiotis (NHRF); Valavanis, Ioannis (Natl. Technical Univ. of Athens); Klein, Julie (INSERM, Toulouse); Maglogiannis, Ilias (Univ. of Central Greece); Schanstra, Joost (INSERM, Toulouse); Chatziioannou, Aristotelis (Natl. Hellenic Research Foundation)*

13:45-14:00 ThC23.4
Statistical Data Mining of Streaming Motion Data for Fall Detection in Assistive Environments **3720-3723**
Tasoylis, Sotirios (Univ. of Central Greece); Doukas, Charalampos (Univ. of the Aegean); Maglogiannis, Ilias (Univ. of Central Greece); Plagianakos, Vassilis (Univ. of Central Greece)*

14:00-14:15 ThC23.5
EEG Complexity Drug-Induced Changes in Disorders of Consciousness: A Preliminary Report **3724-3727**
Valenza, Gaetano (Univ. of Pisa); Carboncini, Maria Chiara (Unit of Neurorehabilitation, Dept. of Neuroscience, Univ. of Pisa, Italy); Virgillito, Alessandra (Unit of Neurorehabilitation, Dept. of Neuroscience, Univ. of Pisa, Italy); Creatini, Iliana (Unit of Neurorehabilitation, Dept. of Neuroscience, Univ. of Pisa, Italy); Bonfiglio, Luca (Unit of Neurorehabilitation, Dept. of Neuroscience, Univ. of Pisa, Italy); Rossi, Bruno (Unit of Neurorehabilitation, Dept. of Neuroscience, Univ. of Pisa, Italy); Lanata, Antonio (Univ. of Pisa); Scilingo, Enzo Pasquale (Univ. of Pisa)*

14:15-14:30 ThC23.6
Recursive Least Squares Estimation of Nonlinear Multiple-Input Systems Using Orthonormal Function Expansions **3728-3731**
Mitsis, Georgios D. (Univ. of Cyprus); Markou, Marios (Univ. of Cyprus)*

ThC25: 13:00-14:30	Salon JK Marriott
2.1.3 MR Image Reconstruction (Oral Session)	
Chair: Babacan, S. Derin (<i>Univ. of Illinois at Urbana-Champaign</i>)	
Co-Chair: Pearce, John Anthony (<i>Univ. of Texas at Austin</i>)	

13:00-13:15 ThC25.1
Four-Dimensional MR Cardiovascular Imaging: Method and Applications 3732-3735
*Christodoulou, Anthony** (*Univ. of Illinois at Urbana-Champaign*); *Zhao, Bo* (*Univ. of Illinois at Urbana-Champaign*); *Zhang, Haosen* (*Pittsburgh NMR Ctr. for Biomedical Research*); *Ho, Chien* (*Carnegie Mellon Univ.*); *Liang, Zhi-Pei* (*Univ. of Illinois at Urbana-Champaign*)

13:15-13:30 ThC25.2
Compressive Sensing Imaging with Randomized Lattice Sampling: Applications to Fast 3D MRI 3736-3739
*Ji, Jim Xiuquan** (*Texas A&M Univ.*)

13:30-13:45 ThC25.3
Adapting Magnetic Resonance Imaging Performance Using Nonlinear Encoding Fields 3740-3743
*Layton, Kelvin Jon** (*Univ. of Melbourne*); *Morelande, Mark* (*Univ. of Melbourne*); *Farrell, Peter Mark* (*Univ. of Melbourne*); *Moran, Bill* (*Univ. of Melbourne*); *Johnston, Leigh A.* (*Univ. of Melbourne*)

13:45-14:00 ThC25.4
A Joint Acquisition-Reconstruction Paradigm for Correcting Inhomogeneity Artifacts in MR Echo Planar Imaging 3744-3750
*Dagher, Joseph** (*Harvard Medical School*); *Meyer, F* (*Univ. of Colorado at Boulder*)

14:00-14:15 ThC25.5
Adaptive Sampling Design for Compressed Sensing MRI 3751-3755
*Ravishankar, Saiprasad** (*Univ. of Illinois at Urbana-Champaign*); *Bresler, Yoram* (*Univ. of Illinois at Urbana-Champaign*)

14:15-14:30 ThC25.6
The Validation of Complete Fourier Direct MR Method for Diffusion MRI via Biological and Numerical Phantoms 3756-3759
*Ozcan, Alpay** (*Washington Univ. in St. Louis*); *Quirk, James* (*Washington Univ. in St. Louis*); *Wang, Yong* (*Washington Univ. in St. Louis*); *Wang, Qing* (*Biomedical MR Lab. Washington Univ. in St. Louis*); *Sun, Peng* (*Washington Univ. in St. Louis*); *Spees, William* (*Washington Univ. in St. Louis*); *Song, Sheng-Kwei* (*Washington Univ.*)

ThC26: 13:00-14:30	Provincetown Marriott
4.4.2 Systems Biology Data Modeling I (Minisymposium)	
Chair: Tidor, Bruce (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: White, Forest (<i>MIT</i>)	

13:00-13:30 ThC26.1
Patient Stratification for Efficacy and Safety As Building Blocks for Personalized Medicine *
*de Graaf, David** (*Selventa*)

13:30-14:00 ThC26.2
Using Network Algorithms to Integrate 'Omic' Data and Reveal Disease Mechanisms *
*Fraenkel, Ernest** (*MIT*)

14:00-14:30 ThC26.3
Interactome Networks and Human Disease *
*Vidal, Marc** (*Dana-Farber Cancer Inst.*)

ThC27: 15:30-17:00	Provincetown Marriott
4.5.7 Systems Biology Data Modeling II (Minisymposium)	
Chair: Tidor, Bruce (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: White, Forest (<i>MIT</i>)	

15:30-16:00	ThC27.1
Cue-Signal-Response Analysis in Vivo	*
<i>Lauffenburger, Douglas*</i> (<i>Massachusetts Inst. of Tech.</i>)	
16:00-16:30	ThC27.2
Integration of Growth Factor, MAP Kinase, and DNA Damage Signaling Networks	*
<i>Yaffe, Michael*</i> (<i>MIT Depts of Biology & Biological Eng.</i>)	
16:30-17:00	ThC27.3
Biological Insight from Quantitative Analysis of Cellular Signaling Networks	*
<i>White, Forest*</i> (<i>MIT</i>)	

ThP21: 15:30-17:00	America Ballroom Westin
1.2.5 Advances in Signal Processing in Physiological Systems I (Poster Session)	

15:30-17:00	ThP21.1
Robust Adaptive Feedback Canceller Based on Modified Pseudo Affine Projection Algorithm	3760-3763
<i>Lee, Keunsang*</i> (<i>Yonsei Univ.</i>); <i>Baek, Yonghyun</i> (<i>Yonsei</i>); <i>Park, Young Cheol</i> (<i>Yonsei Univ.</i>); <i>Kim, Dong W</i> (<i>Samsung</i>); <i>Sohn, Junil</i> (<i>Samsung Advanced Inst. of Tech.</i>)	
15:30-17:00	ThP21.2
Reconstruction of ECG Signals in the Presence of Corruption	3764-3767
<i>Gartheeban, Ganeshapillai*</i> (<i>Massachusetts Inst. of Tech.</i>); <i>Liu, Jessica</i> (<i>MIT</i>); <i>Guttag, John</i> (<i>MIT</i>)	
15:30-17:00	ThP21.3
Stability Analysis of QRS Features to Evaluate Signal Quality for Multi-Lead QRS Detection	3768-3771
<i>Zhang, Zhe</i> (<i>Draeger Medical Systems, Inc.</i>); <i>Chen, Yu*</i> (<i>Draeger Medical System, Inc.</i>)	
15:30-17:00	ThP21.4
Person Identification in Irregular Cardiac Conditions Using Electrocardiogram Signals	3772-3775
<i>Sidek, Khairul Azami*</i> (<i>RMIT Univ.</i>); <i>Khalil, Ibrahim</i> (<i>RMIT Univ.</i>)	
15:30-17:00	ThP21.5
Heart Rate Variability Analysis for Arterial Hypertension Etiological Diagnosis During Surgical Procedures under Tourniquet	3776-3779
<i>Logier, Regis*</i> (<i>CHRU de Lille</i>); <i>De Jonckheere, Julien</i> (<i>CHRU de Lille</i>); <i>Jeanne, Mathieu</i> (<i>CHRU de Lille</i>); <i>Tavernier, Benoit</i> (<i>CHRU de Lille</i>)	
15:30-17:00	ThP21.6
Detection of Circaseptan Rhythm and the "Monday Effect" from Long-Term Pulse Rate Dynamics	3780-3783
<i>Chen, Ying*</i> (<i>Univ. of Aizu</i>); <i>Chen, Wenxi</i> (<i>Univ. of Aizu</i>)	
15:30-17:00	ThP21.7
Analysis of the Vascular Sounds of the Arteriovenous Fistula's Anastomosis	3784-3787
<i>Munguia M., Marco*</i> (<i>Natl. Univ. of Eng.</i>); <i>Mandersson, Bengt</i> (<i>Lund Univ.</i>)	
15:30-17:00	ThP21.8
Estimation of Baroreflex Sensitivity During Anesthesia Induction with Propofol	3788-3791
<i>Dorantes, Guadalupe</i> (<i>Politecnico di Milano</i>); <i>Aletti, Federico*</i> (<i>Politecnico di Milano</i>); <i>Toschi, Nicola</i> (<i>Univ. Tor Vergata, Rome, Italy</i>); <i>Canichella, Antonio</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Coniglione, Filadelfo</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Sabato, Elisabetta</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Della Badia Giusi, Florencia</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Dauri, Mario</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Sabato, Alessandro Fabrizio</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Guerrisi, Maria</i> (<i>Univ. of Rome "Tor Vergata"</i>); <i>Baselli, Giuseppe</i> (<i>Politecnico di Milano</i>); <i>Signorini, Maria G.</i> (<i>Politecnico di Milano</i>); <i>Cerutti, Sergio</i> (<i>Politecnico di Milano</i>); <i>Ferrario, Manuela</i> (<i>Politecnico di Milano</i>)	

15:30-17:00	ThP21.9
Plateau Waves and Baroreflex Sensitivity in Patients with Head Injury: A Case Study	3792-3795
<i>Shahsavari, Sima* (Chalmers Univ. of Tech.); McKelvey, Tomas (Chalmers Univ. of Tech.); Eriksson-Ritzén, Catherine (Sahlgrenska Univ. Hospital); Rydenhag, Bertil (Sahlgrenska Univ. Hospital)</i>	
15:30-17:00	ThP21.10
Investigation of Parameters Highlighting Drug Induced Small Changes of the T-Wave's Morphology for Drug Safety Studies	3796-3799
<i>Baas, Tobias* (Karlsruhe Inst. of Tech. (KIT), Inst. of Biomedical Eng.); Graefe, Ksenija (Karlsruhe Inst. of Tech. (KIT)); Khawaja, Antoun (BIOSIGNA – Medical Diagnostics); Doessel, Olaf (Karlsruhe Inst. of Tech. (KIT))</i>	
15:30-17:00	ThP21.11
Effects of Lead Spatial Resolution on the Spectrum of Cardiac Signals: A Simulation Study	3800-3803
<i>Beltrán Molina, Ferney Alberto (Univ. Rey Juan Carlos); Muñoz Gómez, Alejandra (Univ. Rey Juan Carlos); Rodríguez González, Ana Belén (Rey Juan Carlos Univ.); Vinagre, Juan Jose (Univ. Rey Juan Carlos); Requena Carrion, Jesus* (Univ. Rey Juan Carlos)</i>	
15:30-17:00	ThP21.12
A Point Process Model of Respiratory Dynamics in Early Physiological Development	3804-3807
<i>Indic, Premananda* (Univ. of Massachusetts Medical School); Paydarfar, David (Univ. of Massachusetts Medical School); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)</i>	
15:30-17:00	ThP21.13
Noninvasive Method for Measuring Respiratory System Compliance During Pressure Support Ventilation	3808-3811
<i>Zhao, Zhanqi* (Furtwangen Univ.); Eger, Marcus (Dräger Medical); Handzuj, Thomas (Dräger Medical); Ranieri, Marco (Univ. of Turin); Appendini, Lorenzo (Istituto Scientifico di Veruno); Micelli, Cosimo (KleisTEK); Moeller, Knut (Furtwangen Univ.)</i>	
15:30-17:00	ThP21.14
Quantifying Respiratory Variation with Force Sensor Measurements	3812-3815
<i>Paalasmaa, Joonas* (Beddit.com Ltd); Leppäkorpi, Lasse (Beddit.com Ltd); Partinen, Markku (Vitalmed Research Ctr., Helsinki Univ. Central Hospital)</i>	
15:30-17:00	ThP21.15
Unobtrusive In-Home Assessment by Means of Everyday Computer Mouse Usage	3816-3819
<i>Hagler, Stuart (Oregon Health & Science Univ.); Jimison, Holly* (Oregon Health & Science Univ.); Pavel, Michael (Oregon Health & Science Univ.)</i>	
15:30-17:00	ThP21.16
Evaluation of the Respiratory Muscles Efficiency During an Incremental Flow Respiratory Test	3820-3823
<i>Sarlabous, Leonardo* (Univ. Politècnica de Catalunya (UPC)); Torres, Abel (Univ. Politècnica de Catalunya); Fiz Fernandez, José Antonio (Navarra Hospital); Gea, Joaquim (IMIM-Hospital del Mar, UPF, CIBERES); Martínez-Llorens, Juana M. (IMIM-Hospital del Mar, UPF, CIBERES); Morera Prat, Jose (Hospital Univ. Germans Trias i Pujol); Jané, Raimon (Univ. Politècnica de Catalunya)</i>	
15:30-17:00	ThP21.17
Validation of Respiratory Signal Derived from Suprasternal Notch Acceleration for Sleep Apnea Detection	3824-3827
<i>Kheirkhah Dehkordi, Parastoo* (Simon Fraser Univ.); Marzencki, Marcin (Simon Fraser Univ.); Tavakolian, Kouhyar (Simon Fraser Univ.); Kaminska, Bozena (Simon Fraser Univ.)</i>	

ThP22: 15:30-17:00	America Ballroom Westin
1.2.6 Advances in Signal Processing in Physiological Systems II (Poster Session)	

15:30-17:00	ThP22.1
EEG Spectro-Temporal Modulation Energy: A New Feature for Automated Diagnosis of Alzheimer's Disease	3828-3831
<i>Trambaiolli, Lucas* (Univ. Federal do ABC); Falk, Tiago (Institut Natl. de la Recherche Scientifique); Fraga, Francisco José (Eng., Modeling & Applied Social Sciences Ctr., Univ. Federal do ABC); Anghinah, Renato (Reference Ctr. of Behavioral Disturbances & Dementia, School of Medicine, Univ. de Sao Paulo); Lorena, Ana Carolina (Mathematics, Computation & Cognition Ctr., Univ. Federal do ABC)</i>	

15:30-17:00	ThP22.2
EEG-Rhythm Dynamics During a 2-Back Working Memory Task and Performance	3832-3836
<i>Tsoneva, Tsvetomira* (Philips Research); Baldo, Davide (Univ. of Pisa); Lema, Victor (Philips Research); Garcia-Molina, Gary Nelson (Philips Research Europe)</i>	
15:30-17:00	ThP22.3
EEG Recovery Enhanced by Acute Aerobic Exercise after Performing Mental Task with Listening to Unpleasant Sound	3837-3840
<i>Nishifuji, Seiji* (Yamaguchi Univ.)</i>	
15:30-17:00	ThP22.4
Spectral EEG Features for Evaluating Cognitive Load	3841-3844
<i>Zarjam, Pega* (Univ. of New South Wales); Epps, Julien (The Univ. of New South Wales); Chen, Fang (Natl. ICT Australia (NICTA))</i>	
15:30-17:00	ThP22.5
An Analysis of Brain and Muscle Activity in Arousal Maintenance State against Sleepiness	3845-3848
<i>Yoshida, Hisashi* (Kinki Univ.)</i>	
15:30-17:00	ThP22.6
The Influence of Stimulus Onset Asynchrony on Neuronal Suppressive Phenomenon in Face Processing: An Event-Related Potential Study	3849-3852
<i>XU, Mingdi* (Kyushu Univ.); Iramina, Keiji (Kyushu Univ., Japan)</i>	
15:30-17:00	ThP22.7
Effect of Age and Gender on the Surface Electromyogram During Various Levels of Isometric Contraction	3853-3856
<i>Poosapadi Arjunan, Sridhar* (RMIT Univ.); Kant Kumar, Dinesh (RMIT Univ.); Kalra, Chandan (Univ. of Sydney, Australia); Burne, John (Univ. of Sydney, Australia); Bastos, Teodiano (Univ. Federal do Espirito Santo)</i>	
15:30-17:00	ThP22.8
Repeatability of Surface EMG-Based Single Parameter Muscle Fatigue Assessment Strategies in Static and Cyclic Contractions	3857-3860
<i>Zaman, Sabeer Ahmed* (Univ. of New Brunswick); MacIsaac, Dawn (Univ. of New Brunswick); Parker, Philip (Univ. of New Brunswick)</i>	
15:30-17:00	ThP22.9
Solving EMG-Force Relationship Using Particle Swarm Optimization	3861-3864
<i>Botter, Alberto (Politecnico di Torino); Marateb, Hamid Reza (Laboratorio di Ingegneria del Sistema Neuromuscolare (LISiN), Dipartimento di Elettronica, Politecnico di Torino); Afsharipour, Babak (Politecnico di Torino); Merletti, Roberto* (Politecnico di Torino)</i>	
15:30-17:00	ThP22.10
Influence of Neuromuscular Electrical Stimulation on the Conduction Velocity Measured Using EMG Signals Provided by Linear Arrays of Electrodes	3865-3868
<i>Pires, Kenia Fonseca (Univ. of Brasilia); Barbosa, Leina Adriana Pimenta (Univ. of Brasilia); Monteiro de Andrade, Marcelino (Univ. of Brasilia, Brazil); Domingues, Diana Maria Gallicchio (Univ. of Brasilia); Mendes, Cristiano Jacques Miosso Rodrigues (Univ. of Brasilia); da Rocha, Adson F.* (Univ. of Brasilia)</i>	
15:30-17:00	ThP22.11
Evaluation of Higher Order Statistics Parameters for Multi Channel Semg Using Different Force Levels	3869-3872
<i>Naik, Ganesh R* (Royal Melbourne Univ. of Tech); Kant Kumar, Dinesh (RMIT Univ.)</i>	
15:30-17:00	ThP22.12
Effects of Interelectrode Distance on the Robustness of Myoelectric Pattern Recognition Systems	3873-3876
<i>Young, Aaron* (Northwestern Univ.); Hargrove, Levi (Rehabilitation Inst. of Chicago)</i>	
15:30-17:00	ThP22.13
EMG-Based Detection of Muscle Fatigue During Low-Level Isometric Contraction: Effects of Electrode Configuration and Blood Flow Restriction	3877-3879
<i>Hotta, yu (Niigata Inst. of Tech.); Ito, Kenichi* (Niigata Inst. of Tech.)</i>	

15:30-17:00 ThP22.14
Vectorial Analysis of the Electrohysterogram for Prediction of Preterm Delivery: A Preliminary Study 3880-3883
Rabotti, Chiara (Eindhoven Univ. of Tech.); Bijloo, Rianne (Maxima medical Ctr. Veldhoven);*
Oei, S. Guid (Maxima Medisch Centrum, Veldhoven); Mischi, Massimo (Eindhoven Univ. of Tech.)

ThP23: 15:30-17:00 America Ballroom Westin
2.5.19 Electrical Source, Impedance, Elasticity Imaging, and Other Modalities (Poster Session)

15:30-17:00 ThP23.1
Motion P3 Demonstrates Neural Nature of Motion ERPs 3884-3887
Nolan, Hugh (Trinity College Dublin); Butler, John (Albert Einstein College of Medicine);*
Whelan, Robert (Trinity College Dublin); Foxe, John (City College of the City Univ. of New York);
Bülthoff, Heinrich (Max Planck Inst. for Biological Cybernetics); Reilly, Richard (Trinity College Dublin)

15:30-17:00 ThP23.2
Propagation of Electrical Field in the Brain using Electrical Intra-Cerebral Stimulations 3888-3891
Hofmanis, Janis (INPL, CRAN); Louis-Dorr, Valerie (Nancy-Univ.); Cecchin, Thierry (Ctr. de Recherche en*
Automatique de Nancy (CRAN), Nancy-Univ.); Caspary, Olivier (INPL, CRAN); Koessler, Laurent (CRAN)

15:30-17:00 ThP23.3
On Sparse Forward Solutions in Non-Stationary Domains for the EIT Imaging Problem 3892-3896
Kantartzis, Panagiotis (City Univ. London); Liatsis, Panos (City Univ.)*

15:30-17:00 ThP23.4
Evaluation of EM Absorption Loss Over Breast Mass for Breast Cancer Diagnosis 3897-3900
Elsewe, Mohamed (Primus Diagnostics)*

15:30-17:00 ThP23.5
Automatic Detection of the Seizure Onset Zone Based on Ictal EEG 3901-3904
Gritsch, Gerhard (AIT Austrian Inst. of Tech. GmbH); Hartmann, Manfred (AIT Austrian Inst. of Tech. GmbH);*
Perko, Hannes (Austrian Inst. of Tech.); Fürbaß, Franz (AIT Austrian Inst. of Tech. GmbH);
Ossenblok, Pauly (Epilepsy Ctr. Kempenhaeghe); Kluge, Tilmann (Austrian Inst. of Tech.)

15:30-17:00 ThP23.6
Detection of Motor Planning and Suppression with the Help of Electroencephalograms 3905-3908
Dieckgraeff, Anita Gretchen (Univ. Tübingen, Wilhelm Schickard Institut für Informatik, Germany);*
Lindner, Axel (Herti-Inst. Tübingen, Germany); Rosenstiel, Wolfgang (Dept. of Computer Eng., Univ. Tübingen,
Germany); Bogdan, Martin (Computer Eng. Dept., Univ. Leipzig & Univ. Tübingen, Germany)

15:30-17:00 ThP23.7
Electrocortical Source Imaging of Intracranial EEG Data in Epilepsy 3909-3912
Akalin Acar, Zeynep (Univ. of California San Diego); Palmer, Jason (UCSD); Worrell, Gregory A. (Mayo Clinic);*
Makeig, Scott (Univ. of California San Diego)

15:30-17:00 ThP23.8
Analysis of the Criteria of Activation-Based Inverse Electrocardiography Using Convex Optimization ... 3913-3916
Erem, Burak (Northeastern Univ.); van Dam, Peter (Radboud Univ. Medical Ctr.);*
Brooks, Dana (Northeastern Univ.)

ThP24: 15:30-17:00 America Ballroom Westin
2.6.22 Image Reconstruction and Enhancement (Poster Session)

15:30-17:00 ThP24.1
Wavelet-Based Ultrasound Image Denoising: Performance Analysis and Comparison 3917-3920
Yousefi Rizi, Fereshteh (School of Elec. & Computer Eng., College of Eng., Univ. of Tehran);
Ahmadi Noubari, Hossain (Univ. of Tehran); Setarehdan, Seyed Kamaledin (Univ. of Tehran)*

15:30-17:00 ThP24.2
ARM-Based Visual Processing System for Prosthetic Vision 3921-3924
Matteucci, Paul Brendan (Univ. of New South Wales); Byrnes-Preston, Philip (The Univ. of New South Wales);*
Chen, Spencer Chin-Yu (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales);
Suaning, Gregg (The Univ. of New South Wales)

15:30-17:00	ThP24.3
A Multi-Scale Nonlinear Vessel Enhancement Technique	3925-3929
<i>Abdollahi, Behnaz* (Univ. of Louisville); El-baz, Ayman (Univ. of Louisville); Amini, Amir (Univ. of Louisville)</i>	
15:30-17:00	ThP24.4
A Fast Mapping Method in the ISAF Reconstruction Algorithm	3930-3933
<i>Wang, Gongming* (Inst. of Computing Tech., Chinese Acad. of Science); Zhang, Fa (Inst. of Computing Tech., Chinese Acad. of Science); Chu, Qi (Inst. of Computing Tech., Chinese Acad. of Science); Sun, Fei (Inst. of Biophysics, Chinese Acad. of Science); Liu, Zhiyong (Inst. of Computing Tech., Chinese Acad. of Science)</i>	
15:30-17:00	ThP24.5
A Critical Review of the Effect of De-Noising Algorithms on MRI Brain Tumor Segmentation	3934-3937
<i>Diaz, Idanis* (Univ. of Alberta); Boulanger, Pierre (Univ. of Alberta); Greiner, Russell (Univ. of Alberta); Murtha, Albert (Cross Cancer Inst. at Univ. of Alberta)</i>	
15:30-17:00	ThP24.6
An Attempt of Microwave CT System Which Discriminates the Transmission Path by Means of Time Domain Measurement	3938-3941
<i>Tamura, Mutsumi* (Niigata Univ.); Ogawa, Takahiro (Niigata Univ.); Miyakawa, Michio (Niigata Univ.)</i>	
15:30-17:00	ThP24.7
Software-Based Microwave CT System Consisting of Antennas and Vector Network Analyzer	3942-3945
<i>Ogawa, Takahiro* (Niigata Univ.); Miyakawa, Michio (Niigata Univ.)</i>	
15:30-17:00	ThP24.8
Total Variation Regularization for Bioluminescence Tomography with an Adaptive Parameter Choice Approach	3946-3949
<i>Feng, Jinchao* (Beijing Univ. of Tech.); Jia, Kebin (Beijing Univ. of Tech.); Qin, Chenghu (Chinese Acad. of Sciences); Tian, Jie (Chinese Acad. of Sciences)</i>	

ThP25: 15:30-17:00	America Ballroom Westin
2.8.40 Advances in Retinal Image Analysis I (Poster Session)	

15:30-17:00	ThP25.1
Retinal Vessel Extraction by Combining Radial Symmetry Transform and Iterated Graph Cuts	3950-3953
<i>Xiang, Dehui (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie* (Chinese Acad. of Sciences); Deng, Kexin (Inst. of Automation Chinese Acad. of Sciences); Zhang, Xing (Inst. of Automation, Chinese Acad. of Sciences); Yang, Fei (Inst. of Automation, Chinese Acad. of Science); Wan, Xiaonan (Inst. of Automation, the Chinese Acad. of Sciences)</i>	
15:30-17:00	ThP25.2
Automatic Vessel Segmentation in Wide-Field Retina Images of Infants with Retinopathy of Prematurity	3954-3957
<i>Poletti, Enea (Univ. of Padova); Fiorin, Diego (Univ. of Padova); Grisan, Enrico* (Univ. of Padova); Ruggeri, Alfredo (Univ. of Padua)</i>	
15:30-17:00	ThP25.3
Geographic Atrophy Segmentation in Infra-Red and Auto Fluorescent Retina Images Using Supervised Learning	3958-3961
<i>Devisetti, Kishore (Univ. of Tennessee Health Science Ctr.); Karnowski, Thomas* (Oak Ridge Natl. Lab.); Giancardo, Luca (Univ. of Burgundy – Oak Ridge Natl. Lab); Li, Yaqin (Univ. of Tennessee Health Science Ctr.); Chaum, Edward (Univ. of Tennessee Hamilton Eye Inst)</i>	
15:30-17:00	ThP25.4
Automatic Screening of Age-Related Macular Degeneration and Retinal Abnormalities	3962-3966
<i>Burlina, Philippe* (Johns Hopkins Univ.); Freund, David (JHU/APL)</i>	
15:30-17:00	ThP25.5
Augmenting the Classification of Retinal Lesions Using Spatial Distribution	3967-3970
<i>Massey, Elizabeth* (Univ. of Lincoln); Hunter, Andrew (Univ. of Lincoln)</i>	

15:30-17:00 ThP25.6
Supervised Retinal Biometrics in Different Lighting Conditions **3971-3974**
Che Azemin, Mohd Zulfaezal (RMIT Univ.); Kant Kumar, Dinesh (RMIT Univ.);*
Sugavaneswaran, Lakshmi (Ryerson Univ.); Krishnan, Sridhar (Ryerson Univ.)

ThP26: 15:30-17:00	America Ballroom Westin
3.4.6 Advances in Physiological Monitoring III (Poster Session)	

15:30-17:00 ThP26.1
Influence of the Multisine Excitation Amplitude Design for Biomedical Applications Using Impedance Spectroscopy **3975-3978**
Sanchez, Benjamin (Technical Univ. of Catalonia, Barcelona, SPAIN); Bragos, Ramon (Technical Univ. of Catalonia (UPC)); Vandersteen, Gerd (Vrije Univ. Brussels, Brussels, BELGIUM)*

15:30-17:00 ThP26.2
Real-Time, in Vivo Investigation of Mechanical Stimulus on Cells with Remotely Activated, Vibrational Magnetoelastic Layers **3979-3982**
Holmes, Hallie (Michigan Technological Univ.); Tan, Ee Lim (Michigan Technological Univ.); Ong, Keat Ghee (Michigan Tech. Univ.); Rajachar, Rupak (Michigan Technological Univ.)*

15:30-17:00 ThP26.3
Using Microelectrode Models for Real Time Cell-Culture Monitoring **3983-3986**
Yufera, Alberto (Univ. of Seville); Daza, Paula (Univ. de Sevilla); Cafete, Daniel (Univ. of Seville)*

15:30-17:00 ThP26.4
Temperature Elevation Inside Neural Tissue Illuminated by NIR Laser **3987-3989**
Abdo, Ammar (NJIT); ERSEN, ALI (NJIT); Sahin, Mesut (New Jersey Inst. of Tech.)*

15:30-17:00 ThP26.5
Measuring Movement of Denim Trousers for Garment-Integrated Sensing Applications **3990-3993**
Dunne, Lucy (Univ. of Minnesota); gioberto, Guido (Univ. of Minnesota); Ramesh, Varun (Univ. of Minnesota); Koo, Helen (Univ. of Minnesota)*

15:30-17:00 ThP26.6
A New Proposal of Tailored Bioinstrumentation Using Rapid Prototyping and Three-Dimensional CAD – First Trial to Develop Individually Designed Cuff-Units for Continuous Blood Pressure Measurement **3994-3997**
Ogawa, Mitsuhiro (Kanazawa Univ.); Motoi, Kosuke (Kanazawa Univ.); Yamakoshi, Takehiro (Kanazawa Univ.); Nogawa, Masamichi (Kanazawa Univ.); Yamakoshi, Yasuhiro (yusys Co., Ltd.); Shibata, Masahiro (Shibaura Inst. of Tech.); Yamakoshi, Ken-ichi (Kanazawa Univ.)*

15:30-17:00 ThP26.7
High-Order Sliding-Mode Control for Blood Glucose Regulation in the Presence of Uncertain Dynamics **3998-4001**
Gallardo-Hernández, Ana Gabriela (Univ. Nacional Autónoma de México); Fridman, Leonid (Univ. Nacional Autónoma de México); Leder, Ron (Univ. Nacional Autónoma de México); Islas-Andrade, Sergio (Unidad de Investigación Médica en Enfermedades Metabólicas. CMN SXXI); Revilla-Monsalve, María Cristina (Unidad de Investigación Médica en Enfermedades Metabólicas. CMN SXXI); Shtessel, Yuri (Univ. of Alabama in Huntsville); Levant, Arie (Applied Mathematics Dept. in Tel-Aviv Univ.)*

15:30-17:00 ThP26.8
Enhanced Video Images for Tympanic Membrane Characterization **4002-4005**
Cheng, Lin (Trinity College); Liu, Jinfeng (Trinity College); Roehm, Corrie (Univ. of Connecticut Health Ctr.); Valdez, Tulio (Connecticut Children's Medical Ctr.)*

15:30-17:00 ThP26.9
Development of a Reflectance Photoplethysmographic Sensor Used for the Assessment of Free Flap Perfusion **4006-4009**
Kyriacou, Panayiotis (City Univ.); Pal, Sandip (Broomfield Hospital); Zaman, Tina (City Univ.)*

ThP27: 15:30-17:00 America Ballroom Westin
3.6.9 Recent Developments in Wireless Sensors and Systems (Poster Session)

- 15:30-17:00 ThP27.1
Analysis and Design of Data Transmission Protocol for 1024-Channel Retinal Prosthesis 4010-4013
Chen, Kuanfu (Univ. of California, Santa Cruz); Liu, Wentai (Univ. of California, Santa Cruz)*
- 15:30-17:00 ThP27.2
Study of Performance and Propagation Characteristics of Wire and Planar Structures Around Human Body 4014-4017
Aroul, Antoine Lourdes Praveen (Univ. of Texas at Dallas); Bhatia, Dinesh (The Univ. of Texas at Dallas)*
- 15:30-17:00 ThP27.3
Design and Simulation of Printed Spiral Coil used in Wireless Power Transmission Systems for Implant Medical Devices 4018-4021
Wu, Wei (Suzhou Inst. of Biomedical Eng. & Tech.); Fang, Qiang (RMIT Univ.)*
- 15:30-17:00 ThP27.4
Development of Walking Analysis System Consisting of Mobile Force Plate and Motion Sensor 4022-4025
Adachi, Wataru (Doshisha Univ.); Tsujiuchi, Nobutaka (Doshisha Univ.); Koizumi, Takayuki (Doshisha Univ.); Aikawa, Masataka (Doshisha Univ.); Shiojima, Kouzou (Tec Gihan Co., LTD); Tsuchiya, Youtaro (Tec Gihan Co., LTD); Inoue, Yoshio (Kochi Univ. of Tech.)*

ThP28: 15:30-17:00 America Ballroom Westin
3.8.11 Recent Developments in Microfluidic Techniques, Methods and Systems (Poster Session)

- 15:30-17:00 ThP28.1
Spatio-Temporal Image Analysis of Particle Streaks in Micro-Channels for Low-Cost Electro-Hydrodynamic Flow Characterization 4026-4029
Mahanti, Prasun (Arizona State Univ.); Taylor, Tom (Arizona State Univ.); Cochran, Douglas (Arizona State Univ.); Hayes, Mark (Arizona State Univ.); Weiss, Noah (Arizona State Univ.); Jones, Paul (Arizona State Univ.)*
- 15:30-17:00 ThP28.2
Stimulation and Artifact-Free Extracellular Electrophysiological Recording of Cells in Suspension 4030-4033
Myers, Frank (Univ. of California, Berkeley); Abilez, Oscar (Stanford Univ.); Zarins, Chris (Stanford Univ.); Lee, Luke (UC Berkeley)*
- 15:30-17:00 ThP28.3
Shape Dependent Laplace Vortices in Deformed Liquid-Liquid Slug Flow 4034-4037
Kurup, G.K. (Wayne State Univ.); Basu, Amar (Wayne State Univ.)*
- 15:30-17:00 ThP28.4
Improvements in Design of Spectra of Multisine and Binary Excitation Signals for Multi-Frequency Bioimpedance Measurement 4038-4041
Land, Raul (Tallinn Univ. of Tech.); Cahill, Brian P (iba); Parve, Toomas (Tallinn Univ. of Tech.); Annus, Paul (ELIKO); Min, Mart (Tallinn Univ. of Tech.)*
- 15:30-17:00 ThP28.5
Broadband RF Impedance Spectroscopy in Micromachined Microfluidic Channels 4042-4045
Giraud-Carrier, Matthieu Christophe (Brigham Young Univ.); Moon, Kyra (Brigham Young Univ.); Teng, Eric (Brigham Young Univ.); Hawkins, Aaron (Brigham Young Univ.); Warnick, Karl (BYU); Mazzeo, Brian A. (Brigham Young Univ.)*

ThP29: 15:30-17:00 America Ballroom Westin
6.6.52 Recent Developments in Motor Learning, Neural Control, and Neuromuscular Systems (Poster Session)

- 15:30-17:00 ThP29.1
Motor Adaptation During Redundant Tasks with the Wrist 4046-4049
Formica, Domenico (Campus Bio-Medico Univ.); Campolo, Domenico (Nanyang Technological Univ.); Taffoni, Fabrizio (Campus Bio-Medico Univ.); Keller, Flavio (Campus Bio-Medico Univ.); Guglielmelli, Eugenio (Campus Bio-Medico Univ.)*

15:30-17:00	ThP29.2
Adaptation to Dynamic Environments Displays Local Generalization for Voluntary Reaching Movements	4050-4052
<i>Gonzalez Castro, Luis Nicolas* (Harvard Univ.); Wu, Howard (Harvard Univ.); Smith, Maurice (Johns Hopkins Univ.)</i>	
15:30-17:00	ThP29.3
Smart Mug to Measure Hand's Geometrical Mechanical Impedance	4053-4056
<i>Mousavi Hondori, Hossein* (Nanyang Technological Univ.); Ang, Wei Tech (Nanyang Technological Univ.)</i>	
15:30-17:00	ThP29.4
The Motor System Estimates Uncertainty and Higher Order Statistics for the Control of Grip Forces	4057-4059
<i>Hadjiosif, Alkis M.* (Harvard Univ.); Smith, Maurice (Johns Hopkins Univ.)</i>	
15:30-17:00	ThP29.5
Neural Mechanisms of Limb Position Estimation in the Primate Brain	4060-4063
<i>Shi, Ying (Arizona State Univ.); Buneo, Christopher* (Arizona State Univ.)</i>	
15:30-17:00	ThP29.6
Contribution of Sensory and Motor Components to Motor Control Asymmetries: An Analytical Model Approach	4064-4067
<i>Martin, Bernard* (Univ. of Michigan); Adamo, Diane (Wayne State Univ.)</i>	
15:30-17:00	ThP29.7
Probabilistic Modeling of Selective Stimulation of the Human Sciatic Nerve with a Flat Interface Nerve Electrode	4068-4071
<i>Schiefer, Matthew A.* (Case Western Reserve Univ.); Tyler, Dustin (Case Western Reserve Univ.); Triolo, Ronald J. (US Dept. of Veterans Affairs & Case Western Reserve Univ.)</i>	
15:30-17:00	ThP29.8
A Model of Motoneuron Behavior and Muscle-Force Generation for Sustained Isometric Contractions ..	4072-4075
<i>Contessa, Paola* (Boston Univ.); Nawab, Syed Hamid (Boston Univ.); De Luca, Carlo J. (Boston Univ.)</i>	
15:30-17:00	ThP29.9
On Force Regulation Strategies in Predictable Environments	4076-4081
<i>Kolesnikov, Maxim (Motiv Power Systems, Inc.); Piovesan, Davide (Rehabilitation Inst. of Chicago); Lynch, Kevin (Northwestern Univ.); Mussa-Ivaldi, Ferdinando* (Rehabilitation Inst. of Chicago)</i>	
15:30-17:00	ThP29.10
Effect of Self-Gating on Action Potential Firing at Neuromuscular Junction	4082-4085
<i>Rahman, Mohammed Mostafizur* (Univ. of Padova); Mahmud, Mufti (Univ. of Padova); Vassanelli, Stefano (NeuroChip Lab., Univ. of Padova)</i>	
15:30-17:00	ThP29.11
A Physiologically and Biomechanically Inspired Model for Surface Electromyography Amplitude Estimation	4086-4089
<i>Choi, Changmok (Samsung Advanced Inst. of Tech.); Lee, Hae-Dong (Yonsei Univ.); Kim, Jung* (Korea Advanced Inst. of Science & Tech.)</i>	
15:30-17:00	ThP29.12
Automated Way to Obtain Motor Units' Signatures and Estimate Their Firing Patterns During Voluntary Contractions Using HD-Semg	4090-4093
<i>Gligorijevic, Ivan* (Katholieke Univ. Leuven); De Vos, Maarten (KU Leuven); Blok, Joleen (Dept. of Clin. Neurophysiology, Erasmus MC Rotterdam, The Netherlands); Mijovic, Bogdan (Katholieke Univ. Leuven); van Dijk, Johannes (Dept. of Neurology/Clin. Neurophysiology, UMC St Radboud Nijmegen, The Netherlands); Van Huffel, Sabine (Katholieke Univ. Leuven)</i>	
15:30-17:00	ThP29.13
Optimal Measurement Position Estimation by Discriminant Analysis Based on Wilks' Lambda for Myoelectric Hand Control	4094-4099
<i>Kiso, Atsushi* (Chiba Inst. of Tech.); Taniguchi, Yu (Chiba Inst. of Tech.); Seki, Hirokazu (Chiba Inst. of Tech.)</i>	

15:30-17:00	ThP29.14
Recognition of Hand Motions via Surface EMG Signal with Rough Entropy	4100-4103
<i>Zhong, Jin (Shanghai Univ.); Shi, Jun (Shanghai Univ.); Cai, Yin (Shanghai Univ.); Zhang, Qi* (Shanghai Univ.)</i>	
15:30-17:00	ThP29.15
Quantification of Isolated Muscle Compartment Activity in Extrinsic Finger Muscles for Potential Prosthesis Control Sites	4104-4107
<i>Birdwell, J Alexander* (Rehabilitation Inst. of Chicago); Hargrove, Levi (Rehabilitation Inst. of Chicago); Weir, Richard (Rehabilitation Inst. of Chicago)</i>	
15:30-17:00	ThP29.16
Changes in Spatial Distribution of Flexor Digitorum Superficialis Muscle Activity Is Correlated to Finger's Action	4108-4111
<i>Hou, Wensheng* (BioEng. Inst of Chongqing Univ.); Yang, Dandan (BioEng. Dept., Univ. of Chongqing, Chongqing, China)</i>	
15:30-17:00	ThP29.17
Psychophysical Detection Thresholds in Anterior Horizontal Translations of Seated and Standing Blindfolded Subjects	4112-4115
<i>Dong, Xiaoxi (Clarkson Univ.); Robinson, Charles* (Clarkson Univ.); Fulk, George (Clarkson Univ.)</i>	
15:30-17:00	ThP29.18
Subtle Grip Force Estimation from EMG and Muscle Stiffness -Relationship between Muscle Character Frequency and Grip Force	4116-4119
<i>Kasuya, Masahiro* (Waseda Univ.); Seki, Masatoshi (Waseda Univ.); Kawamura, Kazuya (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)</i>	
15:30-17:00	ThP29.19
Estimation of Joint Impedance Using Short Data Segments	4120-4123
<i>Ludvig, Daniel* (Rehabilitation Inst. of Chicago); Perreault, Eric (Northwestern Univ.)</i>	
15:30-17:00	ThP29.20
Efficient Estimation of Time-Varying Intrinsic and Reflex Stiffness	4124-4127
<i>Ludvig, Daniel* (Rehabilitation Inst. of Chicago); Perreault, Eric (Northwestern Univ.); Kearney, Robert Edward (McGill Univ.)</i>	
15:30-17:00	ThP29.21
Controlling a Virtual Forehand Prosthesis Using an Adaptive and Affective Human-Machine Interface ..	4128-4131
<i>Mohammad Rezazadeh, Iman* (Science & Research Branch, Islamic Azad Univ.); Firoozabadi, S.M.P. (Tarbiat Modares Univ.); Hashemi, Mohammad Reza (Amir Kabir Univ. of Tech.); Hu, Huosheng (Univ. of Essex)</i>	
15:30-17:00	ThP29.22
Robotic-Assisted Locomotor Training Impact on Neuromuscular Properties and Muscle Strength in Spinal Cord Injury	4132-4135
<i>Mirbagheri, Mehdi* (Northwestern Univ./RIC); Patel, Chirag (RIC/UIC); Quiney, Khara (RIC/NU)</i>	
15:30-17:00	ThP29.23
The Impact of Shoulder Abduction Loading on EMG-Based Intention Detection of Hand Opening and Closing after Stroke	4136-4139
<i>Lan, Yiyun* (Northwestern Univ.); Yao, Jun (Northwestern Univ.); Dewald, Julius P. A. (Northwestern Univ.)</i>	
15:30-17:00	ThP29.24
Changes in Input-Output Relations in the Corticospinal Pathway to the Lower Limb Muscles During Robot-Assisted Passive Stepping	4140-4144
<i>Kamibayashi, Kiyotaka* (Univ. of Tsukuba); Nakajima, Tsuyoshi (Research Inst. of Natl. Rehabilitation Ctr. for Persons with Disabilities); Takahashi, Makoto (Hiroshima Univ.); Nakazawa, Kimitaka (The Univ. of Tokyo)</i>	
15:30-17:00	ThP29.25
Robot Applied Stance Loading Increases Hindlimb Muscle Mass and Stepping Kinetics in a Rat Model of Spinal Cord Injury	4145-4148
<i>Nessler, Jeff A.* (California State Univ., San Marcos); Moustafa, Moustafa-Bayoumi (California State Polytechnic Univ., Pomona); Soto, Dalziel (California State Univ., San Marcos); Schmitt, Ryan (California State Univ., San Marcos); Duhon, Jessica (California State Univ., San Marcos)</i>	

- 15:30-17:00 ThP210.1
Simulation and Analysis of Split Gradient Coil Performance in MRI **4149-4152**
*Liu, Limei** (The Univ. of Queensland); *Sanchez Lopez, Hector* (The Univ. of Queensland); *Poole, Michael* (The Univ. of Queensland); *Liu, Feng* (The Univ. of Queensland); *Crozier, Stuart* (The Univ. of Queensland)
- 15:30-17:00 ThP210.2
Development of a Feedback Stimulation for Drowsy Driver Using Heartbeat Rhythms **4153-4158**
Takahashi, Issey (Nagoya City Univ.); *Yokoyama, Kiyoko** (Nagoya City Univ.)
- 15:30-17:00 ThP210.3
Development of a Patient Simulator for Teaching and Evaluation of the Basic Cardio-Pulmonary Reanimation Protocol **4159-4162**
Villagomez, Carlos (Univ. Nacional Autonoma de Mexico); *Suárez Escamilla, Francisco* (UNAM); *Gomez Garcia, Sinue Daniel* (Univ. Nacional Autonoma de Mexico); *Davila-cervantes, Andrea* (Natl. Univ. of Mexico, Medicine Faculty); *Vega-Gonzalez, Arturo* (Univ. Nacional Autónoma de México); *Gomez-Gonzalez, Juan** (Univ. Nacional Autonoma de Mexico)
- 15:30-17:00 ThP210.4
A Pulse Wave Simulator for Palpation in the Oriental Medicine **4163-4166**
*Shin, Ki-Young** (Korea Electorechnology Research Inst.); *Jin, Seung Oh* (Korea ElectroTech. Research Inst.); *Youn, Su Hyun* (Sungkyunkwan Univ.); *Joo, Subin* (Sungkyunkwan Univ.); *Jo, Yo Han* (FT Global inc.); *Kwon, Oh Kyung* (FT Global inc.); *Huh, Young* (Korea ElectroTech. Research Inst.)

- 17:15-17:30 ThD01.1
High-Frequency Limit of Neural Stimulation with ChR2 **4167-4170**
Grossman, Nir (Imperial College London); *Nikolic, Konstantin** (Imperial College London); *Grubb, Matthew* (King's College London); *Burrone, Juan* (King's College London); *Toumazou, Christofer* (Imperial College London); *Degenaar, Patrick* (Imperial College London)
- 17:30-17:45 ThD01.2
Comparing Linear and Quadratic Models of the Human Auditory Aystem Using EEG **4171-4174**
Power, Alan (Trinity Ctr. for BioEng.); *Reilly, Richard* (Trinity College Dublin); *Lalor, Edmund** (Trinity College Dublin)
- 17:45-18:00 ThD01.3
Assessing Neuronal Interactions of Cell Assemblies During General Anesthesia **4175-4178**
*Chen, Zhe** (Harvard Medical School/MIT); *Vijayan, Sujith* (Boston Univ.); *Ching, ShiNung* (Massachusetts General Hospital, Massachusetts Inst. of Tech.); *Hale, Greg* (Massachusetts Inst. of Tech.); *Flores, Francisco Javier* (Massachusetts General Hospital); *Wilson, Matthew* (MIT); *Brown, Emery N* (MGH-Harvard Medical School-MIT)
- 18:00-18:15 ThD01.4
Modulations in the Oscillatory Activity of the Globus Pallidus Internus Neurons During a Behavioral Task – a Point Process Analysis **4179-4182**
*Saxena, Shreya** (Johns Hopkins Univ.); *Gale, John* (Cleveland Clinic, Dept. of Neuroscience & Ctr. for Neurological Restoration, Cleveland, Ohio, USA.); *Eskandar, Emad* (Massachusetts General Hospital); *Sarma, Sridevi V.* (Johns Hopkins Univ.)
- 18:15-18:30 ThD01.5
Learning of Spatial Relationships between Observed and Imitated Actions Allows Invariant Inverse Computation in the Frontal Mirror Neuron System **4183-4186**
*Oh, Hyuk** (Univ. of Maryland, College Park); *Gentili, Rodolphe* (Univ. of Maryland; School of Public Health); *Reggia, James* (Univ. of Maryland-College Park); *Contreras-Vidal, José* (Univ. of Maryland)

18:30-18:45 ThD01.6
Synaptic Weighting for Physiological Responses in Recurrent Spiking Neural Networks 4187-4190
Herzfeld, David (Marquette Univ.); Beardsley, Scott (Marquette Univ.)*

ThD02: 17:15-18:45 St. George CD Westin
6.2.26 Brain-Machine Interfaces: I (Oral Session)
Chair: Micera, Silvestro (*École Polytechnique Fédérale de Lausanne*)
Co-Chair: Oweiss, Karim (*Michigan State Univ.*)

17:15-17:30 ThD02.1
An Automatic Ocular Artifacts Removal Method Based on Wavelet-Enhanced Canonical Correlation Analysis 4191-4194
Zhao, Chunyu (Drexel Univ.); Qiu, Tianshuang (Dalian Univ. of Tech.)*

17:30-17:45 ThD02.2
High-Density EEG and Independent Component Analysis Mixture Models Distinguish Knee Contractions from Ankle Contractions 4195-4198
Gwin, Joseph Toliver (Univ. of Michigan); Ferris, Daniel (Univ. of Michigan)*

17:45-18:00 ThD02.3
Calibrating EEG-Based Motor Imagery Brain-Computer Interface from Passive Movement 4199-4202
Ang, Kai Keng (Inst. for Infocomm Research); Guan, Cuntai (Inst. for Infocomm Research); Wang, Chuanchu (Inst. for Infocomm Research); Phua, Koksoon (Inst. for Infocomm Research); Tan, Adrian Hock Guan (Inst. for Infocomm Research); Chin, Zheng Yang (Inst. for Infocomm Research)*

18:00-18:15 ThD02.4
Eye Fixation Related Potentials in a Target Search Task 4203-4206
Healy, Graham (Dublin City Univ.); Smeaton, Alan (Dublin City Univ.)*

18:15-18:30 ThD02.5
Comparisons between Linear and Nonlinear Methods for Decoding Motor Cortical Activities of Monkey 4207-4210
Xu, Kai (Zhejiang Univ.); Wang, Yueming (Zhejiang Univ.); Zhang, Shaomin (Zhejiang Univ.); Zhao, Ting (Zhejiang Univ.); Wang, Yiwen (Zhejiang Univ.); Chen, Weidong (Zhejiang Univ.); Zheng, Xiaoxiang (Zhejiang Univ.)*

18:30-18:45 ThD02.6
Behavioral Rehabilitation of the Eye Closure Reflex in Senescent Rats Using a Real-Time Biosignal Acquisition System 4211-4214
Prueckl, Robert (g.tec medical Eng. GmbH); Taub, Aryeh H (Psychobiology Research Unit, Dept. of Psychology, Tel Aviv Univ.); Herreros, Ivan (SPECS – Lab. of Synthetic Perceptive, Emotive & Cognitive Systems, Univ. Pompeu Fabra); Hogri, Roni (Psychobiology Research Unit, Dept. of Psychology, Tel Aviv Univ.); Magal, Ari (Psychobiology Research Unit, Dept. of Psychology, Tel Aviv Univ.); Bamford, Simeon A (Istituto Superiore di Sanità, Rome, Italy); Giovannucci, Andrea (SPECS – Lab. of Synthetic Perceptive, Emotive & Cognitive Systems, Univ. Pompeu Fabra); Ofek Almog, Rakefet (Faculty of Eng., Tel Aviv Univ.); Shacham-Diamand, Yosi (Faculty of Eng., Tel Aviv Univ.); Verschure, Paul F M J (SPECS, ICREA & Univ. Pompeu Fabra); Mintz, Matti (Psychobiology Research Unit, Dept. of Psychology, Tel Aviv Univ.); Scharinger, Josef (Johannes Kepler Univ.); Silmon, Angela (Newcastle Univ.); Guger, Christoph (g.tec medical Eng. GmbH)*

ThD03: 17:15-18:45 Essex Ballroom South Westin
6.2.10 Brain-Machine Interfaces: Non-Invasive Approaches (Oral Session)
Chair: Millán, José del R. (*Swiss Federal Inst. of Tech. Lausanne*)
Co-Chair: He, Bin (*Univ. of Minnesota*)

17:15-17:30 ThD03.1
Improved BCI Performance with Sequential Hypothesis Testing 4215-4218
Liu, Rong (Dalian Univ. of Tech.); Newman, Geoffrey (Johns Hopkins Univ.); Ying, Sarah (Johns Hopkins Univ. School of Medicine); Thakor, Nitish (Johns Hopkins Univ.)*

- 17:30-17:45 ThD03.2
Brisk Movement Imagination for the Non-Invasive Control of Neuroprostheses: A First Attempt 4219-4222
Müller-Putz, Gernot (Graz Univ. of Tech.); Ofner, Patrick (Graz Univ. of Tech., Inst. for Knowledge Discovery); Kaiser, Vera (Graz Univ. of Tech., Inst. for Knowledge Discovery); Clauzel, Guillaume (Graz Univ. of Tech., Inst. for Knowledge Discovery); Neuper, Christa (Graz Univ. of Tech.)*
- 17:45-18:00 ThD03.3
Design Principles for Noninvasive Brain-Machine Interfaces 4223-4226
Contreras-Vidal, José (Univ. of Maryland); Bradberry, Trent (Univ. of Maryland)*
- 18:00-18:15 ThD03.4
Brain-Controlled Telepresence Robot by Motor-Disabled People 4227-4230
Tonin, Luca (Swiss Federal Inst. of Tech., Lausanne); Carlson, Tom (Swiss Federal Inst. of Tech., Lausanne); Leeb, Robert (Ecole Polytechnique Fédérale de Lausanne); Millán, José del R. (Swiss Federal Inst. of Tech., Lausanne)*
- 18:15-18:30 ThD03.5
EEG Single-Trial Classification of Visual, Auditive and Vibratory Feedback Potentials in Brain-Computer Interfaces 4231-4234
López-Larraz, Eduardo (Univ. of Zaragoza); Creatura, Marco (Bit&Brain Technologies); Iturrate, Iñaki (Univ. of Zaragoza); Montesano, Luis (Univ. de Zaragoza); Minguez, Javier (Zaragoza Univ.)*
- 18:30-18:45 ThD03.6
Goal Selection vs. Process Control in Non-Invasive Brain-Computer Interface 4235-4238
Royer, Audrey S (Univ. of Minnesota); Rose, Minn L (Univ. of Minnesota); He, Bin (Univ. of Minnesota)*

ThD05: 17:15-18:45	Essex Ballroom North Westin
6.3.32 Motor Neuroprostheses II (Oral Session)	
Chair: Durand, Dominique (Case Western Res. Univ.)	
Co-Chair: Chan, Adrian (Carleton Univ.)	

- 17:15-17:30 ThD05.1
Estimating Bladder Pressure from Sacral Dorsal Root Ganglia Recordings 4239-4242
Bruns, Tim M. (Univ. of Pittsburgh); Gaunt, Robert (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh)*
- 17:30-17:45 ThD05.2
Performance of Electromyography Recorded Using Textile Electrodes in Classifying Arm Movements 4243-4246
Li, Guanglin (Shenzhen Inst. of Advanced Tech.); Geng, Yanjuan (Shenzhen Inst. of Advanced Tech.); Tao, Dandan (Shenzhen Inst. of Advanced Tech.)*
- 17:45-18:00 ThD05.3
A Multi-Modal Approach for Hand Motion Classification Using Surface EMG and Accelerometers 4247-4250
Fougner, Anders (Norwegian Univ. of Science & Tech.); Scheme, Erik (Univ. of New Brunswick); Chan, Adrian (Carleton Univ.); Englehart, Kevin (Univ. of New Brunswick); Stavadahl, Oyvind (Norwegian Univ. of Science & Tech.)*
- 18:00-18:15 ThD05.4
An Algorithm for Source Signal Extraction from the Peripheral Nerve 4251-4254
Tang, Yuang (Case Western Reserve Univ.); Wodlinger, Brian (Univ. of Pittsburgh); Durand, Dominique (Case Western Reserve Univ.)*
- 18:15-18:30 ThD05.5
Improving the Performance of a Neural-Machine Interface for Artificial Legs Using Prior Knowledge of Walking Environment 4255-4258
Dou, Zhi (Univ. of Rhode Island); Zhang, Fan (Univ. of Rhode Island); Nunnery, Michael (Nunnery Orthotic & Prosthetic Technologies, LLC); Huang, He (Univ. of Rhode Island)*
- 18:30-18:45 ThD05.6
An EMG-Controlled Neuroprosthesis for Daily Upper Limb Support: A Preliminary Study 4259-4262
Ambrosini, Emilia (Politecnico di Milano); Ferrante, Simona (Politecnico di Milano); Tibiletti, Marta (Politecnico di Milano); Schauer, Thomas (Univ. of Berlin); Klauer, Christian (Technische Univ. Berlin); Ferrigno, Giancarlo (Politecnico di Milano); Pedrocchi, Alessandra (Politecnico di Milano)*

ThD11: 17:15-18:45 Wellesley Marriott
5.1.4 Ballistocardiography: Advances and New Perspectives from Space Missions (Oral Session)
Chair: Di Rienzo, Marco (*Fondazione Don Carlo Gnocchi*)
Co-Chair: Migeotte, Pierre-François (*Royal Military Acad.*)

- 17:15-17:30 ThD11.1
A Wearable System for the Seismocardiogram Assessment in Daily Life Conditions 4263-4266
*Di Rienzo, Marco** (*Fondazione Don Carlo Gnocchi*); *Meriggi, Paolo* (*Fondazione Don Gnocchi*); *Rizzo, Francesco* (*Fondazione Don C. Gnocchi ONLUS*); *Vaini, Emanuele* (*Polo Tecnologico, Fondazione Don Carlo Gnocchi*); *Faini, Andrea* (*Univ. degli Studi Milano-Bicocca*); *Merati, Giampiero* (*Univ. of Milan*); *Parati, Gianfranco* (*Univ. degli Studi di Milano-Bicocca*); *Castiglioni, Paolo* (*Fondazione Don Carlo Gnocchi ONLUS*)
- 17:30-17:45 ThD11.2
Three-Dimensional Ballistocardiography in Microgravity: A Review of past Research 4267-4270
*De Ridder, Sven** (*Royal Military Acad. of Belgium*); *Migeotte, Pierre-François* (*Royal Military Acad.*); *Neyt, Xavier* (*Royal Military Acad.*); *Prisk, Gordon Kim* (*Univ. of California, San Diego*)
- 17:45-18:00 ThD11.3
Three Dimensional Ballistocardiography: Methodology and Results from Microgravity and Dry Immersion 4271-4274
*Migeotte, Pierre-François** (*Royal Military Acad.*); *Tank, Jens* (*Hannover Medical School*); *Pattyn, Nathalie* (*Royal Military Acad., Brussels, Belgium*); *Funtova, Irina I.* (*IMBP Moscow, Russia*); *Baevsky, Roman M.* (*IMBP Moscow, Russia*); *Neyt, Xavier* (*Royal Military Acad.*); *Prisk, Gordon Kim* (*Univ. of California, San Diego*)
- 18:00-18:15 ThD11.4
Infrasonic Cardiac Signals: Complementary Windows to Cardiovascular Dynamics 4275-4278
*Tavakolian, Kouhyar** (*Simon Fraser Univ.*); *Ngai, Brandon* (*Simon Fraser Univ.*); *Blaber, Andrew Philip* (*Simon Fraser Univ.*); *Kaminska, Bozena* (*Simon Fraser Univ.*)
- 18:15-18:30 ThD11.5
Ballistocardiography – A Method Worth Revisiting 4279-4282
*Giovangrandi, Laurent** (*Stanford Univ.*); *Inan, Omer* (*Stanford Univ.*); *Wiard, Richard M.* (*Stanford Univ.*); *Etemadi, Mozziyar* (*Stanford Univ.*); *Kovacs, Gregory T.A.* (*Stanford Univ.*)
- 18:30-18:45 ThD11.6
Cardiac Sounds from a Wearable Device for Sternal Seismocardiography 4283-4286
*Castiglioni, Paolo** (*Fondazione Don Carlo Gnocchi ONLUS*); *Meriggi, Paolo* (*Fondazione Don Gnocchi*); *Rizzo, Francesco* (*Fondazione Don C. Gnocchi ONLUS*); *Vaini, Emanuele* (*Polo Tecnologico, Fondazione Don Carlo Gnocchi*); *Faini, Andrea* (*Univ. degli Studi Milano-Bicocca*); *Parati, Gianfranco* (*Univ. degli Studi di Milano-Bicocca*); *Merati, Giampiero* (*Univ. of Milan*); *Di Rienzo, Marco* (*Fondazione Don Carlo Gnocchi*)

ThD12: 17:15-18:45 Suffolk Marriott
5.2.7 Modeling Cardiovascular Hemodynamics for Clinical Applications (Oral Session)
Chair: Sunagawa, Kenji (*Kyushu Univ.*)
Co-Chair: Chbat, Nicolas (*Philips Res. North America*)

- 17:15-17:30 ThD12.1
A Comparative Study on Extra-Corporal Circulation Control 4287-4290
*Baumgartner, Benedikt** (*Technical Univ. Munich*); *Mendoza Garcia, Alejandro* (*Technical Univ. Munich*); *Eichhorn, Stefan* (*German Heart Ctr.*); *Schreiber, Ulrich* (*German Heart Ctr.*); *Knoll, Alois* (*Technical Univ. Munich*)
- 17:30-17:45 ThD12.2
Robust, Beat-To-Beat Estimation of the True Pulse Transit Time from Central and Peripheral Blood Pressure or Flow Waveforms Using an Arterial Tube-Load Model 4291-4294
Zhang, Guanqun (*Michigan State Univ.*); *Gao, Mingwu* (*Michigan State Univ.*); *Mukkamala, Ramakrishna** (*Michigan State Univ.*)

17:45-18:00	ThD12.3
Impact of Baroreflex on Venous Return Surface	4295-4296
<i>Sakamoto, Takafumi* (Kyushu Univ.); Murayama, Yoshinori (Kyushu Univ.); Tanaka, Atsushi (Kyushu Univ. Graduate School of Medical Sciences, Japan); Sakamoto, Kazuo (Kyushu Univ.); Tobushi, Tomoyuki (Kyushu Univ.); Saku, Keita (Kyushu Univ.); Hosokawa, Kazuya (Kyushu Univ. Graduate School of Medical Sciences); Onitsuka, Ken (Kyushu Univ.); Fujino, Takeo (Kyushu Univ.); Sunagawa, Kenji (Kyushu Univ.)</i>	
18:00-18:15	ThD12.4
Reduction of Myocardial Oxygen Demand by Controlling Heart Rate and Hemodynamics Simultaneously by Novel Circulatory Model	4297-4300
<i>Sugimachi, Masaru* (Natl Cardio Ctr. Research Inst); Uemura, Kazunori (Natl. Cardio. Ctr. Research Inst); Kawada, Toru (Nat. Cerebral & Cardiovascular Ctr. Res Inst); Shishido, Toshiaki (Natl. Cardiovascular Ctr. Research Inst.); Sunagawa, Kenji (Kyushu Univ.)</i>	
18:15-18:30	ThD12.5
Physiological Control of the Hemodynamic Properties of Rotary Blood Pumps	*
<i>Mason, David Glen* (Univ. of Queensland); Stevens, Michael Charles (Univ. of Queensland); Gregory, Shaun David (Queensland Univ. of Tech.); Timms, Daniel Lee (Bivacor Pty Ltd); Wilson, Stephen (Univ. of Queensland); Percy, Mark (Queensland Univ. of Tech.); Fraser, John F. (Prince Charles Hospital, Brisbane, Queensland)</i>	
18:30-18:45	ThD12.6
Hemodynamic Modeling of the Cardiovascular System Using Mock Circulation Loops to Test Cardiovascular Devices	4301-4304
<i>Timms, Daniel Lee* (Bivacor Pty Ltd); Gregory, Shaun David (Queensland Univ. of Tech.); Stevens, Michael Charles (Univ. of Queensland); Fraser, John F. (Prince Charles Hospital, Brisbane, Queensland)</i>	
<hr/>	
ThD13: 17:15-18:45	Arlington Marriott
4.5.2 Models of Organs, Tissues, and Medical Devices (Oral Session)	
Chair: Doessel, Olaf (Karlsruhe Inst. of Tech. (KIT))	
Co-Chair: Akay, Metin (Univ. of Houston)	
<hr/>	
17:15-17:30	ThD13.1
The Response of Hepatocyte Cell Volume to Hyperthermia and Its Role in Oedema	4305-4308
<i>O'Neill, David Patrick* (Univ. of Oxford); Peng, Tingying (Univ. of Oxford); Payne, Stephen John (Univ. of Oxford)</i>	
17:30-17:45	ThD13.2
Patient Specific Modeling and Prediction of Stress/Strain for Surgical Guidance	4309-4313
<i>Burlina, Philippe* (Johns Hopkins Univ.)</i>	
17:45-18:00	ThD13.3
Mechanistic Modeling of Drug Elimination by the Liver Using Local Volume Averaging Method	4314-4317
<i>Izadifar, Mohammad* (Division of Biomedical Eng., Univ. of Saskatchewan); Baik, Oon-Doo (Univ. of Saskatchewan); Alcorn, Jane (Univ. of Saskatchewan)</i>	
18:00-18:15	ThD13.4
Comprehensive Mechanism-Based Antibody Pharmacokinetic Modeling	4318-4323
<i>Chabot, Jeffrey* (Pfizer, Inc.); Dettling, Danielle (Pfizer, Inc.); Jasper, Paul (RES Group, Inc.); Gomes, Bruce (Pfizer, Inc.)</i>	
18:15-18:30	ThD13.5
A Framework for Personalization of Computational Models of the Human Atria	4324-4328
<i>Doessel, Olaf* (Karlsruhe Inst. of Tech. (KIT)); Krueger, Martin Wolfgang (Karlsruhe Inst. of Tech.); Weber, Frank Michael (Inst. of Biomedical Eng., Karlsruhe Inst. of Tech.); Schilling, Christopher (Univ. Karlsruhe (TH)); Schulze, Walther H. W. (Karlsruhe Inst. of Tech. (KIT), Inst. of Biomedical Eng.); Seemann, Gunnar (Karlsruhe Inst. of Tech.)</i>	

18:30-18:45 ThD13.6
Geometric Modeling of Pelvic Organs 4329-4332
*Bay, Thierry** (Lab. of Info. & Systems Sciences (LSIS)); *Chambelland, Jean-Christophe* (Lab. of Info. & Systems Sciences (LSIS)); *Raffin, Romain* (Lab. of Info. & Systems Sciences (LSIS)); *Daniel, Marc* (Lab. of Info. & Systems Sciences (LSIS)); *Bellemare, Marc-Emmanuel* (Univ. Paul Cézanne)

ThD15: 17:15-18:45	Clarendon Marriott
7.4.1 Cellular Force Transduction (Minisymposium)	
Chair: Jacot, Jeffrey G (<i>Rice Univ./Texas Children's Hospital</i>)	
Co-Chair: Lee, Juliet (<i>Univ. of Connecticut</i>)	

17:15-17:30 ThD15.1
High Cell Aspect Ratio Alters Stem Cell Traction Stresses and Lineage *
*Engler, Adam** (*Univ. of California, San Diego*)

17:30-17:45 ThD15.2
Single Cell-Mediated Collagen Reorganization in 3D Matrices 4333-4335
Carey, Shawn P. (*Cornell Univ.*); *Kraning-rush, Casey* (*Cornell Univ.*); *Reinhart-King, Cynthia A.** (*Cornell Univ.*)

17:45-18:00 ThD15.3
The Effect of Substrate Stiffness on Cardiomyocyte Action Potential and Calcium Current *
Myers, Jackson (*Rice Univ.*); *Jacot, Jeffrey G** (*Rice Univ./Texas Children's Hospital*)

18:00-18:15 ThD15.4
Insights into Mechanosensing and the Biomechanics of Cell Motility Revealed by Highly Flexible Traction Force Assays *
*Lee, Juliet** (*Univ. of Connecticut*)

18:15-18:30 ThD15.5
Driving Intracellular Tension by Extracellular Matrix Mechanics *
*Janmey, Paul** (*Univ. of Pennsylvania*)

ThD19: 17:15-18:45	Salons AB Marriott
3.4.3 Physiological Monitoring III (Oral Session)	
Chair: Tamura, Toshiyo (<i>Chiba Univ.</i>)	
Co-Chair: Lubecke, Victor (<i>Univ. of Hawaii Manoa</i>)	

17:15-17:30 ThD19.1
Pulse Pressure Monitoring through Cardiac Motion Detection Using 2.45 GHz Microwave Doppler Radar 4336-4339
*Singh, Aditya** (*Univ. of Hawaii at Manoa*); *Lubecke, Victor* (*Univ. of Hawaii Manoa*); *Boric-Lubecke, Olga* (*Univ. of Hawaii Manoa*)

17:30-17:45 ThD19.2
A Novel System for Continuous Peripheral Arterial Pressure-Volume Loop Measurement 4340-4343
*Shyu, Liang-Yu** (*Chung Yuan Christian Univ.*); *Tsai, Meng-Chieh* (*Chung Yuan Christian Univ.*); *Yeih, Dong-Feng* (*Division of Cardiology, Dept. of Internal Medicine at the Natl. Taiwan Univ. Hospital*); *Hu, Wei-Chih* (*Chung Yuan Christian Univ.*)

17:45-18:00 ThD19.3
Adaptive Control with Self-Tuning for Non-Invasive Beat-By-Beat Blood Pressure Measurement 4344-4347
*Nogawa, Masamichi** (*Kanazawa Univ.*); *Ogawa, Mitsuhiro* (*Kanazawa Univ.*); *Yamakoshi, Takehiro* (*Kanazawa Univ.*); *Tanaka, Shinobu* (*Kanazawa Univ.*); *Yamakoshi, Ken-ichi* (*Kanazawa Univ.*)

18:00-18:15 ThD19.4
Electro-Optical Plethysmography for Non-Invasive Estimation of Hemoglobin Concentration 4348-4351
*Phillips, Justin** (*City Univ. London*); *Hickey, Michelle* (*City Univ.*); *Kyriacou, Panayiotis* (*City Univ.*)

18:15-18:30 ThD19.5
Investigation of Pulse Oximeter Failure Rates During Artificial Hypoperfusion Utilising a Custom Made Multimode Pulse Oximetry Sensor 4352-4355
Muhammad, Shafique (*City Univ. London*); *Kyriacou, Panayiotis** (*City Univ.*); *Pal, Sandip* (*Broomfield Hospital*)

18:30-18:45 ThD19.6
Refinement and Evaluation of a Hydraulic Bed Sensor 4356-4360
Heise, David (Lincoln Univ.); Rosales, Licet (Univ. of Missouri); Skubic, Marjorie (Univ. of Missouri);
 Devaney, Michael (Univ. of Missouri)*

ThD20: 17:15-18:45 Salons CD Marriott
1.6.40 Adaptive and Kalman Filtering (Oral Session)
Chair: Sabatini, Angelo Maria (*Scuola Superiore Sant'Anna*)
Co-Chair: McNames, James (*Portland State Univ.*)

17:15-17:30 ThD20.1
Photoplethysmograph Quality Estimation through Multichannel Filtering 4361-4364
Silva, Ikaro (Massachusetts Inst. of Tech.); Lee, Joon (MIT); Mark, Roger (Massachusetts Inst. of Tech.)*

17:30-17:45 ThD20.2
Tracking Single Dynamic MEG Dipole Sources Using the Projected Extended Kalman Filter 4365-4368
Yao, Yuchen (Univ. of California, Irvine); Swindlehurst, A. Lee (Univ. of California, Irvine)*

17:45-18:00 ThD20.3
A Hidden Markov Model-Based Technique for Gait Segmentation Using a Foot-Mounted Gyroscope 4369-4373
Mannini, Andrea (Scuola Superiore Sant'Anna); Sabatini, Angelo Maria (Scuola Superiore Sant'Anna)*

18:00-18:15 ThD20.4
On-Line Apnea-Bradycardia Detection Using Hidden Semi-Markov Models 4374-4377
Altuve, Miguel (Univ. de Rennes 1 & Simon Bolivar Univ.); Carrault, Guy (Univ. de Rennes 1);
 Beuchée, Alain (Rennes Univ. Hospital & INSERM U642); Pladys, Patrick (Ctr. Hospitalier Univ.);
 Hernández, Alfredo I (Univ. of Rennes 1 & INSERM U642)*

18:15-18:30 ThD20.5
Objective Measure of Upper Extremity Motor Impairment in Parkinson's Disease with Inertial Sensors 4378-4381
Hoffman, Jeffrey (Portland State Univ.); McNames, James (Portland State Univ.)*

ThD21: 17:15-18:45 Salon E Marriott
1.9.43 Data Mining in Biosignals (Oral Session)
Chair: Verschure, Paul F.M.J. (*Lab. of Synthetic Perceptive, Emotive & Cognitive Sys., ICREA & Univ. Pompeu Fabra*)
Co-Chair: Stashuk, Daniel William (*Univ. of Waterloo*)

17:15-17:30 ThD21.1
Ordering Samples Along Environmental Gradients Using Particle Swarm Optimization 4382-4385
Essinger, Steven (Drexel Univ.); Polikar, Robi (Rowan Univ.); Rosen, Gail (Drexel Univ.)*

17:30-17:45 ThD21.2
Monitoring the Depth of Anesthesia from Rat EEG Using Modified Shannon Entropy Analysis 4386-4389
Yoon, Young-Gyu (KAIST Inst.); Kim, Tae-Ho (KAIST); Jeong, Dae-Woong (KAIST);
 Park, Sang-Hyun (KAIST Inst.)*

17:45-18:00 ThD21.3
Portable Driver Drowsiness Prediction Device and Method B#5
Chang, Kuang-I (Industrial Tech. Research Inst.); Lee, Yen-Hsien (Industrial Tech. Research Inst.);
 Su, Yu-Jen (Industrial Tech. Research Inst.); Lin, Hong-Dun (Industrial Tech. Research Inst.);
 Chuang, Bor-Nian (Industrial Tech. Research Inst.)*

18:00-18:15 ThD21.4
**A Method for Detecting and Editing MUPTs Contaminated by False Classification
 Errors During EMG Signal Decomposition** 4394-4397
Parsaei, Hossein (Univ. of Waterloo); Stashuk, Daniel William (Univ. of Waterloo)*

18:15-18:30 ThD21.5
Atrial Fibrillation Source Identification 4398-4401
Vaizurs, Raja Sarath Chandra Prasad (Univ. of South Florida); Sankar, Ravi (Univ. of South Florida);
 Leonelli, Fabio (Univ. of South Florida & Veterans Administration Hospital)*

18:30-18:45 ThD21.6
Quantification of Velocity Anisotropy During Gastric Electrical Arrhythmia 4402-4405
*Du, Peng** (The Univ. of Auckland); *O'Grady, Greg* (The Univ. of Auckland); *Paskaranandavadivel, Niranchan* (Auckland BioEng. Inst., The Univ. of Auckland, New Zealand); *Angeli, Timothy Robert* (Auckland BioEng. Inst., Univ. of Auckland); *Christopher, Lahr* (The Division of Digestive Diseases, Univ. of Mississippi Medical Ctr., Jackson, MS, USA); *Abell, Thomas* (The Division of Digestive Diseases, Univ. of Mississippi Medical Ctr., Jackson, MS, USA); *Cheng, Leo K* (The Univ. of Auckland); *Pullan, Andrew* (Univ. of Auckland)

ThD22: 17:15-18:45	Salon F Marriott
1.10.44 Independent Component Analysis (Oral Session)	
Chair: Nakao, Mitsuyuki (<i>Tohoku Univ.</i>)	
Co-Chair: Holobar, Ales (<i>Univ. of Maribor, Faculty of Elec. Eng. & Computer Science</i>)	

17:15-17:30 ThD22.1
Aberrant Auditory Evoked Responses in Schizophrenia: Evidence from Single-Trial Analysis 4406-4409
*Iyer, Darshan** (NEUROMetrix, Inc.); *Boutros, Nashaat* (Wayne State Univ.); *Zouridakis, George* (Univ. of Houston)

17:30-17:45 ThD22.2
Separation of Multiunit Signals by Independent Component Analysis in Complex-Valued Time-Frequency Domain 4410-4413
*Shiraishi, Yasushi** (Tohoku Univ.); *Katayama, Norihiro* (Tohoku Univ.); *Karashima, Akihiro* (Tohoku Univ.); *Nakao, Mitsuyuki* (Tohoku Univ.)

17:45-18:00 ThD22.3
Reconstructing ECG Precordial Leads from a Reduced Lead Set Using Independent Component Analysis 4414-4417
*Ostertag, Michael Henry** (Rochester Inst. of Tech.); *Tsouri, Gill R* (RIT)

18:00-18:15 ThD22.4
Functional Network Connectivity During Rest and Task: Comparison of Healthy Controls and Schizophrenic Patients 4418-4421
*Arbabshirani, Mohammad Reza** (The MIND Research Network/Univ. of New Mexico); *Calhoun, Vince* (The Mind Research Network/Univ. of New Mexico)

18:15-18:30 ThD22.5
Assessment of Artefact Suppression by ICA and Spatial Filtering on Reduced Sets of EEG Signals 4422-4425
*Divjak, Matjaz** (Univ. of Maribor); *Zazula, Damjan* (Univ. of Maribor); *Holobar, Ales* (Univ. of Maribor, Faculty of Elec. Eng. & Computer Science)

18:30-18:45 ThD22.6
Light-Weight Single Trial EEG Signal Processing Algorithms: Computational Profiling for Low Power Design 4426-4430
*Ahmadi, Ali** (Embedded Systems & Signal Processing Lab, Dept. of Elec. Eng., Univ. of Texas at Dallas)

ThD23: 17:15-18:45	Salon G Marriott
1.2.28 Biomedical Modeling and Simulation: Motion Analysis (Oral Session)	
Chair: Kearney, Robert Edward (<i>McGill Univ.</i>)	
Co-Chair: Morin, Evelyn (<i>Queen's Univ.</i>)	

17:15-17:30 ThD23.1
Estimation of the Gain and Threshold of the Stretch Reflex with a Novel Subspace Identification Algorithm 4431-4434
*Jalaleddini, Kian** (McGill Univ.); *Kearney, Robert Edward* (McGill Univ.)

17:30-17:45 ThD23.2
Forearm Motion Discrimination Technique Using Real-Time EMG Signals 4435-4438
*Mizuno, Haruaki** (Doshisha Univ.); *Tsujiuchi, Nobutaka* (Doshisha Univ.); *Koizumi, Takayuki* (Doshisha Univ.)

17:45-18:00	ThD23.3
Joint Angle-Based EMG Amplitude Calibration	4439-4442
<i>Hashemi, Javad* (Queen's Univ.); Hashtrudi-Zaad, Keyvan (Queen's Univ.); Mousavi, Parvin (Queen's Univ.); Morin, Evelyn (Queen's Univ.)</i>	
18:00-18:15	ThD23.4
A CPG Synergy Model for Evaluation of Human Finger Tapping Movements	4443-4448
<i>Shima, Keisuke* (Hiroshima Univ.); Tamura, Yasuhiro (Hiroshima Univ.); Tsuji, Toshio (Hiroshima Univ.); Kandori, Akihiko (Hitachi Ltd.); Sakoda, Saburo (Toneyama Natl. Hospital)</i>	
18:15-18:30	ThD23.5
Fall Algorithm Development Using Kinematic Parameters Measured from Simulated Falls Performed in a Quasi-Realistic Environment Using Accelerometry	4449-4452
<i>Bourke, Alan* (Univ. of Limerick); Torrent, Marc (Technical Research Ctr. for Dependency Care & Autonomous Living – CETpD Technical Univ. of Catalonia – UPC Edifici Ne); Parra, Xavier (Technical Research Ctr. for Dependency Care & Autonomous Living – CETpD Technical Univ. of Catalonia – UPC Edifici Ne); Catala, Andreu (Technical Research Ctr. for Dependency Care & Autonomous Living – CETpD Technical Univ. of Catalonia – UPC Edifici Ne); Nelson, John (Univ. of Limerick)</i>	
18:30-18:45	ThD23.6
Robust Identification of Multi-Joint Human Arm Impedance Based on Dynamics Decomposition: A Modeling Study	4453-4456
<i>Kang, Sang Hoon (Rehabilitation Inst. of Chicago; Northwestern Univ.); Zhang, Li-Qun* (Northwestern Univ.)</i>	

ThD24: 17:15-18:45	Salon HI Marriott
2.7.28 Image Visualization, Retrieval and Forensic (Oral Session)	
Chair: Balestra, Gabriella (<i>Pol. di Torino</i>)	
Co-Chair: Feng, Dagan (<i>The Univ. of Sydney</i>)	

17:15-17:30	ThD24.1
Ground Surface Segmentation for Navigation with a Low Resolution Visual Prosthesis	4457-4460
<i>McCarthy, Chris* (NICTA); Barnes, Nick (NICTA Canberra Research Ctr.); Lieby, Paulette (Natl. ICT Australia)</i>	
17:30-17:45	ThD24.2
Acquisition and Interactive 3D Exploration of the Internal Structure of a Dissected Specimen	4461-4464
<i>Serres, Barthelemy* (Univ. François Rabelais of Tours); Zemmoura, Ilyess (CHU de Tours); Destrieux, Christophe (Dept. of medicine, Univ. of Tours); Venturini, Gilles (Univ. François Rabelais of Tours)</i>	
17:45-18:00	ThD24.3
Real-Time Retrieval of Similar Videos with Application to Computer-Aided Retinal Surgery	4465-4468
<i>Quellec, Gwenole* (TELECOM Bretagne); Lamard, Mathieu (Univ. de Bretagne Occidentale); Cazuguel, Guy (Institut Telecom/Telecom Bretagne); Roux, Christian (TELECOM Bretagne – INSERM); Cochener, Béatrice (CHU Morvan)</i>	
18:00-18:15	ThD24.4
Thoracic Image Matching with Appearance and Spatial Distribution	4469-4472
<i>Song, Yang* (Univ. of Sydney); Cai, Weidong (Univ. of Sydney); Eberl, Stefan (Royal Prince Alfred Hospital); Fulham, Michael (Royal Prince Alfred Hospital); Feng, Dagan (The Univ. of Sydney)</i>	
18:15-18:30	ThD24.5
Blind Forensics in Medical Imaging Based on Tchebichef Image Moments	4473-4476
<i>Huang, Hui (INSERM, GET ENST Bretagne); Coatrieux, Gouenou (Institut Telecom – Telecom Bretagne – Inserm); Shu, Huazhong (Southeast Univ.); Luo, Limin (Univ. of Southeast); Roux, Christian* (TELECOM Bretagne – INSERM)</i>	
18:30-18:45	ThD24.6
Reversible Watermarking Based on Invariant Image Classification and Dynamical Error Histogram Shifting	4477-4480
<i>Pan, Wei (Telecom Bretagne); Coatrieux, Gouenou (Institut Telecom – Telecom Bretagne – Inserm); Cuppens, Nora (Telecom Bretagne); Cuppens, Frédéric (Telecom Bretagne); Roux, Christian* (TELECOM Bretagne – INSERM)</i>	

ThD25: 17:15-18:45 Salon JK Marriott
2.8.35 Image Classification for Grading Anomalies (Oral Session)
Chair: Fotiadis, Dimitrios I. (*Univ. of Ioannina*)
Co-Chair: Bonmassar, Giorgio (*Harvard Medical School*)

17:15-17:30 ThD25.1
Focal Edge Association to Glaucoma Diagnosis **4481-4484**
*Cheng, Jun** (*Inst. for Infocomm Research, AStar*); *Liu, Jiang* (*Inst. for Infocomm Research, A STAR*); *Wong, Damon* (*Inst. for Infocomm Research*); *Tan, Ngan Meng* (*A*STAR, Inst. for Infocomm Research*); *Lee, Beng Hai* (*Inst. for Infocomm Research*); *Cheung, Carol* (*Singapore Eye Research Inst.*); *Baskaran, Mani* (*Singapore Eye Research Inst.*); *Wong, Tien Yin* (*Natl. Univ. of Singapore*); *Aung, Tin* (*Singapore Eye Research Inst.*)

17:30-17:45 ThD25.2
Atherosclerotic Plaque Characterization in Optical Coherence Tomography Images **4485-4488**
Athanasίου, Lambros (*Univ. of Ioannina*); *Exarchos, Themis P.** (*Unit of Medical Tech & Intelligent Info*); *Naka, Katerina* (*Univ. of Ioannina*); *Michalis, Lampros* (*Univ. of Ioannina*); *Prati, Francesco* (*San Giovanni Hospital*); *Fotiadis, Dimitrios I.* (*Univ. of Ioannina*)

17:45-18:00 ThD25.3
Atheromatic™: Symptomatic vs. Asymptomatic Classification of Carotid Ultrasound Plaque Using a Combination of HOS, DWT & Texture **4489-4492**
Acharya, Rajendra (*NgeeAnn Polytechnic*); *Faust, Oliver* (*Ngee Ann Polytechnic*); *Sree, Vinitha* (*Nanyang Technological Univ.*); *Ang, Peng Chuan Alvin* (*Ngee Ann Polytechnic*); *Krishnamurthi, Ganapathy** (*Mayo Clinic*); *Seabra, Jose Carlos* (*Instituto Superior Tecnico NIF 501 507 930*); *Sanches, J. Miguel* (*IST(NIF:501507930)*); *Suri, Jasjit* (*Biomedical Technologies*)

18:00-18:15 ThD25.4
Probabilistic Lung Nodule Classification with Belief Decision Trees **4493-4498**
*Zinovev, Dmitriy** (*DePaul Univ.*); *Feigenbaum, Jonathan* (*DePaul Univ.*); *Furst, Jacob D.* (*DePaul Univ.*); *Raicu, Daniela S.* (*DePaul Univ.*)

18:15-18:30 ThD25.5
Classification of Alzheimer's Disease from Structural MRI Using Sparse Logistic Regression with Optional Spatial Regularization **4499-4502**
*Rao, Anil** (*GlaxoSmithKline*); *Lee, Ying* (*Natl. Univ. of Singapore*); *Gass, Achim* (*Depts. of Neurology & Neuroradiology, Univ. Hospital, Basel, Switzerland*); *Monsch, Andreas* (*Memory Clinic, Dept. of Geriatrics, Univ. Hospital, Basel, Switzerland*)

18:30-18:45 ThD25.6
Automated Scoring of Liver Fibrosis through Combined Features from Different Collagen Groups **4503-4506**
*Xu, Shuoyu** (*Singapore-MIT Alliance*); *Tai, Dean* (*Histoindex Pte.Ltd.*); *Wee, Aileen* (*Natl. Univ. Hospital*); *Welsch, Roy* (*Massachusetts Inst. of Tech.*); *So, Peter* (*MIT*); *Yu, Hanry* (*Natl. Univ. of Singapore*); *Rajapakse, J C* (*Nanyang Technical Univ.*)

Friday, 2 September 2011

FrA01: 08:00-09:30 St. George AB Westin
8.4.10 Human Machine Interfaces and Robotics Applications (Oral Session)
Chair: Okamura, Allison (*Johns Hopkins Univ.*)
Co-Chair: Li, Qingguo (*Queen's Univ.*)

08:00-08:15 FrA01.1
Gradual Anisometric-Isometric Transition for Human-Machine Interfaces **4507-4510**
*Gibo, Tricia** (*Johns Hopkins Univ.*); *Rotella, Michele* (*Johns Hopkins Univ.*); *Bastian, Amy* (*Kennedy Krieger Inst.*); *Okamura, Allison* (*Johns Hopkins Univ.*)

08:15-08:30 FrA01.2
Lower-Limb-Driven Energy Harvesting: Preliminary Analysis **4511-4514**
*Zhang, Jun-tian** (*Queen's Univ., Kingston*); *Li, Qingguo* (*Queen's Univ.*)

08:30-08:45 FrA01.3
Development and Evaluation of a Social Robot Platform for Therapy in Autism 4515-4518
Mazzei, Daniele (Univ. of Pisa); Lazzeri, Nicole (Univ. of Pisa, InterDept.al Research Ctr. E.Piaggio.); Billeci, Lucia (Univ. of Pisa, InterDept.al Research Ctr. E.Piaggio.); Iglizzo, Roberta (Univ. di Pisa, IRCCS Stella Maris); Mancini, Alice (Univ. di Pisa, IRCCS Stella Maris); Ahluwalia, Arti (Pisa Univ.); Muratori, Filippo (Univ. of Pisa, IRCCS Fondazione Stella Maris); De Rossi, Danilo (Univ. of Pisa)*

08:45-09:00 FrA01.4
Development of Support System to Handle Ultrasound Probe by Coordinated Motion with Medical Robot 4519-4522
Masuda, Kohji (Tokyo Univ. A&T); Takachi, Yuuki (Tokyo Univ. of Agri & Tech); Urayama, Yasuhiro (Tokyo Univ. of Agri & Tech); Yoshinaga, Takashi (Tokyo Univ. of Agriculture & Tech.)*

09:00-09:15 FrA01.5
Estimation of Mental Workload Using Saccadic Eye Movements in a Free-Viewing Task 4523-4529
Tokuda, Satoru (Nagoya Univ.); Obinata, Goro (Nagoya Univ.); Palmer, Evan (Wichita State Univ.); Chaparro, Alex (Wichita State Univ.)*

09:15-09:30 FrA01.6
Gesture Recognition in Upper-Limb Prosthetics: A Viability Study Using Dynamic Time Warping and Gyroscopes 4530-4533
Dermitzakis, Konstantinos (Univ. of Zurich); Hernandez Arieta, Alejandro (Univ. of Tokyo); Pfeifer, Rolf (Univ. of Zurich)*

FrA02: 08:00-09:30	St. George CD Westin
8.6.26 Virtual Reality for Robotic Surgery (Oral Session)	
Chair: Fung, Joyce (McGill Univ.)	
Co-Chair: Hu, Yaoping (The Univ. of Calgary)	

08:00-08:15 FrA02.1
Designing an Active Motor Skill Learning Platform with a Robot-Assisted Laparoscopic Trainer 4534-4537
Lee, Chun Siong (Natl. Univ. of Singapore); Yang, Liangjing (Natl. Univ. of Singapore); Yang, Tao (Inst. of Infocomm Research); Chui, Chee Kong (Natl. Univ. of Singapore); Liu, Jiang (Inst. for Infocomm Research, A STAR); Huang, Weimin (Inst. for Infocomm Research, Agency for Science Tech. & Research); Su, Yi (Inst. of High Performance Computing); Chang, Stephen KY (Natl. Univ. of Singapore)*

08:15-08:30 FrA02.2
Pilot Study on Effectiveness of Simulation for Surgical Robot Design Using Manipulability 4538-4541
Kawamura, Kazuya (Waseda Univ.); Seno, Hiroto (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*

08:30-08:45 FrA02.3
Pilot Study of Design Method for Surgical Robot Using Workspace Reproduction System 4542-4545
Seno, Hiroto (Waseda Univ.); Kawamura, Kazuya (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*

08:45-09:00 FrA02.4
A Viscoelastic Model of a Breast Phantom for Real-Time Palpation 4546-4549
Widmer, Antoine (Univ. of Calgary); Hu, Yaoping (The Univ. of Calgary)*

09:00-09:15 FrA02.5
Integration of Biomechanical Parameters in Tetrahedral Mass-Spring Models for Virtual Surgery Simulation 4550-4554
Sala, Alessandro (Univ. of Pisa); Turini, Giuseppe (Univ. of Pisa); Ferrari, Mauro (Univ. of Pisa); Mosca, Franco (Univ. of Pisa); Ferrari, Vincenzo (Università di Pisa)*

09:15-09:30 FrA02.6
Next-Generation Micromanipulator for Computer-Assisted Laser Phonomicrosurgery 4555-4559
Mattos, Leonardo (IIT – Istituto Italiano di Tecnologia); Dellepiane, Massimo (Univ. of Genoa – ENT Dept.); Caldwell, Darwin G. (Italian Inst. of Tech.)*

FrA03: 08:00-09:30 Essex Ballroom South Westin
6.2.27 Brain-Machine Interfaces: II (Oral Session)
Chair: Hong, Bo (*Tsinghua Univ.*)
Co-Chair: Blankertz, Benjamin (*Berlin Inst. of Tech.*)

08:00-08:15 FrA03.1
A gaze independent spelling based on Rapid Serial Visual Presentation 4560-4563
*Acqualagna, Laura** (*Berlin Institut of Tech.*); *Blankertz, Benjamin* (*Berlin Inst. of Tech.*)

08:15-08:30 FrA03.2
Integrating the Spatial Profile of the N200 Speller for Asynchronous Brain-Computer Interfaces 4564-4567
Zhang, Dan (*Tsinghua Univ.*); *Honglai, Xu* (*Tsinghua Univ.*); *Wu, Wei* (*Tsinghua Univ.*);
Gao, Shangkai (*Tsinghua Univ.*); *Hong, Bo** (*Tsinghua Univ.*)

08:30-08:45 FrA03.3
An Auditory BCI Using Virtual Sound Field 4568-4571
Gao, Haiyang (*Tsinghua Univ.*); *Ouyang, Minhui* (*Tsinghua Univ.*); *Zhang, Dan* (*Tsinghua Univ.*);
*Hong, Bo** (*Tsinghua Univ.*)

08:45-09:00 FrA03.4
Multimodal Human-Machine Interface Based on a Brain-Computer Interface and an Electrooculography Interface 4572-4575
Ianez, Eduardo (*Univ. Miguel Hernandez de Elche*); *Ubeda, Andres* (*Univ. Miguel Hernandez de Elche*);
*Azorín, José M.** (*Univ. Miguel Hernández de Elche*)

09:00-09:15 FrA03.5
EEG Auditory Steady State Responses Classification for the Novel BCI 4576-4579
*Higashi, Hiroshi** (*Tokyo Univ. of Agriculture & Tech.*); *Rutkowski, Tomasz* (*Univ. of Tsukuba*); *Washizawa, Yoshikazu* (*RIKEN*); *Cichocki, Andrzej* (*BSI RIKEN*); *Tanaka, Toshihisa* (*Tokyo Univ. of Agriculture & Tech.*)

09:15-09:30 FrA03.6
Performance Optimization of ERP-Based BCIs Using Dynamic Stopping 4580-4583
*Schreuder, Martijn** (*Berlin Inst. of Tech.*); *Höhne, Johannes* (*Berlin Inst. of Tech.*); *Treder, Matthias Sebastian* (*Berlin Inst. of Tech.*); *Blankertz, Benjamin* (*Berlin Inst. of Tech.*); *Tangermann, Michael* (*Berlin Inst. of Tech.*)

FrA05: 08:00-09:30 Essex Ballroom North Westin
6.2.29 Brain-Machine Interfaces: Decoders I (Oral Session)
Chair: Thakor, Nitish (*Johns Hopkins Univ.*)
Co-Chair: Contreras-Vidal, José (*Univ. of Maryland*)

08:00-08:15 FrA05.1
Asynchronous Decoding of Grasp Aperture from Human ECoG During a Reach-To-Grasp Task 4584-4587
*Fifer, Matthew** (*Johns Hopkins Univ.*); *Mollazadeh, Mohsen* (*Johns Hopkins Univ.*);
Acharya, Soumyadipta (*Johns Hopkins Univ.*); *Thakor, Nitish* (*Johns Hopkins Univ.*);
Crone, Nathan E. (*Johns Hopkins Univ., School of Medicine*)

08:15-08:30 FrA05.2
Towards a Non-Invasive Brain-Machine Interface System to Restore Gait Function in Humans 4588-4591
Presacco, Alessandro (*Univ. of Maryland, College Park*); *Forrester, Larry* (*Univ. of Maryland School of Medicine*); *Contreras-Vidal, José** (*Univ. of Maryland*)

08:30-08:45 FrA05.3
Dynamic Brain Machine Interface: A Novel Paradigm for Bidirectional Interaction between Brains and Dynamical Systems 4592-4595
Szymanski, Francois, Daniel (*Italian Inst. of Tech.*); *Semprini, Marianna** (*Italian Inst. of Tech.*); *Mussa-Ivaldi, Ferdinando* (*Rehabilitation Inst. of Chicago*); *Fadiga, Luciano* (*Univ. degli Studi di Ferrara, Ferrara, Italia*);
Panzeri, Stefano (*Italian Inst. of Tech.*); *Vato, Alessandro* (*Fondazione Istituto Italiano di Tecnologia*)

08:45-09:00 FrA05.4
Single-Trial Classification of Feedback Potentials within Neurofeedback Training with an EEG Brain-Computer Interface 4596-4599
López-Larraz, Eduardo (Univ. of Zaragoza); Iturrate, Iñaki (Univ. of Zaragoza); Escolano, Carlos (Univ. of Zaragoza); García, Isabel (Bit&Brain Technologies); Montesano, Luis (Univ. de Zaragoza); Minguez, Javier (Zaragoza Univ.)*

09:00-09:15 FrA05.5
A Subject-Independent Brain-Computer Interface based on Smoothed, Second-Order Baseline 4600-4604
Reuderink, Boris (Univ. of Twente); Farquhar, Jason (Radboud Univ.); Poel, Mannes (Univ. of Twente); Nijholt, Anton (Univ. of Twente)*

09:15-09:30 FrA05.6
Neuron Selection for Decoding Dexterous Finger Movements 4605-4608
Kahn, Kevin (Johns Hopkins Univ.); Schieber, Marc (Univ. of Rochester); Thakor, Nitish (Johns Hopkins Univ.); Sarma, Sridevi V. (Johns Hopkins Univ.)*

FrA07: 08:00-09:30 Boylston Marriott
6.10.21 Massively Parallel Neural Processing (Oral Session)
Chair: Obeid, Iyad (Temple Univ.)
Co-Chair: Principe, Jose (Univ. of Florida)

08:00-08:15 FrA07.1
Massively Parallel Neural Signal Processing: System-On-Chip Design with FPGAs 4609-4612
Balasubramanian, Karthikeyan (Temple Univ.); Obeid, Iyad (Temple Univ.)*

08:15-08:30 FrA07.2
FPGA Implementation of Hardware Processing Modules As Coprocessors in Brain-Machine Interfaces 4613-4616
Zheng, Xiaoxiang (Zhejiang Univ.); Wang, Dong (Zhejiang Univ.); Hao, Yaoyao (Zhejiang Univ.); Zhu, Xiaoping (Zhejiang Univ.); Zhao, Ting (Zhejiang Univ.); Wang, Yiwen (Zhejiang Univ.); Chen, Yaowu (Zhejiang Univ.); Chen, Weidong (Zhejiang Univ.)*

08:30-08:45 FrA07.3
Modular Particle Filtering FPGA Hardware Architecture for Brain Machine Interfaces 4617-4620
Mountney, John (Temple Univ.); Obeid, Iyad (Temple Univ.); Silage, Dennis (Elec. & Computer Eng. Temple Univ.)*

08:45-09:00 FrA07.4
An Information-Theoretic Approach to Motor Decoding with a Reconfigurable Parallel Architecture 4621-4624
Craciun, Stefan (Univ. of Florida); Brockmeier, Austin (Univ. of Florida); George, Alan (Univ. of Florida); Lam, Herman (Univ. of Florida); Principe, Jose (Univ. of Florida)*

09:00-09:15 FrA07.5
Using General-Purpose Graphic Processing Units for BCI Systems 4625-4628
Wilson, J. Adam (Univ. of Cincinnati)*

09:15-09:30 FrA07.6
Development of a BCI Master Switch Based on Single-Trial Detection of Contingent Negative Variation Related Potentials 4629-4632
Kato, Yasuhiro, X (Tamagawa Univ.); Yonemura, Tomoko (Osaka Univ., Graduate School of Information Science & Tech.); Samejima, Kazuyuki (Tamagawa Univ., Brain Science Inst.); Maeda, Taro (Osaka Univ., Graduate School of Information Science & Tech.); Ando, Hideyuki (Osaka Univ., Graduate School of Information Science & Tech.)*

FrA09: 08:00-09:30 Regis Marriott
6.10.9 Recovering Neural Information from Peripheral Nerves (Oral Session)
Chair: Durand, Dominique (Case Western Res. Univ.)
Co-Chair: Micera, Silvestro (École Polytechnique Fédérale de Lausanne)

08:00-08:15 FrA09.1
Control of Neural Interfacing in Peripheral Nerves through Regenerative Molecular Guidance 4633-4636
Romero-Ortega, Mario Ignacio (Univ. of Texas at Arlington)*

- 08:15-08:30 FrA09.2
Activities on PNS Neural Interfaces for the Control of Hand Prostheses 4637-4640
Carpaneto, Jacopo (Scuola Superiore Sant'Anna); Cutrone, Annarita (Scuola Superiore Sant'Anna); Bossi, Silvia (Scuola Superiore Sant'Anna); Sergi, Pier Nicola (Scuola Superiore Sant'Anna); Citi, Luca (MGH/Harvard Medical School); Rigosa, Jacopo (Scuola Superiore Sant'Anna); Rossini, Paolo Maria (Campus Biomedico Univ.); Micera, Silvestro (École Polytechnique Fédérale de Lausanne)*
- 08:30-08:45 FrA09.3
Recording Sensory and Motor Information from Peripheral Nerves with Utah Slanted Electrode Arrays 4641-4644
Clark, Gregory (Univ. of Utah); Ledbetter, Noah (Univ. of Utah); Warren, David (Univ. of Utah); Harrison, Reid (Univ. of Utah)*
- 08:45-09:00 FrA09.4
A Framework for the Discrimination of Neural Pathways Using Multi-Contact Nerve Cuff Electrodes 4645-4648
Zariffa, Jose (Univ. of British Columbia); Nagai, Mary (Inst. of Biomaterials & Biomedical Eng., Univ. of Toronto); Schuettler, Martin (Univ. of Freiburg); Stieglitz, Thomas (Univ. of Freiburg); Daskalakis, Jeff (Schizophrenia Program, Dept. of Psychiatry, Ctr. for Addiction & Mental Health, Faculty of Medicine, Univ. of Toro); Popovic, Milos R. (Univ. of Toronto)*
- 09:00-09:15 FrA09.5
A Summary of the Theory of Velocity Selective Neural Recording 4649-4652
Taylor, John (Univ. of Bath); Donaldson, Nicholas de Neufville (Univ. College London); Clarke, Christopher (Univ. of Bath); Schuettler, Martin (Univ. of Freiburg)*
- 09:15-09:30 FrA09.6
Recovery of Neural Activity from Nerve Cuff Electrodes 4653-4656
Wodlinger, Brian (Univ. of Pittsburgh); Durand, Dominique (Case Western Reserve Univ.)*

FrA11: 08:00-09:30 5.5.3 Systems Bioengineering in the Cardiac Myocyte (Oral Session) Chair: Greenstein, Joseph L. (<i>The Johns Hopkins Univ.</i>) Co-Chair: de Jongh Curry, Amy (<i>The Univ. of Memphis</i>)	Wellesley Marriott
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- 08:00-08:15 FrA11.1
Regression Methods for Parameter Sensitivity Analysis: Applications to Cardiac Arrhythmia Mechanisms 4657-4660
Sobie, Eric (Mount Sinai School of Medicine); Sarkar, Amrita (Mount Sinai School of Medicine)*
- 08:15-08:30 FrA11.2
Automated Image Analysis of Cardiac Myocyte Ca²⁺ Dynamics 4661-4664
Amanfu, Robert K. (Univ. of Virginia); Muller, James B. (Univ. of Virginia); Saucerman, Jeffrey J. (Univ. of Virginia)*
- 08:30-08:45 FrA11.3
CaMKII-Dependent Activation of Late I_{Na} Contributes to Cellular Arrhythmia in a Model of the Cardiac Myocyte 4665-4668
Hashambhoy, Yasmin (Johns Hopkins Univ.); Winslow, Raimond (Johns Hopkins Univ.); Greenstein, Joseph L (The Johns Hopkins Univ.)*
- 08:45-09:00 FrA11.4
Interactions between Cardiac Fibrosis Spatial Pattern and Ionic Remodeling on Electrical Wave Propagation 4669-4672
Comtois, Philippe (Univ. of Montreal & Montreal Heart Inst.); Nattel, Stanley (Montreal Heart Inst.)*
- 09:00-09:15 FrA11.5
Metabolic Control Analysis Applied to Mitochondrial Networks 4673-4676
Cortassa, Sonia (Johns Hopkins Univ.); Aon, Miguel (Johns Hopkins Univ.); O'Rourke, Brian (Johns Hopkins Univ.); Winslow, Raimond (Johns Hopkins Univ.)*

09:15-09:30 FrA11.6
Stochastic Simulation of Cardiac Calcium Dynamics and Waves 4677-4680
Hoang-Trong, Tuan (George Mason Univ.); Williams, George S. B. (Univ. of Maryland); Chikando, Aristide C. (Univ. of Maryland); Sobie, Eric (Mount Sinai School of Medicine); Lederer, W. Jonathan (Univ. of Maryland); Jafri, M. Saleet (George Mason Univ.)*

FrA12: 08:00-09:30 Suffolk Marriott
5.7.5 Adaptive and Parametric Filtering of Cardiovascular Signals (Oral Session)
Chair: Laguna, Pablo (*Zaragoza Univ. & CIBER-BBN*)
Co-Chair: Tarvainen, Mika (*Univ. of Eastern Finland*)

08:00-08:15 FrA12.1
Statistical Model for Cardiovascular Signals with Independent Respiratory Modulation for Tracking Pulse Pressure Variation 4681-4684
McNames, James (Portland State Univ.); Kim, Sunghan (Univ. of California, Los Angeles); Aboy, Mateo (Oregon Inst. of Tech.)*

08:15-08:30 FrA12.2
Atrial Fibrillation Detection Using Time-Varying Coherence Function and Shannon Entropy 4685-4688
Lee, Jinseok (Worcester Polytechnic Inst.); McManus, David (Univ. of Massachusetts Medical Ctr.); Chon, Ki (Worcester Polytechnic Inst.)*

08:30-08:45 FrA12.3
Time-Frequency Phase Differences and Phase Locking to Characterize Dynamic Interactions between Cardiovascular Signals 4689-4692
Orini, Michele (Univ. of Zaragoza); Bailon, Raquel (Univ. of Zaragoza); Mainardi, Luca (Politecnico di Milano); Laguna, Pablo (Zaragoza Univ. & CIBER-BBN)*

08:45-09:00 FrA12.4
Detection and Removal of Ventricular Ectopic Beats in Atrial Fibrillation Recordings via Principal Component Analysis 4693-4696
Martinez Rodrigo, Arturo (Univ. de Castilla-La Mancha); Alcaraz Martinez, Raul (Univ. of Castilla-La Mancha); Rieta, J. J. (Univ. Politecnica de Valencia)*

09:00-09:15 FrA12.5
Hypoglycemia Detection Based on Cardiac Repolarization Features 4697-4700
Lipponen, Jukka (Univ. of Eastern Finland); Kempainen, Jukka (Turku Univ. Hospital, Dept. of Clinical Physiology & Nuclear Medicine, Turku, Finland); Karjalainen, Pasi, A (Univ. of Eastern Finland); Laitinen, Tomi (Kuopio Univ. Hospital); Mikkola, Hannu (Turku Univ. Hospital); Kärki, Tarmo (Turku Univ. Hospital); Tarvainen, Mika (Univ. of Eastern Finland)*

09:15-09:30 FrA12.6
T Waves Segmentation and Analysis Using Inverse Normalized Integrals 4701-4704
Meste, Olivier (UNSA-CNRS); Janusek, Dariusz (Inst of Biocybernetics & Biomed Engr); Kania, Michal (Inst of Biocybernetics & Biomed Engr); Maniewski, Roman (Inst of Biocybernetics & Biomed Engr)*

FrA13: 08:00-09:30 Arlington Marriott
4.6.12 Computational Approaches for Studying Neural Mechanisms in Anesthesia and Sleep (Oral Session)
Chair: Ching, ShiNung (*Massachusetts General Hospital, Massachusetts Inst. of Tech.*)
Co-Chair: Chen, Zhe (*Harvard Medical School/MIT*)

08:00-08:15 FrA13.1
Bayesian Analysis of Trinomial Data in Behavioral Experiments and Its Application to Human Studies of General Anesthesia 4705-4708
Wong, Kin Foon Kevin (Massachusetts General Hospital); Smith, Anne (Univ. of California Davis); Pierce, Eric (MGH/Harvard Medical School); Harrell, Priscilla Grace (MGH-Harvard Medical School); Walsh, John (Massachusetts General Hospital); Salazar, Andres F. (Massachusetts General Hospital); Tavares, Casie (Massachusetts General Hospital); Cimenser, Aylin (Massachusetts General Hospital); Prerau, Michael (Massachusetts General Hospital); Mukamel, Eran A (Univ. of California, San Diego); Sampson, Aaron (Massachusetts General Hospital); Purdon, Patrick (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT)*

08:15-08:30	FrA13.2
Understanding the Effects of Anesthetic Agents on the EEG through Neural Field Theory	4709-4712
<i>Foster, Brett Lucas* (Stanford Univ.); Bojak, Ingo (School of Psychology (CN-CR), Univ. of Birmingham); Liley, David Tibor Julian (Swinburne Univ. of Tech.)</i>	
08:30-08:45	FrA13.3
Modeling the Temporal Architecture of Rat Sleep-Wake Behavior	4713-4716
<i>Diniz Behn, Cecilia (Univ. of Michigan); Booth, Victoria* (Univ. of Michigan)</i>	
08:45-09:00	FrA13.4
Estimating Integrated Information with TMS Pulses During Wakefulness, Sleep, and under Anesthesia	4717-4720
<i>Balduzzi, David* (Max Planck Inst. for Intelligent Systems)</i>	
09:00-09:15	FrA13.5
Near-Real-Time Connectivity Estimation for Multivariate Neural Data	4721-4724
<i>Smith, Anne* (Univ. of California Davis); Fall, Christopher P (Univ. of Illinois at Chicago); Sornborger, Andrew T (Univ. of Georgia)</i>	
09:15-09:30	FrA13.6
Robust Time-Varying Multivariate Coherence Estimation: Application to Electroencephalogram Recordings During General Anesthesia	4725-4728
<i>Wong, Kin Foon Kevin (Massachusetts General Hospital); Mukamel, Eran A (Univ. of California, San Diego); Salazar, Andres F. (Massachusetts General Hospital); Pierce, Eric (MGH/Harvard Medical School); Harrell, Priscilla Grace (MGH-Harvard Medical School); Walsh, John (Massachusetts General Hospital); Sampson, Aaron (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT); Purdon, Patrick L* (Massachusetts General Hospital)</i>	

FrA15: 08:00-09:30	Clarendon Marriott
7.2.1 Tailoring Biomaterial Properties for Regenerative Medicine (Oral Session)	
Chair: Goldstein, Aaron (<i>Virginia Polytechnic Inst.</i>)	
Co-Chair: Kaplan, David (<i>Tufts Univ.</i>)	

08:00-08:15	FrA15.1
Polymer-Hydrogel Hybrid Scaffolds: An Effective Graft System for Bone Tissue Engineering	*
<i>Nukavarapu, Syam* (Univ. of Connecticut)</i>	
08:15-08:30	FrA15.2
Vascularization of Biomimetic Hydrogels for Tissue Engineering Applications	*
<i>Moon, James* (MIT); West, Jennifer (Rice Univ.)</i>	
08:30-08:45	FrA15.3
Keratin Biomaterials in Biomedical Applications	*
<i>Gaines, Carmen* (Wake Forest Inst. for Regenerative Medicine); Van Dyke, Mark (Wake Forest Inst. for Regenerative Medicine)</i>	
08:45-09:00	FrA15.4
Bioengineered Polymers for Scaffolds in Regenerative Medicine	*
<i>Kaplan, David* (Tufts Univ.)</i>	
09:00-09:15	FrA15.5
Responsive Hydrogels for Controlling Signals within the Microenvironment of Progenitor Cells	*
<i>Kloxin, April* (Univ. of Delaware)</i>	
09:15-09:30	FrA15.6
Designing Materials to Modulate the Healing Response in Mechanically Active Soft Tissues	*
<i>Wagner, William R* (Univ. of Pittsburgh)</i>	

FrA16: 08:00-09:30	Darhmouth Marriott
9.3.1 Patient Monitoring Devices and Techniques (Oral Session)	
Chair: Panescu, Dorin (<i>NewCardio, Inc.</i>)	
Co-Chair: Tamura, Toshiyo (<i>Chiba Univ.</i>)	

08:00-08:15 FrA16.1
A Continuous, Wearable, and Wireless Heart Monitor Using Head Ballistocardiogram (BCG) and Head Electrocardiogram (ECG) 4729-4732
*He, David Da** (*Massachusetts Inst. of Tech.*); *Winokur, Eric S.* (*Massachusetts Inst. of Tech.*);
Sodini, Charles G. (*Massachusetts Inst. of Tech.*)

08:15-08:30 FrA16.2
A Portable Autonomous Multisensory Intervention Device (PAMID) for Early Detection of Anxiety and Agitation in Patients with Cognitive Impairment 4733-4736
Rajasekaran, Sathish (*Oakland Univ.*); *Luteran, Chris* (*oakland Univ.*); *Qu, Hongwei** (*Oakland Univ.*);
Riley-Doucet, Cheryl (*Oakland Univ., MI*)

08:30-08:45 FrA16.3
A Portable Inertial Sensing-Based Spinal Motion Measurement System for Low Back Pain Assessment ... 4737-4740
*Lee, Jung Keun** (*Simon Fraser Univ.*); *Desmoulin, Geoffrey* (*Univ. of Calgary, Mechanical & Manufacturing Eng.; Associate Research Director, Optima Health Solutions Int'l (KKT)*); *Khan, Aslam* (*Founder, Optima Health Solutions Int'l (KKT Intl.)*); *Park, Edward J.* (*Simon Fraser Univ.*)

08:45-09:00 FrA16.4
Wireless Monitoring of Reconstructed 12-Lead ECG in Atrial Fibrillation Patients Enables Differential Diagnosis of Recurrent Arrhythmias 4741-4744
Vukajlovic, Dejan (*Dedinje Cardiovascular Inst., Belgrade, Serbia*); *Gussak, Ihor* (*NewCardio, Inc*);
George, Samuel (*NewCardio, Inc*); *Bojovic, Bosko* (*NewCardio, Inc*); *Ljupco, Hadzievski* (*NewCardio, Inc*);
Stojanovic, Bojan (*Klinika Petkovic, Belgrade, Serbia*); *Angelkov, Lazar* (*Dedinje Cardiovascular Inst. , Belgrade, Serbia*); *Panescu, Dorin** (*NewCardio, Inc.*)

09:00-09:15 FrA16.5
Low-Cost and Disposable Pressure Sensor Mat for Non-Invasive Sleep and Movement Monitoring Applications 4745-4748
*Abraham, Jose** (*Kimberly Clark*); *Sullivan, Shawn* (*Kimberly-Clark Corp.*);
Ranganathan, Sridhar (*Kimberly-Clark Corp.*)

09:15-09:30 FrA16.6
Privacy versus Autonomy: A Trade Off Model for Smart Home Monitoring Technologies 4749-4752
*Townsend, Daphne** (*Carleton Univ.*); *Knoefel, Frank-Dietrich* (*SCO Health Service*);
Goubran, Rafik A. (*Carleton Univ.*)

FrA17: 08:00-09:30	Exeter Marriott
11.1.6 Researchers and Companies Involved in Biomedical Device Innovation (Minisymposium)	
Chair: Arredondo Waldmeyer, María Teresa (<i>Univ. Pol. de Madrid</i>)	
Co-Chair: Bastos, Teodiano (<i>Univ. Federal do Espírito Santo</i>)	

08:00-08:15 FrA17.1
Robotic Wheelchair Commanded by SSVEP, Motor Imagery and Word Generation 4753-4756
*Bastos, Teodiano** (*Univ. Federal do Espírito Santo*);
Müller, Sandra Mara Torres (*Federal Univ. of Espirito Santo*)

08:15-08:30 FrA17.2
Aml for Health: Chronic Disease Management 4757-4760
*Arredondo, María Teresa** (*Technical Univ. of Madrid*); *Pastor, Laura* (*Univ. Politécnica de Madrid*);
Fico, Giuseppe (*Technical Univ. of Madrid*)

08:30-08:45 FrA17.3
Sustainable Biomedical Engineering for the Masses *
*Kant Kumar, Dinesh** (*RMIT Univ.*)

08:45-09:00 FrA17.4
Innovation in the Biomechanical Assessment of Footwear for International Airlines Personnel *
Zequera Diaz, Martha Lucia (Pontificia Univ. Javeriana)*

FrA19: 08:00-09:30 Salons AB Marriott
3.9.23 Micro and Nano Technology (Oral Session)
Chair: Meng, Ellis (*Univ. of Southern California*)
Co-Chair: Ruggiero, Carmelina (*Univ. of Genova*)

08:00-08:15 FrA19.1
Platinum Microwire for Subdural Electrooculography Over Human Neocortex: Millimeter-Scale Spatiotemporal Dynamics **4761-4765**
Kellis, Spencer (Univ. of Utah); Greger, Bradley (Univ. of Utah); Hanrahan, Sara (Univ. of Utah); House, Paul (Univ. of Utah); Brown, Richard (Univ. of Utah)*

08:15-08:30 FrA19.2
Characterization of Functional Biointerface on Silicon Nanowire MOSFET **4766-4769**
Lin, Shu-Ping (Natl. Chung Hsing Univ.); Chi, Tien-Yin (Inst. of Biomedical Eng., Natl. Chung Hsing Univ.); Kang, Yu-Shan (Inst. of Biomedical Eng., Natl. Chung Hsing Univ.); Liu, Mao-Chen (Natl. Nano Device Laboratories, Hsinchu 300, Taiwan)*

08:30-08:45 FrA19.3
Direct Sequencing of DNA Motifs with Encoding Nanoparticles **4770-4773**
Fernandez, Renny (Univ. of Utah); Mastrangelo, Carlos (Univ. of Utah)*

08:45-09:00 FrA19.4
A Nanoelectromechanical Biosensor Based on Precise Quantification and Control of DNA Orientation **4774-4775**
Spuhler, Philipp (Boston Univ.); Sola, Laura (CNR); Zhang, Xirui (Boston Univ.); Monroe, Margo (Boston Univ.); Greenspun, Joseph (Boston Univ.); Chiari, Marcella (CNR); Unlu, Selim (Boston Univ.)*

09:00-09:15 FrA19.5
Calibrating the Photo-Thermal Response of Magneto-Fluorescent Gold Nanoshells **4776-4779**
Biswal, Nrusingh Charan (Baylor College of Medicine); Ayala-Orozco, Ciceron (Rice Univ.); Halas, Naomi J. (Rice Univ.); Joshi, Amit (Baylor College of Medicine)*

FrA20: 08:00-09:30 Salons CD Marriott
3.2.16 Bioelectric Sensing (Oral Session)
Chair: Dokmeci, Mehmet R. (*Northeastern Univ.*)
Co-Chair: Mason, Andrew (*Michigan State Univ.*)

08:00-08:15 FrA20.1
Can Driven-Right-Leg Circuits Increase Interference in ECG Amplifiers? **4780-4783**
Gomez-Clapers, Joan (Univ. Politècnica de Catalunya); Serrano, Ernesto (Univ. Politècnica de Catalunya); Casanella, Ramon (Univ. Politècnica de Catalunya); Pallas-Areny, Ramon (Univ. Politècnica de Catalunya)*

08:15-08:30 FrA20.2
The Design of CMOS General-Purpose Analog Front-End Circuit with Tunable Gain and Bandwidth for Biopotential Signal Recording Systems **4784-4787**
Chen, Wei-Ming (Natl. Chiao Tung Univ.); Yang, Wen-Chia (Natl. Chiao Tung Univ.); Tsai, Tzung-Yun (Natl. Chiao Tung Univ.); Chiueh, Herming (Natl. Chiao Tung Univ.); Wu, Chung-Yu (Natl. Chiao Tung Univ.)*

08:30-08:45 FrA20.3
Design of a High Sensitive Double-Gate Field-Effect Transistor Biosensor for DNA Detection **4788-4791**
Islam, Md. Saiful (Deakin Univ.); Kouzani, Abbas Z. (Deakin Univ.)*

08:45-09:00 FrA20.4
A Bio-Impedance Probe to Assess Liver Steatosis During Transplant Surgery **4792-4795**
Probert Smith, Penny J (Univ. of Oxford); You, Fusheng (Fourth Military Medical Univ.); Silva, Michael (Oxford Radcliffe Hospitals NHS Trust); Vogel, Thomas (Univ. of Munster)*

09:00-09:15 FrA20.5
Rapid Impedance Measurement of Tethered Bilayer Lipid Membrane Biosensors 4796-4799
Mu, Xiaoyi (Michigan State Univ.); Rairigh, Daniel (Michigan State Univ.); Liu, Xiaowen (Michigan State Univ.); Mason, Andrew (Michigan State Univ.)*

09:15-09:30 FrA20.6
Design of a Novel Digital Phantom for EIT System Calibration 4800-4803
Li, Nan (Univ. of Sussex)*

FrA21: 08:00-09:30 Salon E Marriott
1.1.21 Time-Scale and Wavelets Analysis (Oral Session)
Chair: Chapotot, Florian (*Univ. of Chicago*)
Co-Chair: Thomsen, Carsten Eckhart (*Univ. of Copenhagen*)

08:00-08:15 FrA21.1
Using DWT for ECG Motion Artifact Reduction with Noise-Correlating Signals 4804-4807
Kirst, Malte (FZI Research Ctr. for Information Tech); Glauner, Bastian (FZI Research Ctr. for Information Tech); Ottenbacher, Joerg Mathias (Univ. of Karlsruhe)*

08:15-08:30 FrA21.2
HRV analysis in local anesthesia using Continuous Wavelet Transform (CWT) 4808-4811
Shafqat, Kamran (City Univ.); Kyriacou, Panayiotis (City Univ.); Pal, Sandip (Broomfield Hospital); Kumari, Santhi (Broomfield Hospital)*

08:30-08:45 FrA21.3
Wavelet Based Data Analysis for Implantable Pulse Oximetric Sensors 4812-4815
Ruh, Dominic (Univ. of Freiburg); Fiala, Jens (Univ. of Freiburg, Dept. of Microsystems Eng., Lab. for Micro-optics); Zappe, Hans (Univ. of Freiburg, Dept. of Microsystems Eng., Lab. for Micro-optics); Seifert, Andreas (Univ. of Freiburg)*

08:45-09:00 FrA21.4
Symmetrical Modified Dual Tree Complex Wavelet Transform for Processing Quadrature Doppler Ultrasound Signals 4816-4819
Serbes, Gorkem (Bahcesehir Univ.); Aydin, Nizamettin (Yildiz Technical Univ.)*

09:00-09:15 FrA21.5
Generic Single-Channel Detection of Absence Seizures 4820-4823
Petersen, Eline Borch (Technical Univ. of Denmark); Duun-Henriksen, Jonas (Technical Univ. of Denmark); Mazzaretto, Andrea (Technical Univ. of Denmark); Kjaer, Troels Wesenberg (Rigshospitalet); Thomsen, Carsten Eckhart (Univ. of Copenhagen); Sorensen, Helge B D (Technical Univ. of Denmark)*

09:15-09:30 FrA21.6
Automated Detection of Sleep EEG Slow Waves Based on Matching Pursuit Using a Restricted Dictionary 4824-4827
Picot, Antoine (Univ. of Chicago); Whitmore, Harry (Univ. of Chicago); Van Caufer, Eve (Univ. of Chicago); Chapotot, Florian (Univ. of Chicago)*

FrA22: 08:00-09:30 Salon F Marriott
1.2.1 Resolving Signal Complexity in Diverse Rehabilitation Applications (Oral Session)
Chair: Nawab, Syed Hamid (*Boston Univ.*)
Co-Chair: Englehart, Kevin (*Univ. of New Brunswick*)

08:00-08:15 FrA22.1
Improving Myoelectric Pattern Recognition Positional Robustness Using Advanced Training Protocols 4828-4831
Englehart, Kevin (Univ. of New Brunswick); Scheme, Erik (Univ. of New Brunswick); Biron, Katerina (Univ. of New Brunswick)*

08:15-08:30 FrA22.2
Resolving Signal Complexities for Ambulatory Monitoring of Motor Function in Parkinson's Disease 4832-4835
Roy, Serge (Boston Univ.); Cole, Bryan (Boston Univ.); Gilmore, Donald (Boston Univ.); De Luca, Carlo J. (Boston Univ.); Nawab, Syed Hamid (Boston Univ.)*

08:30-08:45 FrA22.3
Decomposition of the Surface EMG Signal **B#5**
De Luca, Carlo J. (Boston Univ.); Chang, Shey-Sheen (Boston Univ.); Roy, Serge (Boston Univ.);
Nawab, Syed Hamid (Boston Univ.)*

08:45-09:00 FrA22.4
What Is IPUS and How Does It Help Resolve BioSignal Complexity? **4840-4843**
Nawab, Syed Hamid (Boston Univ.); Cole, Bryan (Boston Univ.)*

09:00-09:15 FrA22.5
**Continuous Monitoring of Functional Activities Using Wearable,
Wireless Gyroscope and Accelerometer Technology** **4844-4847**
Wagenaar, Robert C. (Boston Univ.); Sapir, Inbal (ScD in Rehabilitation Sciences, Boston Univ.);
Zhang, Yuting (Boston Univ.); Markovic, Stacey (Northeastern Univ./Boston Univ.); Vaina, Lucia (Brain & Vision
Research Lab, Boston Univ. Dept. of Biomedical Eng., Boston, MA & Harvard Medical School, Ma);
Little, Thomas D.C. (Dept. Elec. & Computer Eng., Boston Univ.)*

09:15-09:30 FrA22.6
Signal Acquisition and Processing Techniques for SEMG Based Silent Speech Recognition **4848-4851**
Meltzner, Geoffrey S. (BAE Systems); Colby, Glen (BAE Systems); Deng, Yunbin (BAE Systems);
Heaton, James (Massachusetts General Hospital & Harvard Medical School)*

FrA23: 08:00-09:30 Salon G Marriott
2.6.21 Image Enhancement and Filtering (Oral Session)
Chair: Wang, Yi (Cornell Univ.)
Co-Chair: Pearce, John Anthony (Univ. of Texas at Austin)

08:00-08:15 FrA23.1
Identification and Attenuation of Physiological Noise in fMRI Using Kernel Techniques **4852-4855**
Song, Xiaomu (Widener Univ.); Chen, Nan-kuei (Duke Univ.); Gaur, Pooja (Duke Univ.)*

08:15-08:30 FrA23.2
Hexagonal Adaptive Filtering on Compound Ultrasound Images **4856-4859**
Contreras Ortiz, Sonia Helena (Univ. of Connecticut); Chiu, Tsuicheng (Univ. of Connecticut);
Fox, Martin (Univ. of Connecticut)*

08:30-08:45 FrA23.3
Digital Image Processing for Visual Prosthesis: Filtering Implications **4860-4863**
Barriga-Rivera, Alejandro (Univ. of New South Wales); Suaning, Gregg (The Univ. of New South Wales)*

08:45-09:00 FrA23.4
A Novel Method for Informative Frame Selection in Wireless Capsule Endoscopy Video **4864-4867**
Fan, Yichen (The Chinese Univ. of Hong Kong); Meng, Max Q.-H. (The Chinese Univ. of Hong Kong);
Li, Baopu (The Chinese Univ. of Hong Kong)*

09:00-09:15 FrA23.5
Vision Correction for Computer Users Based on Image Pre-Compensation with Changing Pupil Size **4868-4871**
Huang, Jian (Florida Intl. Univ.); Barreto, Armando (Florida Intl. Univ.);
Alonso Jr., Miguel (Miami-Dade College); Adjouadi, Malek (Florida Intl. Univ.)*

09:15-09:30 FrA23.6
**Alternating Direction Method of Multipliers Applied to 3D Light Sheet Fluorescence
Microscopy Image Deblurring Using GPU Hardware** **4872-4875**
de Vieilleville, François (Univ. de Toulouse, IRIT UMR CNRS 5505, France); Weiss, Pierre (Univ. de Toulouse,
IMT UMR CNRS 5219, Toulouse, France); Lobjois, Valérie (ITAV, UMS 3039 CRT-RIV, Toulouse, France);
Kouamé, Denis (Univ. de Toulouse, IRIT UMR CNRS 5505)*

FrA24: 08:00-09:30	Salon HI Marriott
2.7.24 Deformable Image Registration (Oral Session)	
Chair: Sharp, Gregory Charles (<i>Massachusetts General Hospital & Harvard Medical School</i>)	
Co-Chair: Duncan, James (<i>Yale Univ.</i>)	

08:00-08:15	FrA24.1
Deformable Registration of Histological Sections to Brain MR Images Using a Hybrid Boundary-Based Slice-To-Volume Approach	4876-4879
<i>Osechinskiy, Sergey* (Univ. of California, Irvine); Kruggel, Frithjof (Univ. of California, Irvine)</i>	
08:15-08:30	FrA24.2
Model Based 3D/2D Deformable Registration of MR Images	4880-4883
<i>Marami, Bahram* (McMaster Univ.); Sirouspour, Shahin (McMaster Univ.); Capson, David (McMaster Univ.)</i>	
08:30-08:45	FrA24.3
Ranking of Stopping Criteria for Log Domain Diffeomorphic Demons Application in Clinical Radiation Therapy	4884-4887
<i>Peroni, Marta* (Politecnico di Milano); Golland, Polina (Massachusetts Inst. of Tech.); Sharp, Gregory Charles (Massachusetts General Hospital & Harvard Medical School); Baroni, Guido (Politecnico di Milano)</i>	
08:45-09:00	FrA24.4
Multi-Scale Optical Flow Including Normalized Mutual Information for Planar Deformable Lung Motion Estimation from 4D CT	4888-4892
<i>Negahdar, Mohammadreza* (Univ. of Louisville); Amini, Amir (Univ. of Louisville)</i>	
09:00-09:15	FrA24.5
Non-Rigid Registration of Longitudinal Brain Tumor Treatment MRI	4893-4896
<i>Chitphakdithai, Nicha* (Yale Univ.); Chiang, Veronica (Yale School of Medicine); Duncan, James (Yale Univ.)</i>	
09:15-09:30	FrA24.6
GPU Implementation of a Deformable 3D Image Registration Algorithm	4897-4900
<i>Mousazadeh, Hamed (McMaster Univ.); Marami, Bahram* (McMaster Univ.); Sirouspour, Shahin (McMaster Univ.); Patriciu, Alexandru (McMaster Univ.)</i>	

FrA25: 08:00-09:30	Salon JK Marriott
2.9.41 Molecular, MEG, Infrared and Other Novel Imaging Modalities (Oral Session)	
Chair: Wu, Ed X. (<i>The Univ. of Hong Kong</i>)	
Co-Chair: Ding, Lei (<i>Univ. of Oklahoma</i>)	

08:00-08:15	FrA25.1
Assessment of Piano-Related Injuries Using Infrared Imaging	4901-4904
<i>Mohamed, Safaa* (Carleton Univ.); Frize, Monique (Carleton Univ.); Comeau, Gilles (Univ. of Ottawa)</i>	
08:15-08:30	FrA25.2
Medical Thermal Imaging of Electrically Stimulated Woman Breast: A Simulation Study	4905-4908
<i>Carlak, Hamza Feza* (Middle East Technical Univ.); Gençer, Nevzat (Middle East Technical Univ.); Beşikçi, Cengiz (Middle East Technical Univ.)</i>	
08:30-08:45	FrA25.3
Sparse MEG Source Imaging in Landau-Kleffner Syndrome	4909-4912
<i>Zhu, Min* (Univ. of Oklahoma); Zhang, Wenbo (Minnesota Epilepsy Group); Dickens, Deanna (Minnesota Epilepsy Group); Ding, Lei (Univ. of Oklahoma)</i>	
08:45-09:00	FrA25.4
In-Vitro Cell Quantification Method Based on Depth Dependent Analysis of Brain Tissue Microscopic Images	4913-4916
<i>Sami, Mustafa* (RIKEN); Kataoka, Yosky (RIKEN); Kikuchi, Hisakazu (Niigata Univ.); Tamura, Yasuhisa (RIKEN); Cui, Yilong (RIKEN)</i>	
09:00-09:15	FrA25.5
MEG-Fmri Integration to Visualize Brain Dynamics While Perceiving 3-D Object Shape from Motion	4917-4920
<i>Iwaki, Sunao* (Natl. Inst. of Advanced Industrial Science & Tech. (AIST))</i>	

FrA27: 09:30-11:00	Provincetown Marriott
4.3.1 Control in Synthetic Biology I (Minisymposium)	
Chair: Tidor, Bruce (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: Lu, Timothy (<i>Massachusetts Inst. of Tech.</i>)	

09:30-10:00	FrA27.1
Scalable and Tunable Platforms for Engineering Synthetic Gene Circuits	*
<i>Lu, Timothy*</i> (<i>Massachusetts Inst. of Tech.</i>)	
10:00-10:30	FrA27.2
Construction of Synthetic Organisms through Large-Scale Genome Engineering	*
<i>Wang, Harris*</i> (<i>Wyss Inst. for Biologically Inspired Eng., Harvard Univ.</i>)	
10:30-11:00	FrA27.3
EDA to BDA	*
<i>Densmore, Douglas*</i> (<i>Boston Univ.</i>)	

FrP11: 09:30-11:00	America Ballroom Westin
1.2.7 Advances in Signal Processing in Physiological Systems III (Poster Session)	

09:30-11:00	FrP11.1
Health Status Detection for Patients in Physiological Monitoring	4921-4924
<i>Chen, Dongmei*</i> (<i>The Chinese Univ. of Hong Kong</i>); <i>Meng, Max Q.-H.</i> (<i>The Chinese Univ. of Hong Kong</i>)	
09:30-11:00	FrP11.2
Service Oriented Architecture to Support Real-Time Implementation of Artifact Detection in Critical Care Monitoring	4925-4928
<i>Nizami, Shermeen*</i> (<i>Carleton Univ.</i>); <i>Green, James R.</i> (<i>Carleton Univ.</i>); <i>McGregor, Carolyn</i> (<i>Univ. of Ontario Inst of Tech.</i>)	
09:30-11:00	FrP11.3
Algorithms for Characterizing Brain Metabolites in Two-Dimensional in Vivo MR Correlation Spectroscopy	4929-4934
<i>Cocuzzo, Daniel*</i> (<i>The Charles Stark Draper Lab.</i>); <i>Keshava, Nirmal</i> (<i>Draper Lab.</i>); <i>Lin, Alexander P.</i> (<i>Brigham & Women's Hospital</i>); <i>Ramadan, Saadallah</i> (<i>Brigham & Women's Hospital</i>); <i>Mountford, Carolyn</i> (<i>Brigham & Women's Hospital</i>)	
09:30-11:00	FrP11.4
Fall Detection Algorithm for the Elderly Using Acceleration Sensors on the Shoes	4935-4938
<i>Sim, Soo Young*</i> (<i>Seoul Natl. Univ.</i>); <i>Jeon, Hyo Seon</i> (<i>Seoul Natl. Univ.</i>); <i>Chung, Gih Sung</i> (<i>Seoul Natl. Univ.</i>); <i>Kim, Sang Kyong</i> (<i>Seoul Natl. Univ.</i>); <i>Kwon, Sungjun</i> (<i>Seoul Natl. Univ.</i>); <i>Park, Kwang S.</i> (<i>Seoul Natl. Univ.</i>)	
09:30-11:00	FrP11.5
Rotary Spectra Analysis Applied to Static Stabilometry	4939-4942
<i>Chiaramello, Emma</i> (<i>Politecnico di Torino, Italy</i>); <i>Knaflitz, Marco*</i> (<i>Politecnico di Torino</i>); <i>Agostini, Valentina</i> (<i>Politecnico di Torino</i>)	
09:30-11:00	FrP11.6
A Methodology for Validating Artifact Removal Techniques for fNIRS	4943-4946
<i>Sweeney, Kevin Thomas*</i> (<i>NUI Maynooth</i>); <i>Ayaz, Hasan</i> (<i>Drexel Univ.</i>); <i>Ward, Tomas</i> (<i>NUI Maynooth</i>); <i>Izzetoglu, Meltem</i> (<i>Drexel Univ.</i>); <i>McLoone, Sean F.</i> (<i>Natl. Univ. of Ireland, Maynooth</i>); <i>Onaral, Banu</i> (<i>Drexel Univ.</i>)	
09:30-11:00	FrP11.7
Detecting Failures of the Glucose Sensor-Insulin Pump System: Improved Overnight Safety Monitoring for Type-1 Diabetes	4947-4950
<i>Facchinetti, Andrea*</i> (<i>Univ. of Padova</i>); <i>Del Favero, Simone</i> (<i>Univ. of Padova, Padova, Italy</i>); <i>Sparacino, Giovanni</i> (<i>Univ. of Padova</i>); <i>Cobelli, Claudio</i> (<i>Univ. of Padova</i>)	

09:30-11:00 FrP11.8
Mapping Small Intestine Bioelectrical Activity Using High-Resolution Printed-Circuit-Board Electrodes 4951-4954
Angeli, Timothy Robert (Auckland BioEng. Inst., Univ. of Auckland); O'Grady, Gregory (Univ. of Auckland); Erickson, Jon (Washington & Lee Univ.); Du, Peng (The Univ. of Auckland); Paskaranandavadivel, Niranchan (Auckland BioEng. Inst., The Univ. of Auckland, New Zealand); Bissett, Ian (The Univ. of Auckland); Cheng, Leo K (The Univ. of Auckland); Pullan, Andrew (Univ. of Auckland)*

09:30-11:00 FrP11.9
Effects of Windowing and Zero-Padding on Complex Resonant Recognition
Model for Protein Sequence Analysis 4955-4958
Chrysostomou, Charalambos (De Montfort Univ.); Seker, Huseyin (Bio-Health Informatics Research Group); Aydin, Nizamettin (Yildiz Technical Univ.)*

09:30-11:00 FrP11.10
Development of a Device for Measuring the Sensitivity Area of Coil Arrays for
Magnetic Induction Measurements 4959-4962
Cordes, Axel (RWTH Aachen); Aguiar Santos, Susana (RWTH Aachen Univ.); Leonhardt, Steffen (RWTH Aachen Univ.)*

09:30-11:00 FrP11.11
A Computational Framework for the Standardization of Motion Analysis
Exploiting Wearable Inertial Sensors 4963-4966
Turcato, Andrea (Univ. of Pavia); Ramat, Stefano (Univ. di Pavia)*

FrP12: 09:30-11:00 America Ballroom Westin
1.2.9 Biomedical Signal Classification I (Poster Session)

09:30-11:00 FrP12.1
Real-Time Wearable Telecardiology from Representative Signals 4967-4971
Meli, Christopher (RMIT Univ.); Fernandez, George (RMIT Univ.); Khalil, Ibrahim (RMIT Univ.)*

09:30-11:00 FrP12.2
Statistical Approach for the Detection of Motion/Noise Artifacts in Photoplethysmogram 4972-4975
Selvaraj, Nandakumar (Worcester Polytechnic Inst.); Mendelson, Yitzhak (Worcester Polytechnic Inst.); Shelley, Kirk H. (Dept. of Anesthesiology, Yale Univ.); Silverman, David G. (Dept. of Anesthesiology, Yale Univ.); Chon, Ki (Worcester Polytechnic Inst.)*

09:30-11:00 FrP12.3
Characterization of Typical and Atypical Atrial Flutter Loops from the Vectorcardiogram 4976-4979
Castells, Francisco (Univ. Politécnica de Valencia); Meste, Olivier (UNSA-CNRS); Quesada, Aurelio (Hospital General Univ. de Valencia); Guillem, Maria S. (Univ. Politecnica de Valencia); Climent, Andreu M. (Univ. Politecnica de Valencia); Millet, Jose (Univ. Politecnica de Valencia)*

09:30-11:00 FrP12.4
A Time Domain Based Classifier for ECG Pattern Recognition 4980-4983
Shorten, Gavin (Trinity College Dublin); Burke, Martin J. (Trinity College Dublin)*

09:30-11:00 FrP12.5
Premature Ventricular Beat Classification Using a Dynamic Bayesian Network 4984-4987
Oliveira, Lorena Sophia Campos (Federal Univ. of Vales do Jequitinhonha e Mucuri); Andreao, Rodrigo (Federal Inst. of Espirito Santo); Sarcinelli-Filho, Mario (Federal Univ. of Espirito Santo)*

09:30-11:00 FrP12.6
How the Choice of Samples for Building Arrhythmia Classifiers Impact Their Performances 4988-4991
Luz, Eduardo (Univ. Federal de Ouro Preto); Menotti, David (Univ. Federal de Ouro Preto)*

09:30-11:00 FrP12.7
Detection of Atrial Fibrillation from Non Episodic ECG Data: A Review of Methods 4992-4995
Sahoo, Sujit Kumar (Nanyang Technological Univ.); Lu, Wenmiao (NTU); Teddy, Sintiani Dewi (Inst. for Infocomm Research); Kim, Desok (Korea Advanced Inst. of Science & Tech.); Feng, Mengling (Inst. for Infocomm Research)*

09:30-11:00	FrP12.8
Feature Extraction in Time-Frequency Signal Analysis by Means of Matched Wavelets As a Feature Generator	4996-4999
<i>Kostka, Pawel Stanislaw* (Silesian Univ. of Tech.); Tkacz, Ewaryst (Silesian Univ. of Tech, Inst of Electron)</i>	
09:30-11:00	FrP12.9
Classification of English Vowels Using Speech Evoked Potentials	5000-5003
<i>Sadeghian, Amir (Carleton Univ.); Dajani, Hilmi* (Univ. of Ottawa); Chan, Adrian (Carleton Univ.)</i>	
09:30-11:00	FrP12.10
Breast Density Characterization Using Texton Distributions	5004-5007
<i>Petroudi, Styliani* (Univ. of Oxford); Brady, Michael (Univ. of Oxford)</i>	
09:30-11:00	FrP12.11
Retinal Vessel Extraction Using a Piecewise Gaussian Scaled Model	5008-5011
<i>Zhu, Tao* (AT&T); Schaefer, Gerald (Loughborough Univ.)</i>	
09:30-11:00	FrP12.12
Compression of Surface Myoelectric Signals Using MP3 Encoding	5012-5015
<i>Chan, Adrian* (Carleton Univ.)</i>	

FrP13: 09:30-11:00	America Ballroom Westin
1.5.15 Connectivity and Causality (Poster Session)	

09:30-11:00	FrP13.1
Testing the Asymptotic Statistic for the Assessment of the Significance of Partial Directed Coherence Connectivity Patterns	5016-5019
<i>Toppi, Jlenia* (Univ. of Rome "Sapienza"); Astolfi, Laura (Univ. of Rome); Babiloni, Fabio (Univ. of Rome); Vecchiato, Giovanni (Univ. of Rome Sapienza)</i>	
09:30-11:00	FrP13.2
Localization of Ictal Onset Zones in Lennox-Gastaut Syndrome Using Directed Transfer Function Method	5020-5023
<i>Cho, Jae-Hyun* (Yonsei Univ.); Jung, YoungJin (Yonsei Univ.); Kang, Hoon-Chul (Yonsei Univ.); Kim, Heung Dong (Yonsei Univ.); Im, Chang-Hwan (Yonsei Univ.)</i>	
09:30-11:00	FrP13.3
Maximum Multiple-Correlation Beamformer for Estimating Source Connectivities in Electromagnetic Brain Activities	5024-5027
<i>Chan, Hui-Ling (Natl. Chiao Tung Univ.); Chen, Yong-Sheng* (Natl. Chiao Tung Univ.); Chen, Li-Fen (Natl. Yang-Ming Univ.)</i>	
09:30-11:00	FrP13.4
EEG Preprocessing for Synchronization Estimation and Epilepsy Lateralization	5028-5031
<i>Velez-Perez, Hugo (CUCEI-UDG); Romo-Vazquez, Rebeca (CUCEI-UDG); Ranta, Radu (Nancy-Univ.); Louis-Dorr, Valerie* (Nancy-Univ.); Hofmanis, Janis (INPL, CRAN); Maillard, Louis (Nancy-Univ., CNRS & Ctr. Hospitalier Univ. de Nancy)</i>	
09:30-11:00	FrP13.5
Wavelet Frequency-Temporal Relative Phase Pattern Analysis for Intermuscular Synchronization of Dynamic Surface EMG Signals	5032-5035
<i>Chan, Calvin W.Y.* (Queen's Univ.); Almosnino, Sivan (Queen's Univ.); Morin, Evelyn (Queen's Univ.)</i>	
09:30-11:00	FrP13.6
Statistical Threshold for Nonlinear Granger Causality Computation in Motor Intention Analysis	5036-5039
<i>Liu, MengTing (Louisiana Tech Univ.); Kuo, Ching-Chang (Louisiana Tech Univ.); Chiu, Alan Wing Lun* (Louisiana Tech Univ.)</i>	

2.8.37 Image Analysis and Classification (Poster Session)

- 09:30-11:00 FrP14.1
Automatic Skull Stripping in MRI Based on Morphological Filters and Fuzzy C-Means Segmentation 5040-5043
Gambino, Orazio (Univ. degli Studi di Palermo); Daidone, Enrico (Univ. degli studi di Palermo); Sciortino, Matteo (Univ. degli studi di Palermo); Pirrone, Roberto (Univ. degli studi di Palermo); Ardizzone, Edoardo (Univ. degli studi di Palermo)*
- 09:30-11:00 FrP14.2
Automatic Detection of Cortical and PSC Cataracts Using Texture and Intensity Analysis on Retro-Illumination Lens Images 5044-5047
Chow, Yew Chung (Natl. Univ. of Singapore); Gao, Xinting (Inst. for Infocomm Research); Li, Huiqi (Inst. for Infocomm Research); Lim, Joo Hwee (Inst. for Infocomm Research); Sun, Ying (Natl. Univ. of Singapore); Wong, Tien Yin (Natl. Univ. of Singapore)*
- 09:30-11:00 FrP14.3
Bayesian Model Evidence for Order Selection and Correlation Testing 5048-5051
Johnston, Leigh A. (Univ. of Melbourne); Mareels, Iven (Melbourne Univ., Australia); Egan, Gary (Howard Florey Inst.)*
- 09:30-11:00 FrP14.4
A New Spatially Constrained NMF with Application to fMRI 5052-5055
Ferdowsi, Saideh (Univ. of Surrey); Abolghasemi, Vahid (Univ. of Surrey); Makki Abadi, Bahador (Univ. of Surrey); Sanei, Saeid (Univ. of Surrey)*
- 09:30-11:00 FrP14.5
Assessment of Functional and Structural Connectivity between Motor Cortex and Thalamus using fMRI and DWI 5056-5059
Jaberzadeh Ansari, Amir Hossein (Tehran Univ. of Medical Sciences); Rahimi, Maryam (Tehran Univ. of Medical Sciences); Oghabian, Mohammad Ali (Tehran Univ. of Medical Sciences)*
- 09:30-11:00 FrP14.6
An fMRI Study of Abrupt-Awake Episodes during Behavioral Microsleeps 5060-5063
Chou, Yu-Hsiang (Natl. Chiao Tung Univ.); Chuang, Chun-Chao (Chung Shan Medical Univ.); Zao, John Kar-Kin (Natl. Chiao Tung Univ.); Ko, Li-Wei (Natl. Chiao-Tung Univ.); Lin, Chin-Teng (Natl. Chiao-Tung Univ.)*
- 09:30-11:00 FrP14.7
A Generalized Estimating Equations Approach for Resting-State Functional MRI Group Analysis 5064-5067
D'Angelo, Gina (Washington Univ. School of Medicine); Lazar, Nicole (The Univ. of Georgia); Eddy, William (Carnegie Mellon Univ.); Morris, John (Washington Univ. School of Medicine); Sheline, Yvette (Washington Univ. School of Medicine)*
- 09:30-11:00 FrP14.8
Composite Features for Automatic Diagnosis of Intervertebral Disc Herniation from Lumbar MRI 5068-5071
Ghosh, Subarna (State Univ. of New York at Buffalo); Alomari, Raja' (Univ. at Buffalo, SUNY); Chaudhary, Vipin (Wayne State Univ.); Dhillon, Gurmeet (Proscan Imaging Buffalo)*
- 09:30-11:00 FrP14.9
An Improved Classification Scheme for Chromosomes with Missing Data 5072-5075
Poletti, Enea (Univ. of Padova); Ruggeri, Alfredo (Univ. of Padua); Grisan, Enrico (Univ. of Padova)*
- 09:30-11:00 FrP14.10
Contactless Abnormal Gait Detection 5076-5079
Nghiem, Anh Tuan (Univ. de Montreal, Canada); Auvinet, Edouard (Univ. de Montréal); Multon, Franck (M2S – Univ. de Rennes 2); Meunier, Jean (Univ. de Montreal)*
- 09:30-11:00 FrP14.11
Interplay between Bias Field Correction, Intensity Standardization, and Noise Filtering for T2-Weighted MRI 5080-5083
Palumbo, Daniel (Rutgers Univ.); Yee, Brian (Rutgers Univ.); O'Dea, Patrick (Rutgers Univ.); Leedy, Shane (Rutgers Univ.); Madabhushi, Anant (Rutgers Univ.); Viswanath, Satish (Rutgers Univ.)*

- 09:30-11:00 FrP14.12
Automatic Classification of Fish Germ Cells through Optimum-Path Forest 5084-5087
Papa, Joao Paulo (Univ. of Campinas); Muñoz Gutiérrez, Mario Esteban (UNESP – Univ. Estadual Paulista); Nakamura, Rodrigo Yuji Mizobe (UNESP – Univ. Estadual Paulista); Papa, Luciene Patrici (Southwest Paulista College); Vicentini, Irene Bastos Franceschini (UNESP – Univ. Estadual Paulista); Vicentini, Carlos Alberto (UNESP – Univ. Estadual Paulista)*
- 09:30-11:00 FrP14.13
Creating a Virtual Slide Map of Sputum Smears by Auto-Stitching 5088-5091
Patel, Bhavin (Univ. of Cape Town); Douglas, Tania S (Univ. of Cape Town)*
- 09:30-11:00 FrP14.14
A Novel Shape Representation of the Dental Arch and Its Applications in Some Dentistry Problems 5092-5095
Abdullah, Norli Anida (Univ. of Malaya, Kuala Lumpur, Malaysia); Rijal, Omar Mohd (Univ. of Malaya); Mohd Isa, Zakiah (Univ. of Malaya, Kuala Lumpur, Malaysia); Davaei, Feisal (Univ. of Malaya, Kuala Lumpur, Malaysia); Noor, Norliza Mohd (Univ. Teknologi Malaysia); Farouq, Tawfiq, Omar (Univ. of Malaya, Kuala Lumpur, Malaysia)*
- 09:30-11:00 FrP14.15
Automatic Detection of Tree-In-Bud Patterns for Computer Assisted Diagnosis of Respiratory Tract Infections 5096-5099
Bagci, Ulas (Natl. Inst. of Health); Yao, Jianhua (Natl. Inst. of Health); Caban, Jesus (Natl. Inst. of Health); Palmore, Tara (Natl. Inst. of Health); Suffredini, Anthony (Natl. Inst. of Health); Mollura, Daniel J. (Natl. Inst. of Health)*
- 09:30-11:00 FrP14.16
A Wavelet-Packet-Based Approach for Breast Cancer Classification 5100-5103
Torabi, Meysam (Univ. of California, Berkeley); Razavian, Seied-Mohammad-Javad (Sharif Univ. of Tech.); Vaziri, Reza (Sharif Univ. of Tech.); Vosoughi Vahdat, Bijan (Sharif Univ. of Tech.)*
- 09:30-11:00 FrP14.17
Hybrid Cosine and Radon Transform-Based Processing for Digital Mammogram Feature Extraction and Classification with SVM 5104-5107
Boukadoum, Mounir (Univ. of Quebec at Montréal); Lahmiri, Salim (Univ. of Quebec at Montréal)*
- 09:30-11:00 FrP14.18
An Automated Method for Hemorrhage Detection in Traumatic Pelvic Injuries 5108-5111
Davuluri, Pavani (Virginia Commonwealth Univ.); Wu, Jie (Virginia Commonwealth Univ.); Ward, Kevin (Virginia Commonwealth Univ.); Cockrell, Charles (Virginia Commonwealth Univ.); Hobson, Rosalyn (Virginia Commonwealth Univ.); Najarian, Kayvan (Virginia Commonwealth Univ.)*
- 09:30-11:00 FrP14.19
Quantitative Texture Analysis of MRI Images for Detection of Cartilage-Related Bone Marrow Edema 5112-5115
Chuah, Tong Kuan (Nanyang Technological Univ.); Poh, Chueh Loo (Nanyang Technological Univ.); Sheah, Kenneth (Radlink Diagnostic Imaging Pte Ltd)*
- 09:30-11:00 FrP14.20
A Salient Information Processing System for Bionic Eye with Application to Obstacle Avoidance 5116-5119
Stacey, Ashley (ANU); Li, Yi (NICTA & ANU); Barnes, Nick (NICTA Canberra Research Ctr.)*
- 09:30-11:00 FrP14.21
Detecting the Pigment Network in Dermoscopy Images: a Directional Approach 5120-5123
Barata, Catarina (Instituto Superior Tecnico); Marques, Jorge (Instituto Superior Tecnico); Rozeira, Jorge (Hospital de Pedro Hispano)*
- 09:30-11:00 FrP14.22
Automatic Estimation of Pelvic Organ Anatomical References 5124-5127
Rahim, Mehdi (Aix Marseille Univ.); Bellemare, Marc-Emmanuel (Univ. Paul Cézanne); Pirró, Nicolas (Univ. de la méditerranée, Assistance Publique deshôpitaux de Marseille, CHU La timone); Bulot, Rémy (LSIS – UMR CNRS 6168 – Aix Marseille Univ.)*

09:30-11:00	FrP14.23
Staging Tissues with Conditional Random Fields	5128-5131
<i>Rajapakse, Jagath C. (Bioinformatics Research Ctr., School of Computer Eng., Nanyang Technological Univ.); Liu, Song* (Nanyang Technological Univ.)</i>	
09:30-11:00	FrP14.24
The Usefulness of Ultrasound in the Classification of Chronic Liver Disease	5132-5135
<i>Ribeiro, Ricardo* (Instituto Superior Técnico, Lisboa); Tato Marinho, Rui (Faculdade de Medicina da Univ. de Lisboa); Velosa, José (Faculdade de Medicina da Univ. de Lisboa); Ramalho, Fernando (Faculdade de Medicina da Univ. de Lisboa); Sanches, J. Miguel (IST(NIF:501507930)); Suri, Jasjit (Biomedical Technologies)</i>	
09:30-11:00	FrP14.25
Depth Energy Image for Gait Symmetry Quantification	5136-5139
<i>Rougier, Caroline* (Univ. de Montréal); Auvinet, Edouard (Univ. de Montréal); Meunier, Jean (Univ. de Montreal); Mignotte, Max (Univ. de Montreal); de Guise, Jacques A. (École de technologie supérieure)</i>	
09:30-11:00	FrP14.26
Detection of Malaria Parasites in Thick Blood Films	5140-5144
<i>Elter, Matthias (Fraunhofer Inst. for Integrated Circuits (IIS)); Haßlmeyer, Erik (Fraunhofer Inst. for Integrated Circuits); Held, Christian (Fraunhofer IIS); Zerfaß, Thorsten* (Fraunhofer Inst. for Integrated Circuits IIS)</i>	
09:30-11:00	FrP14.27
VirtualShave: Automated Hair Removal from Digital Dermatoscopic Images	5145-5148
<i>Silletti, Alberto (Univ. of Padova); Peserico, Enoch* (Univ. of Padova); Fiorese, Michele (Univ. of Padova, Dept. of Information Eng.)</i>	
09:30-11:00	FrP14.28
CARES 3.0: A Two Stage System Combining Feature-Based Recognition and Edge-Based Segmentation for CIMT Measurement on a Multi-Institutional Ultrasound Database of 300 Images	5149-5152
<i>Molinari, Filippo* (Politecnico di Torino); Meiburger, Kristen Mariko (Politecnico di Torino); Acharya, Rajendra (NgeeAnn Polytechnic); Zeng, Guang (Mayo Clinic); Rodrigues, Paulo Sérgio (Natl. Lab for Scientific Computing); Saba, Luca (Policlinico Univ.); Nicolaidis, Andrew (Imperial College); Suri, Jasjit (Biomedical Technologies)</i>	
09:30-11:00	FrP14.29
A Landmark-Free Framework for the Detection and Description of Shape Differences in Embryos	5153-5156
<i>Rolfe, Sara* (Univ. of Washington); Shapiro, Linda G. (Univ. of Washington); Cox, Timothy (Univ. of Washington, Seattle Children's Research Inst.); Maga, Murat (Univ. of Washington, Seattle Children's Research Inst.); Cox, Liza (Univ. of Washington, Seattle Children's Research Inst.)</i>	
09:30-11:00	FrP14.30
Extraction of Samples from Airway and Vessel Trees in 3D Lung CT on a Multi-Scale Principal Curve Tracing Algorithm	5157-5160
<i>You, Sheng (Northeastern Univ.); Bas, Erhan (Northeastern Univ.); Erdogmus, Deniz* (Northeastern Univ.)</i>	
09:30-11:00	FrP14.31
Feature Selection Applied to Ultrasound Carotid Images Segmentation	5161-5164
<i>Rosati, Samanta (Politecnico di Torino); Molinari, Filippo (Politecnico di Torino); Balestra, Gabriella* (Politecnico di Torino)</i>	
09:30-11:00	FrP14.32
Automatic Extraction of Sulcal Lines on the Cortical Surface Using Shortest Path Probability Maps	5165-5168
<i>Le Troter, Arnaud* (Univ. de la Méditerranée, Laboratoire LSIS); Coulon, Olivier (Laboratoire des Sciences de l'Information et des Systèmes, UMR CNRS 6168); Auzias, Guillaume (UMR CNRS 6168)</i>	
09:30-11:00	FrP14.33
Profiling the Features of Pre-Segmented Healthy Liver CT Scans: Towards Fast Detection of Liver Lesions in Emergency Scenario	5169-5173
<i>Pasha, Muhammad Fermi* (Univ. Sains Malaysia)</i>	

09:30-11:00 FrP14.34
**Contour Detection of Atherosclerotic Plaques in IVUS Images Using
Ellipse Template Matching and Particle Swarm Optimization** 5174-5177
Zhang, Qi (Shanghai Univ.); Wang, Yuanyuan (Fudan Univ.); Ma, Jianying (Fudan Univ.);
Shi, Jun (Shanghai Univ.)*

09:30-11:00 FrP14.35
Automated Cavity Detection of Infectious Pulmonary Tuberculosis in Chest Radiographs 5178-5181
Xu, Tao (Univ. of Alberta); Cheng, Irene (Univ. of Alberta); Mandal, Mrinal (Univ. of Alberta)*

FrP15: 09:30-11:00 America Ballroom Westin
6.8.54 Advances in Wearable Systems for Neurorehabilitation (Poster Session)

09:30-11:00 FrP15.1
**Us'em: The User-Centered Design of a Device for Motivating Stroke Patients to
Use Their Impaired Arm-Hand in Daily Life Activities** 5182-5187
Markopoulos, Panos (Eindhoven Univ. of Tech.); Timmermans, Annick A.A. (Adelante & Maastricht Univ.);
Beursgens, Luuk (Netherlands); van Donselaar, Rik (Univ. of Tech. Eindhoven);
Seelen, Henk A.M. (Adelante Ctr. of Expertise in Rehabilitation and Audiology)*

09:30-11:00 FrP15.2
Multidimensional Control Using a Mobile-Phone Based Brain-Muscle-Computer Interface 5188-5194
Vernon, Scott (Univ. of California Davis); Joshi, Sanjay (Univ. of California, Davis)*

09:30-11:00 FrP15.3
**Repeatability of the Accelerometric-Based Method to Detect Step Events for
Hemiparetic Stroke Patients** 5195-5198
*Lee, Hyo Ki (Yonsei Univ.); Kim, Joohan (Yonsei Univ.); Myoung, Hyoun Seok (Yonsei Univ.);
Lee, Junghun (Yonsei Univ.); Lee, Kyoung Joung* (Yonsei Univ.)*

09:30-11:00 FrP15.4
A Real-Time Auditory Feedback System for Retraining Gait 5199-5202
Maulucci, Ruth (MOCO, inc.); Eckhouse, Richard (MOCO, inc.)*

09:30-11:00 FrP15.5
Wireless Vibrotactile Feedback System for Postural Balance Improvement 5203-5206
*Tino, Anita (Ryerson Univ.); Carvalho, Melanie (Ryerson Univ.); Preto, Nelson (Ryerson Univ.);
Valter McConville, Kristiina M.* (Ryerson Univ.)*

09:30-11:00 FrP15.6
A Special Purpose Embedded System for Neural Machine Interface for Artificial Legs 5207-5210
Zhang, Xiaorong (Univ. of Rhode Island); Huang, He (Univ. of Rhode Island);
Yang, Qing (Univ. of Rhode Island)*

09:30-11:00 FrP15.7
Characterizing Walking Activity in People with Stroke 5211-5214
Fulk, George (Clarkson Univ.); Lopez-Meyer, Paulo (The Univ. of Alabama);
Sazonov, Edward (Univ. of Alabama)*

09:30-11:00 FrP15.8
Elbow Functional Compensation Using a Lightweight Magnetorheological Clutch 5215-5218
Martin Clemente, Alejandro Ivan (Carlos III Univ. of Madrid); Copaci, Dorin-Sabin (Univ. Carlos III de Madrid);
Flores Caballero, Antonio (Univ. Carlos III de Madrid); Moreno Lorente, Luis (Univ. Carlos III de Madrid);
Blanco Rojas, Dolores (Univ. Carlos III de Madrid)*

09:30-11:00 FrP15.9
Sensor-Enabled RFID System for Monitoring Arm Activity in Daily Life 5219-5223
Barman, Joydip (Univ. of Alabama, Birmingham); Uswatte, Gitendra (Univ. of Alabama, Birmingham); Sarkar,
Nilanjan (Vanderbilt Univ.); Ghaffari, Touraj (ActiveWave Inc); Sokal, Brad (Univ. of Alabama, Birmingham)*

09:30-11:00 FrP15.10
A Neck Mounted Interface for Sensing the Swallowing Activity Based on Swallowing Sound 5224-5227
Nagae, Masahiro (Univ. of Tsukuba); Suzuki, Kenji (Univ. of Tsukuba)*

09:30-11:00 FrP15.11
Development and Evaluation of Vision Rehabilitation Devices 5228-5231
Luo, Gang (Harvard Medical School); Peli, Eli (Harvard Medical School)*

FrP16: 09:30-11:00 America Ballroom Westin
10.3.12 mHealth, eHealth and Telehealth (Poster Session)

09:30-11:00 FrP16.1
A New Safety Support System for Wandering Elderly Persons 5232-5235
Matsuoka, Shingo (Intl. Trinity College); Ogawa, Hidekuni (Hiroshima Inst. of Tech.);
Maki, Hiromichi (Hiroshima Inst. of Tech.); Yonezawa, Yoshiharu (Hiroshima Inst. of Tech.);
Caldwell, Morton (Caldwell Biomedical Electronics)*

09:30-11:00 FrP16.2
Development of a Mobile Phone Based Ophthalmoscope for Telemedicine 5236-5239
*Worst, Christo (Stellenbosch Univ.); Blanckenberg, Mike (Stellenbosch Univ.);
Scheffer, Cornie* (Stellenbosch Univ.)*

09:30-11:00 FrP16.3
Towards Remote Evaluation of Movement Disorders via Smartphones 5240-5243
Kostikis, Nikolaos (Univ. of Macedonia, Greece); Hristu-Varsakelis, Dimitrios (Univ. of Macedonia, Greece);
Annaoutoglou, Marianthi (Aristotle Univ. of Thessaloniki); Kotsavasiloglou, Christos (Not applicable);
Baloyannis, Stavros (Aristotle Univ. of Thessaloniki)*

09:30-11:00 FrP16.4
ContextProvider: Context Awareness for Medical Monitoring Applications 5244-5247
Mitchell, Michael (Florida State Univ.); Meyers, Christopher (Florida State Univ.);
Wang, An-I Andy (Florida State Univ.); Tyson, Gary (Florida State Univ.)*

09:30-11:00 FrP16.5
The PLR-DTW Method for ECG Based Biometric Identification 5248-5251
Shen, Jun (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Bao, Shu-Di (Shenzhen Inst. of
Advance Tech., Chinese Acad. of Sciences); Yang, Li-Cai (Shan Dong Univ.)*

09:30-11:00 FrP16.6
Change-of-State Determination to Recognize Mobility Activities using a Blackberry Smartphone 5252-5255
Wu, HuiHsien (Univ. of Ottawa); Lemaire, Edward (The Ottawa Hospital Rehab Ctr.);
Baddour, Natalie (Univ. of Ottawa)*

09:30-11:00 FrP16.7
**Mobile Energy Expenditure Tracking System Based on Heart Rate and
Motion Providing Extra Extensions for Personalized Care** 5256-5259
Chen, Hong-Hui (Natl. Taiwan Univ.); Chen, Yu-Hsin (Natl. Taiwan Univ.);
Chen, Tung-Chien (Natl. Taiwan Univ.); Chen, Liang-Gee (NTU)*

09:30-11:00 FrP16.8
Validation of Heart Rate Extraction through an Iphone Accelerometer 5260-5263
Kwon, Sungjun (Seoul Natl. Univ.); Lee, Jeongsu (Seoul Natl. Univ.); Park, Kwang S. (Seoul Natl. Univ.)*

09:30-11:00 FrP16.9
The Potential of Internet of M-Health Things “m-IoT” for Non-Invasive Glucose Level Sensing 5264-5266
*Istepanian, Robert (Kingston Univ. London); Hu, Sijung (Loughborough Univ.);
Philip, Nada (Kingston Univ.); Sungoor, Ala* (Kingston Univ. London)*

09:30-11:00 FrP16.10
Sleep, Mood and Sociability in a Healthy Population 5267-5270
Moturu, Sai Thejasvee (Massachusetts Inst. of Tech.)*

09:30-11:00 FrP16.11
**Education, Reregistration, and Recommendation Effect of Iphone
Poomsae Education App in Taekwondo Academy** 5271-5274
*Ha, In Suk (Chungbuk Natl. Univ.); Lee, Seung Il (Seoul Natl. Univ.); Cha, Eun Jong (Chungbuk Natl. Univ.);
Lee, Tae Soo* (Chungbuk Natl. Univ.)*

09:30-11:00 FrP16.12
Design of an Unobtrusive Wireless Sensor Network for Nighttime Falls Detection 5275-5278
Zhang, Zhaonan (The Univ. of New South Wales); Kapoor, Udyant (The Univ. of New South Wales); Narayanan, Michael Ravi (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales); Redmond, Stephen James (Univ. of New South Wales)*

09:30-11:00 FrP16.13
A Web-Based Image Viewer for Multiple PET-CT Follow-Up Studies 5279-5282
Haraguchi, Daiki (Univ. of Sydney); Kim, Jinman (Univ. of Sydney); Kumar, Ashnil (Univ. of Sydney); Constantinescu, Liviu (Univ. of Sydney); Wen, Lingfeng (Univ. of Sydney); Feng, Dagan (The Univ. of Sydney)*

09:30-11:00 FrP16.14
Mental Health Promotion System 5283-5286
Farooq, Umar (Kyung Hee Univ.); Jang, Dae-Geun (Korea Advanced Inst. of Science & Tech.); Jang, Jae-Keun (Kyung Hee Univ.); Park, Seung-Hun (Kyung Hee Univ.)*

09:30-11:00 FrP16.15
Online Survey System for Image-Based Clinical Guideline Studies Using the Delphi Method 5287-5290
Teng, Chia-Chi (Brigham Young Univ.)*

FrP17: 09:30-11:00 America Ballroom Westin
10.5.14 Recent Developments in Ambient Assisted Living and Smart Homes (Poster Session)

09:30-11:00 FrP17.1
The SWEET-HOME Project: Audio Technology in Smart Homes to Improve Well-Being and Reliance 5291-5294
Vacher, Michel (CNRS); Istrate, Dan (ESIGETEL); Portet, Francois (Grenoble Inst. of Tech.); Joubert, Thierry (THEORIS); Chevalier, Thierry (Technosens); Smidtas, Serge (Camera Contact); Meillon, Brigitte (LIG); Lecouteux, Benjamin (LIG); Sehili, Mohamed El Amine (ESIGETEL); Chahuara, Pedro (LIG); Méniard, Sylvain (LIG)*

09:30-11:00 FrP17.2
Assessing Task Compliance Following Mobile Phone-Based Video Reminders 5295-5298
O'Neill, Sonja (Univ. of Ulster); Parente, Guido (Univ. of Ulster); Donnelly, Mark (Univ. of Ulster); Nugent, Chris (Univ. of Ulster); Beattie, Mark Paul (Univ. of Ulster); McClean, Sally (Univ. of Ulster); Scotney, Bryan (Univ. of Ulster); Mason, Sarah (Queen's Univ.); Craig, David (Queen's Univ. Belfast)*

09:30-11:00 FrP17.3
Nighttime In-Home Action Monitoring for Elder-Care 5299-5302
Zhou, Zhongna (Univ. of Missouri, Columbia, MO); Stone, Erik (Univ. of Missouri); Skubic, Marjorie (Univ. of Missouri); Keller, James M (Univ. of Missouri); He, Zhihai (Univ. of Missouri)*

09:30-11:00 FrP17.4
A Web Based Tool for Storing and Visualising Data Generated within a Smart Home 5303-5306
McDonald, Heather (Univ. of Ulster); Nugent, Chris (Univ. of Ulster); Moore, George (Univ. of Ulster); Finlay, Dewar (Univ. of Ulster); Hallberg, Josef (Luleå Univ. of Tech.)*

09:30-11:00 FrP17.5
Usage Monitoring of Electrical Devices in a Smart Home 5307-5310
Rahimi, Saba (Graduate student at Carleton Univ.); Chan, Adrian (Carleton Univ.); Goubran, Rafik A. (Carleton Univ.)*

09:30-11:00 FrP17.6
DigiSpenser – a GSM-Based Drug Management and Compliance Monitoring System 5311-5314
Schukat, Michael (Natl. Univ. of Ireland, Galway); Rudroju, Bhaskar (Natl. Univ. of Ireland, Galway)*

09:30-11:00 FrP17.7
Indoor Waypoint Navigation via Magnetic Anomalies 5315-5318
Riehle, Timothy H (Koronis Biomed. Technologies Corp.); Anderson, Shane (Koronis Biomedical Technologies); Lichter, Patrick (Koronis Biomedical Technologies); Condon, John (Advanced Medical Electronics); Sheikh, Suneel (ASTER Labs, Inc.); Hedin, Daniel (Advanced Medical Electronics)*

09:30-11:00	FrP17.8
An Affordable Compact Humanoid Robot for Autism Spectrum Disorder Interventions in Children	5319-5322
<i>Alexander, Elizabeth (Worcester Polytechnic Inst.); Dickstein-Fischer, Laurie (Northeastern Univ.); Yan, Xiaoan (Worcester Polytechnic Inst.); Su, Hao (Worcester Polytechnic Inst.); Fischer, Gregory* (Worcester Polytechnic Inst.)</i>	
09:30-11:00	FrP17.9
A Sensor for Monitoring Pulse Rate, Respiration Rhythm, and Body Movement in Bed	5323-5326
<i>Yamana, Yusuke* (Hiroshima Inst. of Tech.); Tsukamoto, Sosuke (Hiroshima Inst. of Tech.); Mukai, Koji (Hiroshima Inst. of Tech.); Maki, Hiromichi (Hiroshima Inst. of Tech.); Ogawa, Hidekuni (Hiroshima Inst. of Tech.); Yonezawa, Yoshiharu (Hiroshima Inst. of Tech.)</i>	
09:30-11:00	FrP17.10
Multidisciplinary Approach for Developing a New Robotic System for Domiciliary Assistance to Elderly People	5327-5330
<i>Cavallo, Filippo* (Scuola Superiore Sant'Anna); Aquilano, Michela (Scuola Superiore Sant'Anna); Bonaccorsi, Manuele (Scuola Superiore Sant'Anna); Mannari, Irene (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna); Dario, Paolo (IIT Italian Inst. of Tech.)</i>	
09:30-11:00	FrP17.11
Development of a Platform to Combine Sensor Networks and Home Robots to Improve Fall Detection in the Home Environment	5331-5334
<i>Della Toffola, Luca (Harvard Medical School); Patel, Shyamal* (Harvard Medical School); Chen, Bor-rong (Harvard Univ.); Ozsecen, Yalgin (Dept. of PM&R, Harvard Medical School); Puiatti, Alessandro (Univ. of Applied Science of Southern Switzerland); Bonato, Paolo (Harvard Medical School)</i>	
09:30-11:00	FrP17.12
A Touchscreen-Equipped Medicine Case As a Medical Interface for Assisting an Elderly Person in Medication Management	5335-5338
<i>Suzuki, Takuo* (Univ. of Tsukuba); Jose, Yuta (Univ. of Tsukuba); Nakauchi, Yasushi (Univ. of Tsukuba)</i>	
09:30-11:00	FrP17.13
Using Participatory Design in a Health Information System	5339-5342
<i>Teixeira, Leonor* (Aveiro Univ.); Saavedra, Vasco (Aveiro Univ.); Ferreira, Carlos Manuel Santos (Aveiro Univ.); Sousa Santos, Beatriz (Aveiro Univ.)</i>	
09:30-11:00	FrP17.14
HoCoS: Home Companion Software. a Service Oriented Solution for Elderly Home Accompanying and Remote Healthcare Monitoring	5343-5346
<i>Dhouib, Mohamed Achraf* (ESIGETEL); Bougueroua, Lamine (Univ.); Istrate, Dan (ESIGETEL); Pino, Maribel (Organization); Bernard, Catherine (Univ.)</i>	

FrB01: 11:15-12:45	St. George AB Westin
8.4.2 Assistive Technology for Human Communication (Oral Session)	
Chair: Stepp, Cara (Boston Univ.)	
Co-Chair: Heaton, James (Massachusetts General Hospital & Harvard Medical School)	

11:15-11:30	FrB01.1
Investigating Tactile Event Recognition in Child-Robot Interaction for Use in Autism Therapy	5347-5351
<i>Amirabdollahian, Farshid (The Univ. of Hertfordshire); Robins, Ben* (The Univ. of Hertfordshire); Dautenhahn, Kerstin (the Univ. of Hertfordshire); Ji, Ze (the Univ. of Hertfordshire)</i>	
11:30-11:45	FrB01.2
Development of a Wireless Electromyographically Controlled Electrolarynx Voice Prosthesis	5352-5355
<i>Heaton, James* (Massachusetts General Hospital & Harvard Medical School); Robertson, Mark (Griffin Laboratories, Inc.); Griffin, Cliff (Griffin Laboratories, Inc.)</i>	
11:45-12:00	FrB01.3
Measuring Gaze of Children with Autism Spectrum Disorders in Naturalistic Interactions	5356-5359
<i>Noris, Basilio* (Ecole Polytechnique Fédérale de Lausanne); Barker, Mandy (CHUV); Nadel, Jacqueline (Univ. Pierre & Marie Curie, Emotion Ctr.); Billard, Aude (EPFL, LASA)</i>	

12:00-12:15	FrB01.4
Brain-Machine Interfaces for Real-Time Speech Synthesis	5360-5363
<i>Guenter, Frank* (Boston Univ.); Brumberg, Jonathan (Boston Univ.)</i>	
12:15-12:30	FrB01.5
Message Formulation, Organization, and Navigation Schemes for Icon-Based Communication Aids	5364-5367
<i>Patel, Rupal* (Northeastern Univ.)</i>	
12:30-12:45	FrB01.6
Social Robots for Health Applications	5368-5371
<i>Breazeal, Cynthia* (MIT)</i>	

FrB02: 11:15-12:45	St. George CD Westin
8.6.24 Robotic and Computer-Assisted Surgery (Oral Session)	
Chair: Martel, Sylvain (<i>Ec. Pol. de Montreal</i>)	
Co-Chair: Mahvash, Mohsen (<i>Harvard Univ.</i>)	

11:15-11:30	FrB02.1
Toward a Hybrid Snake Robot for Single-Port Surgery	5372-5375
<i>Mahvash, Mohsen* (Harvard Univ.); Zenati, Marco (Harvard Medical School)</i>	

11:30-11:45	FrB02.2
Inertial Navigation System for Bladder Endoscopy	5376-5379
<i>Behrens, Alexander* (RWTH Aachen Univ.); Grimm, Jonathan (RWTH Aachen Univ.); Gross, Sebastian (RWTH Aachen Univ.); Aach, Til (RWTH Aachen Univ.)</i>	

11:45-12:00	FrB02.3
Target Motion Predictions for Pre-Operative Planning During Needle-Based Interventions	5380-5385
<i>Misra, Sarthak* (Univ. of Twente); de Korte, Chris (Univ. Children's Hospital); Abayazid, Momen (Univ. of Twente); op den Buijs, Jorn (Univ. of Twente)</i>	

12:00-12:15	FrB02.4
Development and Evaluation of an Identification Method for the Biomechanical Parameters Using Robotic Force Measurements, Medical Images, and FEA	5386-5391
<i>Hoshi, Takeharu* (Waseda Univ.); Tsukune, Mariko (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Miyashita, Tomoyuki (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)</i>	

12:15-12:30	FrB02.5
A MRI-Based Platform for Catheter Navigation	5392-5395
<i>Vonthron, Manuel* (Ecole Polytechnique de Montréal); Lalande, Viviane (Ecole Polytechnique de Montréal); Martel, Sylvain (Ecole Polytechnique de Montreal)</i>	

12:30-12:45	FrB02.6
Gaze-Contingent Autofocus System for Robotic-Assisted Minimally Invasive Surgery	5396-5399
<i>Clancy, Neil* (Hamlyn Ctr. for Robotic Surgery, Imperial College London); Mylonas, George (Imperial College London); Yang, Guang-Zhong (Imperial College London); Elson, Daniel S. (Imperial College London)</i>	

FrB03: 11:15-12:45	Essex Ballroom South Westin
6.1.25 Tissue-Electrode Interface (Oral Session)	
Chair: Lal, Amit (<i>Cornell Univ.</i>)	
Co-Chair: Fantini, Sergio (<i>Tufts Univ.</i>)	

11:15-11:30	FrB03.1
Flexible Organic Electronics for Use in Neural Sensing	5400-5403
<i>Bink, Hank* (Univ. of Pennsylvania); Lai, Yuming (Univ. of Pennsylvania); Saudari, Sangameshwar (Univ. of Pennsylvania); Helfer, Brian (Univ. of Connecticut); Viventi, Jonathan (Univ. of Pennsylvania); Van der Spiegel, Jan (Univ. of Pennsylvania); Litt, Brian (Univ. of Pennsylvania); Kagan, Cherie (Univ. of Pennsylvania)</i>	

11:30-11:45	FrB03.2
High-Porous Platinum Electrodes for Functional Electrical Stimulation	5404-5407
<i>Boretius, Tim* (Univ. of Freiburg); Jurzinsky, Tilman (Albert-Ludwigs-Univ. of Freiburg); Köhler, Christian (Lab. for MEMS Applications, Dept. of Microsystems Eng. – IMTEK, Univ. of Freiburg, Georges-Koehler-Allee); Kerzenmacher, Sven (Univ. of Freiburg – IMTEK); Hillebrecht, Harald (Albert-Ludwig-Univ. Freiburg, Inst. of Inorganic Chemistry, Germany); Stieglitz, Thomas (Univ. of Freiburg)</i>	
11:45-12:00	FrB03.3
'Capacitive' Pulse Shapes for Platinum Cuff Electrodes	5408-5411
<i>Woods, Virginia* (Imperial College London); Triantis, Iasonas F. (Univ. College London); Agathos, Catherine (Imperial College London); Toumazou, Christofer (Imperial College London)</i>	
12:00-12:15	FrB03.4
In Vivo Polymerization of Poly(3, 4-Ethylenedioxythiophene) (PEDOT) in Rodent Cerebral Cortex	5412-5415
<i>Wilks, Seth* (Purdue Univ.); Woolley, Andrew (Purdue Univ.); Ouyang, Liangqi (Univ. of Delaware); Martin, David C (Univ. of Michigan); Otto, Kevin (Purdue Univ.)</i>	
12:15-12:30	FrB03.5
Electrical Performance of Penetrating Microelectrodes Chronically Implanted in Cat Cortex	5416-5419
<i>Kane, Sheryl Rose (EIC Laboratories); Cogan, Stuart* (EIC Laboratories, Inc.); Plante, Timothy D. (EIC Laboratories); Ehrlich, Julia (EIC Laboratories); McCreery, D (HuntingtonMedicalResearchInst.)</i>	
12:30-12:45	FrB03.6
Bioelectrical Enhancement in Tissue-Electrode Coupling with Metamorphic-Stage Insertions for Insect Machine Interfaces	5420-5423
<i>Bozkurt, Alper* (North Carolina State Univ.); Gilmour, Robert (Cornell Univ.); Lal, Amit (Cornell Univ.)</i>	

FrB05: 11:15-12:45	Essex Ballroom North Westin
6.2.30 Brain-Machine Interfaces: Decoders II (Oral Session)	
Chair: Perreault, Eric (Northwestern Univ.)	
Co-Chair: Carmena, Jose M. (Univ. of California, Berkeley)	

11:15-11:30	FrB05.1
Classification of Multichannel ECoG Related to Individual Finger Movements with Redundant Spatial Projections	5424-5427
<i>Onaran, Ibrahim* (Bilkent Univ.); Ince, Nuri Firat (Univ. of Minnesota); Çetin, Enis (Bilkent Univ.)</i>	
11:30-11:45	FrB05.2
Dealing with Noisy Gaze Information for a Target-dependent Neural Decoder	5428-5431
<i>Corbett, Elaine* (Northwestern Univ.); Sachs, Nicholas (Northwestern Univ.); Kording, Konrad (Northwestern Univ.); Perreault, Eric (Northwestern Univ.)</i>	
11:45-12:00	FrB05.3
Continuous Movement Decoding Using a Target-Dependent Model with EMG Inputs	5432-5435
<i>Sachs, Nicholas* (Northwestern Univ.); Corbett, Elaine (Northwestern Univ.); Miller, Lee (Northwestern Univ.); Perreault, Eric (Northwestern Univ.)</i>	
12:00-12:15	FrB05.4
Exploring Time-Scales of Closed-Loop Decoder Adaptation in Brain-Machine Interfaces	5436-5439
<i>Orsborn, Amy* (Univ. of California Berkeley); Dangi, Siddharth (Univ. of California, Berkeley); Moorman, Helene (UC Berkeley); Carmena, Jose M. (Univ. of California, Berkeley)</i>	
12:15-12:30	FrB05.5
The Tracking of Reaches in Three-Dimensions	5440-5443
<i>Wong, Yan Tat* (New York Univ.); Hagan, Maureen Ann (New York Univ.); Markowitz, David (New York Univ.); Pesaran, Bijan (New York Univ.)</i>	
12:30-12:45	FrB05.6
Reconstructing Hand Kinematics During Reach to Grasp Movements from Electroencephalographic (EEG) Signals	5444-5447
<i>Agashe, Harshavardhan* (Univ. of Maryland-College Park); Contreras-Vidal, José (Univ. of Maryland)</i>	

FrB07: 11:15-12:45 Boylston Marriott
6.8.38 Wearable Systems for Neurorehabilitation (Oral Session)
Chair: Ghovanloo, Maysam (*Georgia Inst. of Tech.*)
Co-Chair: Boissy, Patrick (*Univ. de Sherbrooke*)

- 11:15-11:30 FrB07.1
Development of a Self-Contained Accelerometry Based System for Control of Functional Electrical Stimulation in Hemiplegia 5448-5451
*Foglyano, Kevin** (*Cleveland FES Ctr.*); *Schnellenberger, John* (*Cleveland APT Ctr.*);
Kobetic, Rudi (*Louis Stokes Veterans Affairs Medical Ctr.*)
- 11:30-11:45 FrB07.2
Preliminary Design of a Terrain Recognition System 5452-5455
*Zhang, Fan** (*Univ. of Rhode Island*); *Fang, Zheng* (*Huazhong Univ. of Science & Tech.*);
Liu, Ming (*Univ. of Rhode Island*); *Huang, He* (*Univ. of Rhode Island*)
- 11:45-12:00 FrB07.3
Towards a Movement Quantification System Capable of Automatic Evaluation of Upper Limb Motor Function after Neurological Injury 5456-5460
*Bento, Virgilio** (*Univ. of Aveiro*); *Tedim Cruz, Vítor* (*Hospital São Sebastião, Santa Mariada Feira, Portugal*);
Ribeiro, David (*Univ. of Aveiro*); *Cunha, João Paulo Silva* (*Univ. of Aveiro*)
- 12:00-12:15 FrB07.4
A Clinical Trial of a Prototype of Wireless Surface FES Rehabilitation System in Foot Drop Correction 5461-5464
*Miura, Naoto** (*Tohoku Univ., Graduate School of Eng., Japan*); *Watanabe, Takashi* (*Tohoku Univ.*);
Akasaka, Kiyokazu (*Saitama Medical Univ. Graduate School of Medicine*);
Suzuki, Tatsuto (*Maizuru Natl. College of Tech.*)
- 12:15-12:30 FrB07.5
Command Detection and Classification in Tongue Drive Assistive Technology 5465-5468
*Banan Sadeghian, Elnaz** (*Georgia Inst. of Tech.*); *Huo, Xueliang* (*Georgia Inst. of Tech.*);
Ghovanloo, Maysam (*Georgia Inst. of Tech.*)
- 12:30-12:45 FrB07.6
Tests of Wireless Wearable Sensor System in Joint Angle Measurement of Lower Limbs 5469-5472
*Watanabe, Takashi** (*Tohoku Univ.*); *Saito, Hiroki* (*Tohoku Univ.*)

FrB09: 11:15-12:45 Regis Marriott
6.5.22 Brain Stimulation (Oral Session)
Chair: Besio, W.G. (*Univ. of Rhode Island*)
Co-Chair: Babiloni, Fabio (*Univ. of Rome*)

- 11:15-11:30 FrB09.1
Influence of White Matter Conductivity Anisotropy on Electric Field Strength Induced by Electroconvulsive Therapy 5473-5476
*Lee, Won Hee** (*Columbia Univ.*); *Deng, Zhi-De* (*Columbia Univ.*); *Laine, Andrew* (*Columbia Univ.*);
Lisanby, Sarah (*Columbia Univ./New York State Psychiatric Inst.*); *Peterchev, Angel V* (*Duke Univ.*)
- 11:30-11:45 FrB09.2
Optical Stimulation of Visual Cortex with Pulsed 620-Nm RED Light 5477-5479
*Hou, Wensheng** (*BioEng. Inst of Chongqing Univ.*); *Mou, Zongxia* (*Biomedical Eng., Chongqing Univ., China*)
- 11:45-12:00 FrB09.3
A Dual-Shank Neural Probe Integrated with Double Waveguides on Each Shank for Optogenetic Applications 5480-5483
*Im, Maesoon** (*Univ. of Michigan*); *Cho, Il-Joo* (*Korea Inst. of Science & Tech. (KIST)*); *Wu, Fan* (*Univ. of Michigan*); *Wise, Kensall* (*Univ. of Michigan, Ann Arbor*); *Yoon, Euisik* (*Univ. of Michigan*)
- 12:00-12:15 FrB09.4
Electroconvulsive Therapy Simulations Using an Anatomically-Realistic Head Model 5484-5487
*Bai, Siwei** (*Univ. of New South Wales*); *Loo, Colleen* (*School of Psychiatry, Univ. of New South Wales*);
Dokos, Socrates (*Univ. of New South Wales*)

12:15-12:30 FrB09.5
Electric Fields in Hippocampus Due to Transcranial Focal Electrical Stimulation via Concentric Ring Electrodes 5488-5491
Besio, W. G. (Univ. of Rhode Island); Hadidi, Ruba (Univ. of Rhode Island); Makeyev, Oleksandr (Univ. of Rhode Island); Luna-Munguía, Hiram (Ctr. for Research & Advanced Studies); Rocha, Luisa (Ctr. for Research & Advanced Studies)*

12:30-12:45 FrB09.6
Effect of White Matter Anisotropy in Modeling Electroconvulsive Therapy 5492-5495
Bai, Siwei (Univ. of New South Wales); Loo, Colleen (School of Psychiatry, Univ. of New South Wales); Dokos, Socrates (Univ. of New South Wales)*

FrB11: 11:15-12:45 Wellesley Marriott
5.7.1 Cardiovascular Signal Processing and Modeling: Monitoring in Critical Care Applications (Oral Session)
Chair: Ferrario, Manuela (*Pol. di Milano*)
Co-Chair: Chon, Ki (*Worcester Pol. Inst.*)

11:15-11:30 FrB11.1
Cardiac Output Monitoring by Long Time Interval Analysis of a Radial Arterial Blood Pressure Waveform with Correction for Arterial Compliance Changes Using Pulse Transit Time 5496-5498
Moslehpour, Mohsen (Michigan State Univ.); Zhang, Guanqun (Michigan State Univ.); Mukkamala, Ramakrishna (Michigan State Univ.)*

11:30-11:45 FrB11.2
Early Detection of Spontaneous Blood Loss Using Amplitude Modulation of Photoplethysmogram 5499-5502
Selvaraj, Nandakumar (Worcester Polytechnic Inst.); Scully, Christopher G. (Worcester Polytechnic Inst.); Shelley, Kirk H. (Dept. of Anesthesiology, Yale Univ.); Silverman, David G. (Dept. of Anesthesiology, Yale Univ.); Chon, Ki (Worcester Polytechnic Inst.)*

11:45-12:00 FrB11.3
Continuous Multiorgan Variability Monitoring in Critically Ill Patients – Complexity Science at the Bedside 5503-5506
Seely, Andrew JE (Ottawa Hospital Research Inst.); Bravi, Andrea (Ottawa Hospital Research Inst.); Green, Geoffrey (OHRI)*

12:00-12:15 FrB11.4
Photoplethysmographic Variability Analysis in Critical Care – Current Progress and Future Challenges 5507-5510
Chan, Gregory S H (The Univ. of New South Wales); Middleton, Paul MacConachie (Univ. of New South Wales); Lovell, Nigel (Univ. of New South Wales)*

12:15-12:30 FrB11.5
Alteration of Autonomic Blood Pressure Control During Hemodialysis in Peripheral Vascular Disease Patients 5511-5514
Ion Titapiccolo, Jasmine (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano); Garzotto, Francesco (Dep. Nephrology Dialysis & Transplantation, San Bortolo Hospital); Cruz, Dinna (Dep. Nephrology Dialysis & Transplantation, San BortoloHospital); Moissl, Ulrich (Fresenius Medical Care, Deutschland, GmbH); Tetta, Ciro (Ulrich.Moissl@fmc-ag.com); Signorini, Maria G. (Politecnico di Milano); Ronco, Claudio (Dep. Nephrology Dialysis & Transplantation, San Bortolo Hospital); Ferrario, Manuela (Politecnico di Milano)*

12:30-12:45 FrB11.6
Predictive Monitoring for Early Detection of Subacute Potentially Catastrophic Illnesses in Critical Care 5515-5518
Moorman, J Randall (Univ. of Virginia); Rusin, Craig G (Univ. of Virginia); Lee, Hoshik (College of William & Mary); Guin, Lauren E (Univ. of Virginia); Clark, Matthew T (Univ. of Virginia); Delos, John B (College of William & Mary); Kattwinkel, John (Univ. of Virginia); Lake, Douglas E (Univ. of Virginia)*

FrB12: 11:15-12:45 Suffolk Marriott
5.7.2 Advances in Signal Processing for Atrial Fibrillation Analysis (Oral Session)
Chair: Di Rienzo, Marco (*Fondazione Don Carlo Gnocchi*)
Co-Chair: Nademane, Koonlawee (*Pacific Rim Electrophysiology Res. Inst.*)

11:15-11:30 FrB12.1
Validation of Surface Atrial Fibrillation Organization Indicators through Invasive Recordings **5519-5522**
Alcaraz Martinez, Raul (Univ. of Castilla-La Mancha); Hornero, Fernando (General Univ. Hospital of Valencia); Rieta, J. J. (Univ. Politecnica de Valencia)*

11:30-11:45 FrB12.2
Pathogenesis of AF: Impact on Intracardiac Signals **5523-5526**
Shah, Ashok (Hopital Cardiologique du Haut Leveque); Dubois, Rémi (ESPCI-ParisTech); Miyazaki, Shinsuke (Hopital Cardiologique du Haut Leveque); Jadidi, Amir (Hopital Haut leveque); Scherr, Daniel (Hopital Haut Leveque); Wilton, Stephen B (Hopital Haut Leveque); Roten, Laurent (Hopital Haut Leveque); Pascale, Patrizio (Hopital Haut Leveque); Pedersen, Michala (Hopital Haut Leveque); Derval, Nicolas (Hopital Haut Leveque); Knecht, Sebastien (Hopital Haut Leveque); Sacher, Frederic (Hopital Haut Leveque); Jais, Pierre (Hopital Haut Leveque); Narayan, Sanjiv (The Univ. of California, San Diego); Hocini, Meleze (Hopital Cardiologique du Haut Leveque); Haissaguerre, Michel (Hopital Cardiologique du Haut Leveque)*

11:45-12:00 FrB12.3
A Time-Domain Approach for the Identification of Atrial Fibrillation Drivers **5527-5530**
Ravelli, Flavia (Univ. of Trento); Masè, Michela (Univ. of Trento)*

12:00-12:15 FrB12.4
Non-Invasive Prediction of Catheter Ablation Outcome in Persistent Atrial Fibrillation by Exploiting the Spatial Diversity of Surface ECG **5531-5534**
Meo, Marianna (Laboratoire I3S Université Nice); Zarzoso, Vicente (Univ. Nice Sophia Antipolis – CNRS); Meste, Olivier (UNSA-CNRS); Latcu, Decebal Gabriel (Ctr. Hospitalier Princesse Grace); Saudi, Nadir (Princesse Grace Medical Ctr. Monaco)*

12:15-12:30 FrB12.5
Propagation Pattern Analysis During Atrial Fibrillation Based on the Adaptive Group LASSO **5535-5538**
Richter, Ulrike (Lund Univ.); Faes, Luca (Univ. of Trento); Ravelli, Flavia (Univ. of Trento); Sornmo, Leif (Lund Univ.)*

12:30-12:45 FrB12.6
Mapping of Complex Fractionated Atrial Electrograms As Target Sites for AF Ablation **5539-5542**
Nademane, Koonlawee (Pacific Rim Electrophysiology Research Inst.)*

FrB13: 11:15-12:45 Arlington Marriott
4.6.11 Analysis of High-Throughput Systems Biology Data (Oral Session)
Chair: Stamoulis, Catherine (*Harvard Medical School*)
Co-Chair: Dai, Yang (*Univ. of Illinois at Chicago*)

11:15-11:30 FrB13.1
Discovery of Lung Cancer Pathways Using Reverse Phase Protein Microarray and Prior-Knowledge Based Bayesian Networks **5543-5546**
Kim, Dong-Chul (Univ. of Texas at Arlington); Gao, Jean (Univ. of Texas)*

11:30-11:45 FrB13.2
An Evolutionary Optimization Strategy Using Graphics Processing Units to Efficiently Investigate Gene-Gene Interactions in Genetic Association Studies **5547-5550**
Fontanarosa, Joel (Univ. of Illinois at Chicago); Dai, Yang (Univ. of Illinois at Chicago)*

11:45-12:00 FrB13.3
A Disease Annotation Study of Gene Signatures in a Breast Cancer Microarray Dataset **5551-5554**
Gypas, Foivos (Technical Univ. of Crete); Bei, Ekaterini (Technical Univ. of Crete); Zervakis, Michalis (Technical Univ. of Crete, Greece); Sfakianakis, Stelios (Foundation for Research & Tech. Hellas)*

12:00-12:15 FrB13.4
Detection of Copy Number Variation Using Scale Space Filtering 5555-5558
Lee, Jongkeun (Hallym Univ.); Kim, Baeksop (Hallym Univ.); Yoon, Jeehee (Hallym Univ.);
Lee, Unjoo (Hallym Univ.)*

12:15-12:30 FrB13.5
**Nearest Hyperplane Distance Neighbor Clustering Algorithm Applied to
Gene Co-Expression Analysis in Alzheimer's Disease** 5559-5562
Dua, Prerna (Louisiana Tech Univ.); Pasluosta, Cristian Federico (Louisiana Tech Univ.);
Lukiw, Walter (Louisiana State Univ. Health Sciences Ctr.)*

12:30-12:45 FrB13.6
Estimation of Correlations between Copy Number Variants in Non-Coding DNA 5563-5566
Stamoulis, Catherine (Harvard Medical School)*

FrB15: 11:15-12:45 Clarendon Marriott
7.3.1 Biomimetics and Patterned Biomaterials (Minisymposium)
Chair: Khademhosseini, Ali (*Harvard-MIT*)
Co-Chair: Davis, Michael (*Emory Univ.*)

11:15-11:30 FrB15.1
Microengineered Hydrogels for Stem Cell Bioengineering and Tissue Regeneration *
Khademhosseini, Ali (Harvard-MIT)*

11:30-11:45 FrB15.2
3D Co-Culture Systems with On-Demand Release Capabilities *
Temenoff, Johnna (Georgia Tech)*

11:45-12:00 FrB15.3
Spatiotemporal Control of Cell Fate and Cardiac Differentiation 5567-5568
Davis, Michael E. (Emory Univ.)

12:00-12:15 FrB15.4
Multiplex Biomaterial Cues: Beyond Engineering Cells and towards a Therapy *
Sung, Hak-Joon (Vanderbilt Univ.)*

FrB16: 11:15-12:45 Dartmouth Marriott
9.6.7 Targeted Image-Guided Cancer Therapies (Oral Session)
Chair: Masuda, Kohji (*Tokyo Univ. A&T*)
Co-Chair: Zhang, Tianhao (*The Univ. of Western Ontario*)

11:15-11:30 FrB16.1
Optimization-Based Dosimetry Planning for Brachytherapy 5569-5572
Zhang, Tianhao (The Univ. of Western Ontario); Patel, Rajni (London Health Sciences Ctr.)*

11:30-11:45 FrB16.2
Ultrasound Enhanced Delivery of Macromolecular Agents in Brain Tumor Rat Model 5573-5576
Yang, Feng-Yi (Nat'l. Yang-Ming Univ.); Horng, Shih-Cheng (Chaoyang Univ. of Tech.)*

11:45-12:00 FrB16.3
Heating Mechanisms in Gold Nanoparticles at Radio Frequencies 5577-5580
Pearce, John Anthony (Univ. of Texas at Austin); Cook, Jason (The Univ. of Texas at Austin)*

12:00-12:15 FrB16.4
Experimental Characterization of Intrapulse Tissue Conductivity Changes for Electroporation 5581-5584
Neal, II, Robert E. (Virginia Polytechnic Inst. & State Univ.); Garcia, Paulo, A. (Virginia Tech – Wake
Forest Univ.); Robertson, John (Virginia-Maryland Regional College of Veterinary Medicine);
Davalos, Rafael (Virginia Tech)*

12:15-12:30 FrB16.5
**Laser Interstitial Thermotherapy for Pancreatic Tumor Ablation:
 Theoretical Model and Experimental Validation** 5585-5588
Saccomandi, Paola (Univ. Campus Bio-Medico of Rome); Schena, Emiliano (Univ. of Rome Campus Bio-Medico); Di Matteo, Francesco Maria (Univ. Campus Bio-Medico of Rome); Pandolfi, Monica (Univ. Campus Bio-Medico of Rome); Martino, Margareth (Univ. Campus Bio-Medico of Rome); Roberta, Rea (Univ. Campus Bio-Medico of Rome); Silvestri, Sergio (Univ. Campus Bio-Medico)*

12:30-12:45 FrB16.6
Dependence of Aggregate Formation of Microbubbles upon Ultrasound Condition and Exposure Time 5589-5592
Koda, Ren (Graduate School of Bio-Applications & Systems Eng., Tokyo Univ. of Agriculture & Tech.); Watarai, Nobuyuki (Tokyo Univ. of A&T); Nakamoto, Ryusuke (Tokyo Univ. A&T); Ohta, Taku (Graduate School of Bio-Applications & Systems Eng., Tokyo Univ. of Agriculture & Tech.); Masuda, Kohji (Tokyo Univ. A&T); Miyamoto, Yoshitaka (Nagoya Univ.); Chiba, Toshio (Natl. Ctr. for Child Health & Development)*

FrB17: 11:15-12:45	Exeter Marriott
11.1.7 Entrepreneurship and Innovation: Regulatory Issues and Commercialization (Minisymposium)	
Chair: Haemmerich, Dieter (<i>Medical Univ. of South Carolina</i>)	
Co-Chair: Brenan, Colin (<i>CIMIT</i>)	

11:15-11:30 FrB17.1
SBIR/STTR Funding: When, How, and How Much? *
Haemmerich, Dieter (Medical Univ. of South Carolina)*

11:30-11:45 FrB17.2
**Medical Product Development: Combining the Fun (Development) with the
 Necessary (Regulatory Compliance)** *
Panescu, Dorin (NewCardio, Inc.)*

11:45-12:00 FrB17.3
Realities of Biomedical Product Liability: E.g. Implantables and TASER Weapons *
Kroll, Mark (Univ. of Minnesota)*

12:00-12:15 FrB17.4
**The Center for Integration of Medicine and Innovative Technologies (CIMIT):
 A Proven Model to Speed the Cycle of Healthcare Innovation** 5593-5593
Brenan, Colin (CIMIT)*

FrB19: 11:15-12:45	Salons AB Marriott
3.6.8 Wireless Sensors and Systems (Oral Session)	
Chair: Lymberis, Andreas (<i>European Commission</i>)	
Co-Chair: Warren, Steve (<i>Kansas State Univ.</i>)	

11:15-11:30 FrB19.1
Magneto-Harmonic Pressure Sensor for Biomedical Applications 5594-5597
Tan, Ee Lim (Michigan Technological Univ.); Ong, Keat Ghee (Michigan Tech. Univ.)*

11:30-11:45 FrB19.2
In-Mouth Antenna for Tongue Controlled Wireless Devices: Characteristics and Link-Loss 5598-5601
Chandra, Rohit (Lund Univ.); Johansson, Anders (Lund Univ.)*

11:45-12:00 FrB19.3
Comparison of TOA and RSS Based Techniques for RF Localization Inside Human Tissue 5602-5607
Khan, Umair I. (Elec. & Computer Eng., Worcester Polytechnic Inst.); Pahlavan, Kaveh (Elec. & Computer Eng., Worcester Polytechnic Inst.); Makarov, Sergey (Elec. & Computer Eng., Worcester Polytechnic Inst.)*

12:00-12:15 FrB19.4
A Daily Living Activity Remote Monitoring System for Solitary Elderly People 5608-5611
Maki, Hiromichi (Hiroshima Inst. of Tech.); Ogawa, Hidekuni (Hiroshima Inst. of Tech.); Matsuoka, Shingo (Intl. Trinity College); Yonezawa, Yoshiharu (Hiroshima Inst. of Tech.); Caldwell, Morton (Caldwell Biomedical Electronics)*

12:15-12:30 FrB19.5
Wirelessly Powered Stimulator and Recorder for Neuronal Interfaces 5612-5616
Nag, Sudip (Indian Inst. of Tech. Bombay); Sharma, Dinesh (Indian Inst. of Tech. Bombay)*

12:30-12:45 FrB19.6
A Generic Miniature Multi-Feature Programmable Wireless Powering Headstage ASIC for Implantable Biomedical Systems 5617-5620
Chinnakonda Kubendran, Rajkumar (Purdue Univ.); Krishnan, Harish (Purdue Univ.); Manola, Bhupendra (Purdue Univ.); Irazoqui, Pedro (Purdue Univ.)*

FrB20: 11:15-12:45 Salons CD Marriott
3.7.19 Wearable Sensors and Systems I (Oral Session)
Chair: Tamura, Toshiyo (*Chiba Univ.*)
Co-Chair: Guillemaud, Regis (*CEA Léti MINATEC*)

11:15-11:30 FrB20.1
Introducing a Modular Activity Monitoring System 5621-5624
Reiss, Attila (DFKI); Stricker, Didier (DFKI)*

11:30-11:45 FrB20.2
OLAM: A Wearable, Non-Contact Sensor for Continuous Heart-Rate and Activity Monitoring 5625-5628
Albright, Ryan (Oregon State Univ.); Goska, Benjamin (Oregon State Univ.); Chi, Yu (UCSD); Cauwenberghs, Gert (Univ. of California San Diego); Chiang, Patrick (Oregon State Univ.)*

11:45-12:00 FrB20.3
Upper Limb Joint Angle Tracking with Inertial Sensors 5629-5632
El-Gohary, Mahmoud (Portland State Univ.); Holmstrom, Lars (Portland State Univ.); Huisinga, Jessie (Oregon Health & Science Univ. (OHSU)); King, Edward (Oregon Health & Science Univ. (OHSU)); McNames, James (Portland State Univ.); Horak, Fay (Oregon Health & Science Univ.)*

12:00-12:15 FrB20.4
Tetherless Ergonomics Workstation to Assess Nurses' Physical Workload in a Clinical Setting 5633-5636
Smith, Warren (California State Univ.); Nave, Michael E. (California State Univ., Sacramento); Hreljac, Alan (California State Univ., Sacramento)*

12:15-12:30 FrB20.5
Development of an In-Shoe Pressure-Sensitive Device for Gait Analysis 5637-5640
De Rossi, Stefano Marco Maria (Scuola Superiore Sant'Anna); Lenzi, Tommaso (Scuola Superiore Sant'Anna); Vitiello, Nicola (Scuola Superiore Sant'Anna); Donati, Marco (Scuola Superiore Sant'Anna); Persichetti, Alessandro (Scuola Superiore Sant'Anna); Giovacchini, Francesco (Scuola Superiore Sant'Anna); Vecchi, Fabrizio (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)*

12:30-12:45 FrB20.6
A Computationally Efficient QRS Detection Algorithm for Wearable ECG Sensors 5641-5644
Wang, Yichao (NUS); John, Deepu (NUS); Lian, Yong (Natl. Univ. of Singapore)*

FrB21: 11:15-12:45 Salon E Marriott
1.7.42 Neural Networks in Biosignal Processing and Classification (Oral Session)
Chair: Muehlsteff, Jens (*Philips*)
Co-Chair: Francis, Joseph Thachil (*SUNY Downstate Medical Ctr.*)

11:15-11:30 FrB21.1
Brain Tumour Classification Using Gaussian Decomposition and Neural Networks 5645-5648
Arizmendi, Carlos (Technical Univ. of Catalonia (UPC)); Sierra Bueno, Daniel Alfonso (Univ. Industrial de Santander); Vellido, Alfredo (Soft Computing (SOCO) Research Group. Dept. Llenguatges i Sistemes Informàtics Univ. Politècnica de Catalunya); Romero, Enrique (Technical Univ. of Catalonia (UPC))*

11:30-11:45 FrB21.2
Detecting Freezing-Of-Gait During Unscripted and Unconstrained Activity 5649-5652
Cole, Bryan (Boston Univ.); Roy, Serge (Boston Univ.); Nawab, Syed Hamid (Boston Univ.)*

11:45-12:00	FrB21.3
A New Neural Network Approach for Short-Term Glucose Prediction Using Continuous Glucose Monitoring Time-Series and Meal Information	5653-5656
<i>Zecchin, Chiara* (Univ. of Padova); Facchinetti, Andrea (Univ. of Padova); Sparacino, Giovanni (Univ. of Padova); De Nicolao, Giuseppe (Univ. of Pavia); Cobelli, Claudio (Univ. of Padova)</i>	
12:00-12:15	FrB21.4
Beat-To-Beat Cardiac Output Inference Using Heart Sounds	5657-5661
<i>Couceiro, Ricardo (Univ. of Coimbra); de Carvalho, Paulo* (Univ. of Coimbra); Paiva, Rui Pedro (Univ. of Coimbra); Henriques, Jorge (Univ. of Coimbra – NIF 501617582); Antunes, Manual (Univ. of Coimbra); Quintal, Isabel (Centro Hospitalar de Coimbra); Muehlsteff, Jens (Philips)</i>	
12:15-12:30	FrB21.5
Reinforcement Learning via Kernel Temporal Difference	5662-5665
<i>Bae, Jihye* (Univ. of Florida); Chhatbar, Pratik Yashvant (SUNY Downstate Medical Ctr.); Francis, Joseph Thachil (SUNY Downstate Medical Ctr.); Sanchez, Justin C. (Univ. of Miami); Principe, Jose (Univ. of Florida)</i>	
12:30-12:45	FrB21.6
Block Based Neural Network for Hypoglycemia Detection	5666-5669
<i>San, Phyo Phyo* (Univ. of Tech. Sydney); Ling, Steve (Univ. of Tech. Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney)</i>	
FrB22: 11:15-12:45	Salon F Marriott
1.2.30 Recent Developments in Biomedical Modeling and Simulation (Oral Session)	
Chair: Parker, Alice C. (Univ. of Southern California)	
Co-Chair: Signorini, Maria G. (Pol. di Milano)	
11:15-11:30	FrB22.1
BioSignalML – a Meta-Model for Biosignals	5670-5673
<i>Brooks, David* (Univ. of Auckland); Hunter, Peter (Univ. of Auckland); Smaill, Bruce (Univ. of Auckland); Titchener, Mark (The Univ. of Auckland)</i>	
11:30-11:45	FrB22.2
A Directionally-Selective Neuromorphic Circuit Based on Reciprocal Synapses in Starburst Amacrine Cells	5674-5677
<i>Tseng, Ko-Chung* (Univ. of Southern California); Parker, Alice C. (Univ. of Southern California); Joshi, Jonathan (Univ. of Southern California)</i>	
11:45-12:00	FrB22.3
Subspace Detection of the Impulse Response Function from Intra-Partum Cardiotocography	5678-5681
<i>Warrick, Philip A.* (Perigen Canada); Hamilton, Emily (McGill Univ.)</i>	
12:00-12:15	FrB22.4
A Compressive Sensing Approach for Glioma Margin Delineation Using Mass Spectrometry	5682-5685
<i>Gholami, Behnood* (Brigham & Women's Hospital, Harvard Medical School); Agar, Nathalie (Brigham & Women's Hospital, Harvard Medical School); Jolesz, Ferenc A. (Brigham & Women's Hospital/Harvard Medical School); Haddad, Wassim (Georgia Inst. of Tech.); Tannenbaum, Allen (Georgia Inst. of Tech.)</i>	
12:15-12:30	FrB22.5
A Dynamical Model for Generating Synthetic Phonocardiogram Signals	5686-5689
<i>Almasi, Ali* (Sharif Univ. of Tech.); Shamsollahi, Mohammad Bagher (Sharif Univ. of Tech.); Senhadji, Lotfi (Univ. de Rennes 1 & INSERM)</i>	
12:30-12:45	FrB22.6
Analysis of the Respiratory Pattern Variability of Patients in Weaning Process Using Autoregressive Modeling Techniques	5690-5693
<i>Chaparro, Javier (Escuela Colombiana de Ingeniería Julio Garavito); Giraldo, Beatriz* (Univ. Politècnica de Catalunya); Caminal, Pere (Technical Univ. of Catalonia (UPC)); Benito, Salvador (Hospital de la Santa Creu i Sant Pau)</i>	

FrB23: 11:15-12:45 Salon G Marriott
2.7.27 MR Image Segmentation (Oral Session)
Chair: Bonmassar, Giorgio (*Harvard Medical School*)
Co-Chair: Paulsen, Keith (*Dartmouth College*)

11:15-11:30 FrB23.1
Fuzzy Approach Toward Reducing False Positives in the Detection of Small Multiple Sclerosis Lesions in Magnetic Resonance Images 5694-5697
Aymerich, Francesc Xavier (Institut de Diagnòstic per la Imatge); Sobrevilla, Pilar (Univ. Politècnica de Catalunya); Montseny, Eduard (Univ. Politècnica de Catalunya); Rovira, Alex (Unitat RM Vall Hebron)*

11:30-11:45 FrB23.2
Segmentation of Scarred and Non-Scarred Myocardium in LG Enhanced CMR Images Using Intensity-Based Textural Analysis 5698-5701
Kotu, Lasya Priya (Univ. of Stavanger); Engan, Kjersti (Univ. of Stavanger); Eftestøl, Trygve (Univ. of Stavanger); Ørn, Stein (Stavanger Univ. Hospital); Woie, Leik (Stavanger Univ. Hospital, Stavanger, Norway)*

11:45-12:00 FrB23.3
Bladder Segmentation in MR Images Using Active Region Growing Model 5702-5705
Garnier, Carole (Univ. de Rennes 1); Wu, Ke (Southeast Univ. China); Dillenseger, Jean-Louis (Univ. de Rennes 1)*

12:00-12:15 FrB23.4
Atlas-Based Segmentation for Globus Pallidus Internus Targeting on Low-Resolution MRI 5706-5709
Iacono, Maria Ida (MGH, Charlestown, MA, USA); Makris, Nikos (Massachusetts General Hospital); Mainardi, Luca (Politecnico di Milano); Gale, John (Cleveland Clinic, Dept. of Neuroscience & Ctr. for Neurological Restoration, Cleveland, Ohio, USA.); van der Kouwe, Andre (Athinoula Martinos Ctr. for Biomedical Imaging, Massachusetts General Hospital, & Harvard Medical School); Mareyam, Azma (A. A. Martinos Ctr. for Biomedical Imaging, Dept. of Radiology); Polimeni, Jonathan (Harvard Medical School; Massachusetts General Hospital); Wald, Lawrence L. (A. A. Martinos Ctr. for Biomedical Imaging, Dept. of Radiology); Fischl, Bruce (A. A. Martinos Ctr. for Biomedical Imaging, Dept. of Radiology); Eskandar, Emad (Massachusetts General Hospital); Bonmassar, Giorgio (Harvard Medical School)*

12:15-12:30 FrB23.5
Robust Local Estimation in Anisotropic Diffusion Process 5710-5713
Ragoubi Hor, Refka (Institut Telecom/Telecom Bretagne INSERM U650); Burdin, Valérie (Institut Telecom/Telecom Bretagne – INSERM U650); Rémy-Néris, Olivier (CHU Morvan)*

12:30-12:45 FrB23.6
Biomedical Image Segmentation via Constrained Graph Cuts and Pre-Segmentation 5714-5717
Yu, Zeyun (Univ. of Wisconsin-Milwaukee); Xu, Ming (Univ. of Wisconsin-Milwaukee); Gao, Zhanheng (Univ. of Wisconsin-Milwaukee)*

FrB24: 11:15-12:45 Salon HI Marriott
2.6.20 Image Reconstruction (Oral Session)
Chair: Warfield, Simon K. (*Harvard Medical School*)
Co-Chair: Boisvert, Jonathan (*Natl. Res. Council of Canada*)

11:15-11:30 FrB24.1
Reference-Guided Sparsifying Transform Design for Compressive Sensing MRI 5718-5721
Babacan, S. Derin (Univ. of Illinois at Urbana-Champaign); Peng, Xi (Univ. of Illinois at Urbana-Champaign); Wang, Xian-Pei (Wuhan Univ., China); Do, Minh (Univ. of Illinois at Urbana-Champaign); Liang, Zhi-Pei (Univ. of Illinois at Urbana-Champaign)*

11:30-11:45 FrB24.2
Motion-Robust MRI through Real-Time Motion Tracking and Retrospective Super-Resolution Volume Reconstruction 5722-5725
Gholipour, Ali (Children's Hospital Boston & Harvard Medical School); Polak, Martin (Children's Hospital Boston); van der Kouwe, Andre (Athinoula Martinos Ctr. for Biomedical Imaging, Massachusetts General Hospital, & Harvard Medical School); Nevo, Erez (Robin Medical, Inc.); Warfield, Simon K. (Harvard Medical School)*

11:45-12:00 FrB24.3
Interactive 3D Reconstruction of the Spine from Radiographs Using a Statistical Shape Model and Second-Order Cone Programming 5726-5729
Boisvert, Jonathan (Natl. Research Council of Canada); Moura, Daniel (Univ. do Porto)*

12:00-12:15 FrB24.4
Microwave Imaging for Breast Cancer Detection – Advances in Three-Dimensional Image Reconstruction 5730-5733
Golnabi, Amir H (Dartmouth College); Meaney, Paul (Dartmouth College); Epstein, Neil (Dartmouth College); Paulsen, Keith (Dartmouth College)*

12:15-12:30 FrB24.5
Compressed Sensing MRI Using Singular Value Decomposition Based Sparsity Basis 5734-5737
Yu, Yeyang (Univ. of Queensland); Hong, Mingjian (ChongQing Univ.); Wang, Hua (The Univ. of Queensland); Liu, Feng (The Univ. of Queensland); Crozier, Stuart (The Univ. of Queensland)*

12:30-12:45 FrB24.6
Microwave Dielectric Contrast Imaging in a Magnetic Resonant Environment and the Effect of Using Magnetic Resonant Spatial Information in Image Reconstruction 5738-5741
Epstein, Neil (Dartmouth College); Golnabi, Amir H (Dartmouth College); Meaney, Paul (Dartmouth College); Paulsen, Keith (Dartmouth College)*

FrB26: 11:15-12:45 Provincetown Marriott
4.3.2 Control in Synthetic Biology II (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Lu, Timothy (*Massachusetts Inst. of Tech.*)

11:15-11:45 FrB26.1
Bacterial Cheating Limits Antibiotic Resistance *
Gore, Jeff (MIT)*

11:45-12:15 FrB26.2
A Control Theory Approach to Engineering Biomolecular Circuits *
Del Vecchio, Domitilla (MIT)*

FrC01: 13:00-14:30 St. George AB Westin
8.8.12 Recent Developments in Medical Robotics and Biomechanics (Oral Session)
Chair: Miyashita, Tomoyuki (*Waseda Univ.*)
Co-Chair: Nadkarni, Seemantini (*Massachusetts General Hospital, Harvard Medical School*)

13:00-13:15 FrC01.1
Depth-Resolved Mapping of Tissue Mechanical Properties Using a Novel Optical Approach 5742-5745
Hajjarian, Zeinab (Massachusetts General Hospital/Harvard Medical School); Nadkarni, Seemantini (Massachusetts General Hospital, Harvard Medical School)*

13:15-13:30 FrC01.2
Measurement of Bulk Mechanical Properties of Tissue Using Laser Speckle Rheology 5746-5748
Hajjarian, Zeinab (Massachusetts General Hospital/Harvard Medical School); Nadkarni, Seemantini (Massachusetts General Hospital, Harvard Medical School)*

13:30-13:45 FrC01.3
Effect of Force Tightening on Cable Tension and Displacement in Greater Trochanter Reattachment 5749-5752
Canet, Fanny (Hopital Sacré-Coeur de Montréal); Duke, Kajsa (Ecole de technologie supérieure, Univ. of Alberta); Bourgeois, Yan (École de Technologie Supérieure; Hôpital du Sacré-Coeur); Laflamme, George Yves (Hôpital du Sacré-Coeur); Brailovski, Vladimir (Ecole de technologie supérieure); Petit, Yvan (École de Technologie Supérieure)*

13:45-14:00	FrC01.4
Modeling the Internal Pressure Dependence of Thermal Conductivity and in Vitro Temperature Measurement for Lung RFA	5753-5757
<i>Yamazaki, Nozomu* (Waseda Univ.); Watanabe, Hiroki (Waseda Univ.); Seki, Masatoshi (Waseda Univ.); Hoshi, Takeharu (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Miyashita, Tomoyuki (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)</i>	
14:00-14:15	FrC01.5
Force Relaxation and Sprinback of Novel Elastic Orthopedic Cables	5758-5761
<i>Canet, Fanny* (Hopital Sacré-Coeur de Montréal); Baril, Yannick (Ecole de technologie supérieure); Brailovski, Vladimir (Ecole de technologie supérieure); Petit, Yvan (École de Technologie Supérieure); Bissonnette, Guillaume (Univ. de Montréal); Laflamme, George Yves (Hôpital du Sacré-Coeur)</i>	
14:15-14:30	FrC01.6
Semi-Autonomous Wheelchair Developed Using a Unique Camera System Configuration Biologically Inspired by Equine Vision	5762-5765
<i>Nguyen, Jordan Son* (Univ. of Tech., Sydney); Tran, Yvonne (Univ. of Tech., Sydney); Su, Steven Weidong (Univ. of Tech., Sydney); Nguyen, Hung T. (Univ. of Tech., Sydney)</i>	

FrC02: 13:00-14:30	St. George CD Westin
8.10.1 Advanced Technologies for Human Movement Analysis (Minisymposium)	
Chair: Mazzà, Claudia (<i>Univ. of Rome</i>)	
Co-Chair: Gambaretto, Emiliano (<i>Mixamo, Inc</i>)	

13:00-13:15	FrC02.1
Inertial Measurement Unit in Human Movement Science	*
<i>Aissaoui, Rachid* (École de technologie supérieure)</i>	
13:15-13:30	FrC02.2
Advanced Technologies for Human Movement Analysis: Optoelectronic Stereophotogrammetry Systems	*
<i>Rozumalski, Adam* (Gillette Children's Specialty Healthcare)</i>	
13:30-13:45	FrC02.3
Markerless Motion Capture for Clinical Motion Analysis	*
<i>Gambaretto, Emiliano* (Mixamo, Inc); Corazza, Stefano (Mixamo, Inc)</i>	

FrC03: 13:00-14:30	Essex Ballroom South Westin
6.2.28 Brain-Machine Interfaces: III (Oral Session)	
Chair: Poon, Chi-Sang (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: Nenadic, Zoran (<i>UC Irvine</i>)	

13:00-13:15	FrC03.1
Preliminary Assessment of Tongue Drive System in Medium Term Usage for Computer Access and Wheelchair Control	5766-5769
<i>Yousefi, Behnaz (Georgia Inst. of Tech.); Huo, Xueliang* (Georgia Inst. of Tech.); Ghovanloo, Maysam (Georgia Inst. of Tech.)</i>	
13:15-13:30	FrC03.2
A Novel Selective Stimulus Presentation for P300 Speller	5770-5773
<i>Takahashi, Hiromu* (Nagoya Univ.); Yoshikawa, Tomohiro (Nagoya Univ.); Furuhashi, Takeshi (Nagoya Univ.)</i>	
13:30-13:45	FrC03.3
Fusion with Language Models Improves Spelling Accuracy for ERP-Based Brain Computer Interface Spellers	5774-5777
<i>Orhan, Umut* (Northeastern Univ.); Erdogmus, Deniz (Northeastern Univ.); Roark, Brian (Oregon Health & Science Univ.); Purwar, Shalini (Northeastern Univ.); Hild II, Kenneth (Oregon Health & Science Univ.); Oken, Barry (Oregon Health & Science Univ.); Nezamfar, Hooman (Northeastern Univ.); Fried-Oken, Melanie (Oregon Health & Science Univ.)</i>	

13:45-14:00 FrC03.4
Stability of MEG for Real-Time Neurofeedback 5778-5781
Foldes, Stephen (Univ. of Pittsburgh); Vinjamuri, Ramana (Univ. of Pittsburgh); Wang, Wei (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh); Collinger, Jennifer (Univ. of Pittsburgh)*

14:00-14:15 FrC03.5
Classification of Hand Posture from Electrocorticographic Signals Recorded During Varying Force Conditions 5782-5785
Degenhart, Alan (Univ. of Pittsburgh); Collinger, Jennifer (Univ. of Pittsburgh); Vinjamuri, Ramana (Univ. of Pittsburgh); Kelly, John (Carnegie Mellon Univ.); Tyler-Kabara, Elizabeth (Univ. of Pittsburgh); Wang, Wei (Univ. of Pittsburgh)*

14:15-14:30 FrC03.6
Noninvasive Brain-Computer Interface Driven Hand Orthosis 5786-5789
King, Christine E. (Univ. of California, Irvine); Wang, Po T (Univ. of California Irvine); Mizuta, Masato (Nagasaki Univ.); Reinkensmeyer, David J. (Univ. of California); Do, An H. (Univ. of California Irvine); Moromugi, Shunji (Nagasaki Univ.); Nenadic, Zoran (UC Irvine)*

FrC05: 13:00-14:30 Essex Ballroom North Westin
6.3.31 Motor Neuroprostheses I (Oral Session)
Chair: Tyler, Dustin (Case Western Reserve Univ.)
Co-Chair: Mushahwar, Vivian (Univ. of Alberta)

13:00-13:15 FrC05.1
Nerve Lesioning with Direct Current 5790-5793
Ravid, Einat (Natalie) (Univ. of Alberta); Gan, Liu Shi (Univ. of Alberta); Prochazka, Arthur (Univ. of Alberta)*

13:15-13:30 FrC05.2
Training to Improve Volitional Muscle Activity in Clinically Paralyzed Muscles for Neuroprosthesis Control 5794-5797
Moss, Christa (Case Western Reserve Univ.); Kilgore, Kevin (MetroHealth Medical Ctr.); Peckham, Hunter (Case Western Reserve Univ.)*

13:30-13:45 FrC05.3
Restoring Stepping after Spinal Cord Injury Using Intraspinal Microstimulation and Novel Control Strategies 5798-5801
Holinski, Bradley Jared (Univ. of Alberta); Mazurek, Kevin (Johns Hopkins Univ.); Everaert, Dirk George (Univ. of Alberta); Stein, Richard B. (Univ. of Alberta); Mushahwar, Vivian (Univ. of Alberta)*

13:45-14:00 FrC05.4
Continuous Decoding of Intended Movements with a Hybrid Kinetic and Kinematic Brain Machine Interface 5802-5806
Suminski, Aaron (Univ. of Chicago); Willett, Francis (Univ. of Chicago); Fagg, Andrew (Univ. of Oklahoma); Bodenhamer, Matthew (Univ. of Oklahoma); Hatsopoulos, Nicholas (Univ. of Chicago)*

14:00-14:15 FrC05.5
Robot-Driven Spinal Epidural Stimulation Compared with Conventional Stimulation in Adult Spinalized Rats 5807-5810
Hsieh, Fu-Han (Drexel Univ.); Giszter, Simon (Drexel Univ. College Medicine)*

14:15-14:30 FrC05.6
Optimizing Nerve Cuff Stimulation of Targeted Regions through Use of Genetic Algorithms 5811-5814
Brill, Natalie (Case Western Reserve Univ.); Tyler, Dustin (Case Western Reserve Univ.)*

FrC07: 13:00-14:30	Boylston Marriott
6.8.19 Wearable systems for Neuro-Rehabilitation: Mobility, Balance and Activity Monitoring (Oral Session)	
Chair: Veltink, Peter (<i>Univ. of Twente</i>)	
Co-Chair: Chiari, Lorenzo (<i>Univ. of Bologna</i>)	

13:00-13:15 FrC07.1

Wireless Inertial Measurement Unit with GPS (WIMU-GPS) – Wearable Monitoring Platform for Ecological Assessment of Litespace and Mobility in Aging and Disease 5815-5819

*Boissy, Patrick** (*Univ. de Sherbrooke*); *Brière, Simon* (*Research Ctr. on Aging CSSS-IUGS*); *Hamel, Mathieu* (*Inst. Univ. de Geriatrie de Sherbrooke*); *Jog, Mandar* (*Univ. of Western Ontario – London Health Sciences Ctr.*); *Speechley, Mark* (*Western Ontario Univ.*); *Karelis, Anthony* (*Univ. du Québec à Montréal*); *Frank, James* (*Univ. of Windsor*); *Vincent, Claude* (*Univ. Laval*); *Edwards, Roderick* (*Univ. of Victoria*); *Duval, Christian* (*Univ. du Québec à Montréal-UQAM*)

13:15-13:30 FrC07.2

Foot Worn Inertial Sensors for Gait Assessment and Rehabilitation Based on Motorized Shoes 5820-5823

*Aminian, Kamiar** (*Ecole Polytechnique Federale*); *Mariani, Benoit* (*Ecole Polytechnique Fédérale de Lausanne*); *Paraschiv-Ionescu, Anisoara* (*Ecole Polytechnique Federale*); *Hoskovec, Constanze* (*CHUV CUTR Sylvana*); *Büla, Christophe* (*CHUV CUTR Sylvana*); *Penders, Julien* (*imec*); *Tacconi, Carlo* (*Univ. of Bologna*); *Marcellini, Fiorella* (*Ctr. of Psycho-social Aspects of Aging*)

13:30-13:45 FrC07.3

Carbon Nanotubes (CNTs) Based Strain Sensors for a Wearable Monitoring and Biofeedback System for Pressure Ulcer Prevention and Rehabilitation 5824-5827

*Boissy, Patrick** (*Univ. de Sherbrooke*); *Genest, Jonathan* (*Univ. de Sherbrooke*); *Patenaude, Johane* (*Univ. de Sherbrooke*); *Poirier, Marie-Sol* (*Univ. de Sherbrooke*); *Chenel, Vanessa* (*Univ. de Sherbrooke*); *Béland, Jean-Pierre* (*Univ. du Québec à Chicoutimi*); *Legault, Georges-August* (*Univ. de Sherbrooke*); *Bernier, Louise* (*Univ. de Sherbrooke*); *Tapin, Danielle* (*Univ. de Montréal*); *Beauvais, Jacques* (*Univ. de Sherbrooke*)

13:45-14:00 FrC07.4

Wearable Systems with Minimal Set-Up for Monitoring and Training of Balance and Mobility 5828-5832

*Chiari, Lorenzo** (*Univ. of Bologna*)

14:00-14:15 FrC07.5

Capturing Whole-Body Mobility of Patients with Parkinson Disease Using Inertial Motion Sensors: Expected Challenges and Rewards 5833-5838

*Rahimi, Fariborz** (*London Health Sciences Ctr.*); *Duval, Christian* (*Univ. du Québec à Montréal-UQAM*); *Jog, Mandar* (*Univ. of Western Ontario – London Health Sciences Ctr.*); *Bee, Carina* (*London Health Sciences Ctr.*); *South, Angela* (*Univ. of Western Ontario*); *Jog, Monica* (*London Health Sciences Ctr.*); *Edwards, Roderick* (*Univ. of Victoria*); *Boissy, Patrick* (*Univ. de Sherbrooke*)

14:15-14:30 FrC07.6

Estimating Fugl-Meyer Clinical Scores in Stroke Survivors Using Wearable Sensors 5839-5842

Del Din, Silvia (*Univ. of Padova*); *Patel, Shyamal** (*Harvard Medical School*); *Cobelli, Claudio* (*Univ. of Padova*); *Bonato, Paolo* (*Harvard Medical School*)

FrC09: 13:00-14:30	Regis Marriott
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6.1.8 Implantable Biochips (Oral Session)

Chair: Sawan, Mohamad (*Ec. Pol.*)

Co-Chair: Gosselin, Benoit (*Laval Univ.*)

13:00-13:15 FrC09.1

Sensitivity of a Frequency-Selective Electrode Based on Spatial Spectral Properties of the Extracellular AP of Myelinated Nerve Fibers 5843-5846

*Rossel, Olivier** (*LIRMM – UMII/CNRS*); *Soulier, Fabien* (*Univ. Montpellier II*); *Bernard, Serge* (*CNRS*); *Cathebras, Guy* (*Univ. Montpellier II*)

13:15-13:30 FrC09.2

A Low-Power High-Sensitivity CMOS Mixed-Signal Seizure-Onset Detector 5847-5850

*Safi-Harb, Mona** (*Ecole Polytechnique de Montreal*); *Salam, Muhammad Tariqus* (*École Polytechnique de Montréal*); *Mirabbasi, Shahriar* (*Univ. of British Columbia*); *Nguyen, Dang* (*Notre-Dame Hospital*); *Sawan, Mohamad* (*Ecole Polytechnique*)

13:30-13:45	FrC09.3
Micro-Watt Building Blocks for Biomedical RF Tranceivers	5851-5854
<i>TARIS, Thierry* (IMS Lab)</i>	
13:45-14:00	FrC09.4
Approches for the Efficient Extraction and Processing of Biopotentials in Implantable Neural Interfacing Microsystems	5855-5859
<i>Gosselin, Benoit* (Laval Univ.)</i>	
14:00-14:15	FrC09.5
Low-Power SoC Design for Ligament Balance Measuring System in Total Knee Arthroplasty	5860-5863
<i>Liu, Ming* (Tsinghua Univ.); Chen, Hong (Tsinghua Univ.); Zhang, Xu (Tsinghu Univ.); Zhang, Chun (Tsinghua Univ., China); Jiang, HanJun (Tsinghua Univ.); Wang, Zihua (Tsinghua Univ.)</i>	
14:15-14:30	FrC09.6
An Overview of the Recent Wideband Transcutaneous Wireless Communication Techniques	5864-5867
<i>Ghovanloo, Maysam* (Georgia Inst. of Tech.)</i>	

FrC19: 13:00-14:30	Salons AB Marriott
1.4.34 Biomedical Signal Classification in Cardiovascular System (Oral Session)	
Chair: Gutttag, John (MIT)	
Co-Chair: Tong, Shanbao (Shanghai Jiao Tong Univ.)	

13:00-13:15	FrC19.1
T-Wave Alternans Detection Using a Bayesian Approach and a Gibbs Sampler	5868-5871
<i>Lin, Chao* (Univ. of Toulouse); Mailhes, Corinne (Univ. of Toulouse); Tourneret, Jean-Yves (Univ. of Toulouse)</i>	
13:15-13:30	FrC19.2
Amplitude of Dominant T-Wave Alternans Assessment on ECGs Obtained from a Biophysical Model	5872-5875
<i>Sassi, Roberto* (Univ. degli Studi di Milano); Mainardi, Luca (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano)</i>	
13:30-13:45	FrC19.3
Patient-Specific Ventricular Beat Classification without Patient-Specific Expert Knowledge: A Transfer Learning Approach	5876-5879
<i>Wiens, Jenna* (MIT); Gutttag, John (MIT)</i>	
13:45-14:00	FrC19.4
Noise Detection in Heart Sound Recordings	5880-5883
<i>Zia, Mohammad* (Rutgers Univ.); Griffel, Benjamin (Rutgers Univ.); Fridman, Vladimir (Long Island College Hospital); Saponieri, Cesare (Long Island College Hospital); Semmlow, John (Rutgers Univ.)</i>	
14:00-14:15	FrC19.5
Spatiotemporal Estimation of Activation Times of Fractionated ECGs on Complex Heart Surfaces	5884-5887
<i>Erem, Burak* (Northeastern Univ.); Brooks, Dana (Northeastern Univ.); van Dam, Peter (Radboud Univ. Medical Ctr.); Stinstra, Jeroen (Univ. of Utah); MacLeod, Rob (Univ. of Utah)</i>	
14:15-14:30	FrC19.6
Computerized Intrapartum Electronic Fetal Monitoring: Analysis of the Decision to Deliver for Fetal Distress	5888-5891
<i>Georgieva, Antoniya* (Univ. of Oxford); Payne, Stephen John (Univ. of Oxford); Moulden, Mary (Univ. of Oxford); Redman, Christopher WG (Univ. of Oxford)</i>	

FrC20: 13:00-14:30	Salons CD Marriott
1.2.3 Towards Understanding Neurons' Language: From Micro-Processing to Macro-Analyzing Brain Recordings (Oral Session)	
Chair: Nikita, Konstantina (<i>Natl. Technical Univ. of Athens</i>)	
Co-Chair: Bianchi, Anna Maria (<i>Pol. di Milano</i>)	

13:00-13:15	FrC20.1
Multi-Input GNL-HybELS: An Automated Tool for the Analysis of Oculomotor Dynamics During Visual-Vestibular Interactions 5892-5895	
<i>Ghoreyshi, Atiyeh* (McGill Univ.); Galiana, Henrietta L. (McGill Univ.)</i>	
13:15-13:30	FrC20.2
Dynamic Analysis of EEG Signals During Spatial Working Memory Used for Either Perception Discrimination or Planning of Action 5896-5899	
<i>Protopapa, Foteini* (Natl. Technical Univ. of Athens); Mylonas, Dimitris (Natl. Technical Univ. of Athens); Spiliotis, Konstantinos (Natl. Technical Univ. of Athens); Siettos, Constantinos (Natl. Technical Univ. of Athens); Evdokimidis, Ioannis (Natl. & Kapodistrian Univ. of Athens, Medical School); Smyrnis, Nikolaos (Natl. & Kapodistrian Univ. of Athens, Medical School)</i>	
13:30-13:45	FrC20.3
Local Field Potential Driven Izhikevich Model Predicts a Subthalamic Nucleus Neuron Activity 5900-5903	
<i>Michmizos, Kostis P.* (Massachusetts Inst. of Tech.); Nikita, Konstantina (Natl. Technical Univ. of Athens)</i>	
13:45-14:00	FrC20.4
Decoding Ensemble Activity from Neurophysiological Recordings in the Temporal Cortex 5904-5907	
<i>Kreiman, Gabriel* (Harvard Medical School)</i>	
14:00-14:15	FrC20.5
Multiscale Information for Network Characterization in Epilepsy 5908-5911	
<i>Stamoulis, Catherine* (Harvard Medical School); Chang, Bernard (Harvard Medical School/Beth Israel Deaconess Medical Ctr.)</i>	
14:15-14:30	FrC20.6
The Volterra-Wiener Approach in Neuronal Modeling 5912-5915	
<i>Mitsis, Georgios D.* (Univ. of Cyprus)</i>	

FrC21: 13:00-14:30	Salon E Marriott
1.5.1 Causality in Brain Dynamics and Cardiovascular Control (Oral Session)	
Chair: Faes, Luca (<i>Univ. of Trento</i>)	
Co-Chair: Porta, Alberto (<i>Univ. degli Studi di Milano</i>)	

13:00-13:15	FrC21.1
Analyzing Coherent Brain Networks with Granger Causality 5916-5918	
<i>Ding, Mingzhou* (Univ. of Florida); Mo, Jue (Univ. of Florida); Wen, Xiaotong (Univ. of Florida); Schroeder, Charles E. (Nathan Kline Inst. for Psychiatric Research)</i>	
13:15-13:30	FrC21.2
Assessing Directional Interactions among Multiple Physiological Time Series: The Role of Instantaneous Causality 5919-5922	
<i>Faes, Luca* (Univ. of Trento); Nollo, Giandomenico (Univ. of Trento)</i>	
13:30-13:45	FrC21.3
Role of Respiration in Setting Causality among Cardiovascular Variability Series 5923-5926	
<i>Porta, Alberto* (Univ. degli Studi di Milano); Bassani, Tito (Politecnico di Milano); Bari, Vlasta (Univ. of Milan, Milan, Italy); Takahashi, Anielle (Federal Univ. of São Carlos, São Carlos, Brazil); Tobaldini, Eleonora (Univ. degli Studi di Milano); Catai, Aparecida (Dept. of Physiotherapy, Federal Univ. of São Carlos, São Carlos, Brazil); Montano, Nicola (Univ. degli Studi di Milano)</i>	
13:45-14:00	FrC21.4
Semiparametric Detection of Nonlinear Causal Coupling Using Partial Directed Coherence 5927-5930	
<i>Massaroppe, Lucas (Univ. of Sao Paulo); Baccala, Luiz Antonio* (Escola Politécnica); Sameshima, Koichi (Univ. de Sao Paulo, Faculdade de Medicina)</i>	

14:00-14:15 FrC21.5
Multivariate Analysis of Dynamical Processes with Applications to the Neurosciences 5931-5934
*Schelter, Bjorn** (Albert-Ludwigs Univ.); *Sommerlade, Linda* (Univ. of Freiburg, Germany); *Platt, Bettina* (Inst. for Medical Sciences, Univ. of Aberdeen); *Plano, Andrea* (Inst. for Medical Sciences, Univ. of Aberdeen); *Thiel, Marco* (Univ. of Aberdeen); *Timmer, Jens* (Inst. of Physics, Univ. of Freiburg)

14:15-14:30 FrC21.6
Symbolic Coupling Traces for Causality Analysis of Cardiovascular Control 5935-5938
*Wessel, Niels** (Humboldt-Univ. zu Berlin); *Suhrbier, Alexander* (Inst. for Applied Computer Science); *Riedl, Maik* (Univ. Potsdam); *Marwan, Norbert* (Potsdam Inst. for Climate Impact Research); *Penzel, Thomas* (Charite Univ. Hospital); *Malberg, Hagen* (Dresden Technical Univ.); *Bretthauer, G* (Inst. for Applied Computer Science); *Kurths, Juergen* (Univ. Potsdam)

FrC23: 13:00-14:30 Salon G Marriott
2.8.39 Retinal Image Analysis II (Oral Session)
Chair: Tobin, Kenneth (Oak Ridge Natl. Lab.)
Co-Chair: Yoshida, Hisashi (Kinki Univ.)

13:00-13:15 FrC23.1
Microaneurysm Detection with Radon Transform-Based Classification on Retina Images 5939-5942
*Giancardo, Luca** (Univ. of Burgundy – Oak Ridge Natl. Lab.); *Meriaudeau, Fabrice* (Univ. de Bourgogne); *Karnowski, Thomas* (Oak Ridge Natl. Lab.); *Li, Yaqin* (Univ. of Tennessee Health Science Ctr.); *Tobin, Kenneth* (Oak Ridge Natl. Lab.); *Chaum, Edward* (Univ. of Tennessee Hamilton Eye Inst)

13:15-13:30 FrC23.2
Evaluation of the Grading Performance of an Ensemble-Based Microaneurysm Detector 5943-5946
*Antal, Balint** (Univ. of Debrecen); *Lazar, Istvan* (Univ. of Debrecen); *Hajdu, Andras* (Univ. of Debrecen); *Torok, Zsolt* (Univ. of Debrecen); *Csutak, Adrienne* (Univ. of Debrecen); *Peto, Tunde* (Moorfields Eye Hospital)

13:30-13:45 FrC23.3
Computerized Detection of Peripapillary Chorioretinal Atrophy by Texture Analysis 5947-5950
*Muramatsu, Chisako** (Gifu Univ.); *Hatanaka, Yuji* (Univ. of Shiga Prefecture); *Sawada, Akira* (Gifu Univ.); *Yamamoto, Tetsuya* (Gifu Univ.); *Fujita, Hiroshi* (Gifu Univ.)

13:45-14:00 FrC23.4
Machine Learning and Pattern Classification in Identification of Indigenous Retinal Pathology 5951-5954
*Jelinek, Herbert Franz** (Charles Sturt Univ.); *Rocha, Anderson* (Univ. of Campinas); *Carvalho, Tiago* (Univ. of Campinas); *Goldenstein, Siome* (Univ. of Campinas); *Wainer, Jacques* (Univ. of Campinas)

14:00-14:15 FrC23.5
An Automated Retinal Image Quality Grading Algorithm 5955-5958
*Hunter, Andrew** (Univ. of Lincoln); *James, Lowell* (Foster Findlay Associates); *Maged, Habib* (Sunderland Eye Infirmary); *Ryder, Bob* (City Hospital Birmingham); *Basu, Ansu* (City Hospital Birmingham); *Steel, David* (Sunderland Eye Infirmary)

14:15-14:30 FrC23.6
Automatic Detection of Retina Disease: Robustness to Image Quality and Localization of Anatomy Structure 5959-5964
*Karnowski, Thomas** (Oak Ridge Natl. Lab.); *Aykac, Deniz* (Oak Ridge Natl. Lab.); *Giancardo, Luca* (Univ. of Burgundy – Oak Ridge Natl. Lab.); *Nichols, Trent Lee* (Oak Ridge Natl. Lab.); *Li, Yaqin* (Univ. of Tennessee Health Science Ctr.); *Tobin, Kenneth* (Oak Ridge Natl. Lab.); *Chaum, Edward* (Univ. of Tennessee Hamilton Eye Inst)

FrC24: 13:00-14:30 Salon HI Marriott
2.3.9 Optical Imaging Studies and Techniques (Oral Session)
Chair: Ozcan, Aydogan (UCLA)
Co-Chair: Merchant, Fatima (Univ. of Houston)

13:00-13:15 FrC24.1
Spatiotemporal Measurement of Tumor Oxygenation Reveals Repeat Hypoxic Phenomenon in Mice 5965-5968
*Yamada, Ryo** (Keio Univ.); *Tsukada, Kosuke* (Keio Univ.); *Horinouchi, Hirohisa* (Keio Univ., School of Medicine)

13:15-13:30 FrC24.2
3D Imaging for Quantitative Assessment of Toxicity on Vascular Development in Zebrafish 5969-5972
Hans, Charu (Univ. of Houston); Shete, Amol (Univ. of Houston); Shah, Shishir (Univ. of Houston); McCollum, Catherine (Univ. of Houston); Bondesson, Maria (Univ. of Houston); Merchant, Fatima (Univ. of Houston)*

13:30-13:45 FrC24.3
Subcellular Particles Tracking in Time-Lapse Confocal Microscopy Images 5973-5976
Li, Shuo (Univ. of Texas, at Arlington); Gao, Jean (Univ. of Texas); Luby-Phelps, Kate (The Univ. of Texas Southwestern Medical Ctr.)*

13:45-14:00 FrC24.4
Dynamic Phase Imaging for in Vitro Process Monitoring and Cell Tracking 5977-5980
Creath, Katherine (4D Tech. Corp.)*

14:00-14:15 FrC24.5
Lensless Fluorescent On-Chip Microscopy Using a Fiber-Optic Taper 5981-5984
Coskun, Ahmet Faruk (Univ. of California at Los Angeles); Sencan, Ikbal (UCLA); Su, Ting-Wei (Univ. of California, Los Angeles); Ozcan, Aydogan (UCLA)*

FrC25: 13:00-14:30 Salon JK Marriott
2.7.29 Image Segmentation (Oral Session)
Chair: Laine, Andrew (Columbia Univ.)
Co-Chair: Wang, Yi (Cornell Univ.)

13:00-13:15 FrC25.1
Employing Temporal Information for Cell Segmentation Using Max-Flow/min-Cut in Phase-Contrast Video Microscopy 5985-5988
Massoudi, Amir (Univ. of New South Wales); Sowmya, Arcot (Univ. of New South Wales); Semenovich, Dimitri (Univ. of New South Wales); Mele, Katarina (CSIRO, Mathematical & Information Sciences, Locked Bag 17, North Ryde, NSW 1670, Australia.)*

13:15-13:30 FrC25.2
Supervised Learning Framework for Screening Nuclei in Tissue Sections 5989-5992
Nandy, Kaustav (SAIC-Frederick, Natl. Cancer Inst.); Gudla, Prabhakar R (Natl. Cancer Inst.-Frederick/SAIC-Frederick, Inc.); Amundsen, Ryan (Univ. of Michigan); Meaburn, Karen (Natl. Cancer Inst., Natl. Inst. of Health); Misteli, Tom (Natl. Cancer Inst., Natl. Inst. of Health); Lockett, Stephen (SAIC-Frederick)*

13:30-13:45 FrC25.3
An ICA-Based Method for the Segmentation of Pigmented Skin Lesions in Macroscopic Images 5993-5996
Cavalcanti, Pablo (UFRGS); Scharcanski, Jacob (UFRGS); Di Persia, Leandro Ezequiel (Univ. Nacional del Litoral); Milone, Diego (Univ. Nacional del Litoral – CONICET)*

13:45-14:00 FrC25.4
A Novel Approach to Automated Cell Counting for Studying Human Corneal Epithelial Cells 5997-6000
Bandekar, Namrata (Univ. of Waterloo); Wong, Alexander (Univ. of Waterloo); Clausi, David Anthony (Univ. of Waterloo); Gorbet, Maud (Univ. of Waterloo)*

14:00-14:15 FrC25.5
Estimation of the Population of Neutrophils Induced to Differentiate from the MPRO Mouse Promyelocytic Cell Line 6001-6004
Ivan, Fransiskus Xaverius (Nanyang Technological Univ.); Welsch, Roy (Massachusetts Inst. of Tech.); Chow, Vincent T. K. (Natl. Univ. of Singapore); Rajapakse, Jagath C (Bioinformatics Research Ctr., School of Computer Eng., Nanyang Technological Univ.)*

14:15-14:30 FrC25.6
Interactive Liver Tumor Segmentation from CT Scans Using Support Vector Classification with Watershed 6005-6008
Zhang, Xing (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie (Chinese Acad. of Sciences); Xiang, Dehui (Inst. of Automation, Chinese Acad. of Sciences); Li, Xiuli (Inst. of Automation, Chinese Acad. of Sciences); Deng, Kexin (Inst. of Automation Chinese Acad. of Sciences)*

FrC26: 13:00-14:30 Provincetown Marriott
4.3.3 Control in Synthetic Biology III (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Lu, Timothy (*Massachusetts Inst. of Tech.*)

13:00-13:30 FrC26.1
Simple Model Systems in Synthetic Biology: RNA Replicators and Bacteriophages *
*Chen, Irene** (*Harvard Univ.*)

13:30-14:00 FrC26.2
Engineering Complex Dynamics Using Synthetic Gene Networks *
*Wang, Xiao** (*School of Biological & Health Systems Eng., Arizona State Univ.*)

14:00-14:30 FrC26.3
Designing and Building Synthetic Biology – An Engineering Challenge *
*Ellis, Tom** (*Imperial College London*)

FrC27: 15:30-17:00 Provincetown Marriott
4.3.4 Control in Synthetic Biology IV (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Lu, Timothy (*Massachusetts Inst. of Tech.*)

15:30-16:00 FrC27.1
Analog Electronic Circuit Design for Synthetic Biology and Systems Biology *
*Sarpeshkar, Rahul** (*Massachusetts Inst. of Tech.*)

16:00-16:30 FrC27.2
Numerical Subtleties in Biochemical Oscillator Sensitivity Analysis in the Presence of Conservation Constraints *
*White, Jacob K.** (*Massachusetts Inst. of Tech.*)

FrP21: 15:30-17:00 America Ballroom Westin
1.1.20 Time-Frequency Analysis of Biosignals (Poster Session)

15:30-17:00 FrP21.1
Associating ECG Features with Firefighter's Activities **6009-6012**
Pallauf, Johannes (*Univ. do Porto*); *Gomes, Pedro Tiago** (*Faculdade de Ciências da Univ. do Porto, Portugal*);
Bras, Susana (*Univ. de Aveiro*); *Cunha, João Paulo Silva* (*Univ. of Aveiro*); *Coimbra, Miguel* (*Instituto de Telecomunicações/Univ. do Porto*)

15:30-17:00 FrP21.2
Modulation Filtering for Noise Detection in Heart Sound Signals **6013-6016**
Ramos, João Pedro (*Univ. of Coimbra*); *de Carvalho, Paulo** (*Univ. of Coimbra*); *Paiva, Rui Pedro* (*Univ. of Coimbra*); *Henriques, Jorge* (*Univ. of Coimbra – NIF 501617582*)

15:30-17:00 FrP21.3
Cough Detection Algorithm for Monitoring Patient Recovery from Pulmonary Tuberculosis **6017-6020**
*Tracey, Brian** (*Tufts Univ.*); *Comina, German* (*Univ. Nacional de Ingeniería*); *Larson, Sandra* (*Michigan State Univ., College of Osteopathic Medicine*); *Bravard, Marjory* (*Massachusetts General Hospital*); *Lopez, Jose W.* (*Hospital Nacional Dos de Mayo*); *Gilman, Robert H.* (*Johns Hopkins Univ., Bloomberg School of Public Health*)

15:30-17:00 FrP21.4
Investigating the Statistical Properties of the Swallowing Sounds **6021-6024**
*Sarraf Shirazi, Samaneh** (*Univ. of Manitoba*); *Moussavi, Zahra* (*Univ. of Manitoba*)

15:30-17:00 FrP21.5
Conduction Velocity of the Uterine Contraction in Serial Magnetomyogram (MMG) Data: Event Based Simulation and Validation **6025-6028**
*Furdea, Adrian** (*Univ. of Tübingen*); *Preissl, Hubert* (*Univ. of Tübingen*); *Lowery, Curtis* (*Univ. of Arkansas for Medical Sciences*); *Eswaran, Hari* (*Univ. of Arkansas for Medical Sci*); *Govindan, Rathinaswamy* (*UAMS*)

15:30-17:00 FrP21.6
Identification of CpG Islands in DNA Sequences Using Matched Filters 6029-6032
Kakumani, Rajasekhar (Concordia Univ.); Ahmad, Omair (Concordia Univ.);
Devabhaktuni, Vijay (Univ. of Toledo)*

FrP22: 15:30-17:00 America Ballroom Westin
1.4.14 Pattern Recognition Methods for Data Mining in Biosignals (Poster Session)

15:30-17:00 FrP22.1
**Modeling High-Level Descriptions of Real-Life Physical Activities Using Latent Topic
Modeling of Multimodal Sensor Signals** 6033-6036
Kim, Samuel (Univ. of Southern California); Li, Ming (Univ. of Southern California); Lee, Sangwon (Univ. of
Southern California); Mitra, Urbashi (Univ. of Southern California); Emken, Adar (Univ. of Southern California);
Spruijt-Metz, Donna (Univ. of Southern California); Annavaram, Murali (Univ. of Southern California);
Narayanan, Shrikanth (Univ. of Southern California)*

15:30-17:00 FrP22.2
**A Wavelet-Based Approach for Time Series Pattern Detection and Events
Prediction Applied to Telemonitoring Data** 6037-6040
Rocha, Teresa (Inst Superior de Eng de Coimbra); Paredes, Simão (Instituto Superior de Engenharia de
Coimbra); Henriques, Jorge (Univ. of Coimbra – NIF 501617582); de Carvalho, Paulo (Univ. of Coimbra)*

15:30-17:00 FrP22.3
A Method to Determine the Optimal Features for Control of a Powered Lower-Limb Prosthesis 6041-6046
Farrell, Matthew Todd (MIT); Herr, Hugh (MIT)*

15:30-17:00 FrP22.4
Analysis of Human Motions with Arm Constraint 6047-6050
Kim, Duk-Jin (UT at Dallas); Prabhakaran, Balakrishnan (UTD)*

15:30-17:00 FrP22.5
Assessment of Features for Automatic CTG Analysis Based on Expert Annotation 6051-6054
Chudacek, Vaclav (Czech Technical Univ. in Prague); Spilka, Jiri (Czech Technical Univ. in Prague);
Lhotska, Lenka (Czech Technical Univ. in Prague); Janku, Petr (Obstetrics & Gynaecology clinic, Univ.
Hospital in Brno, Czech Republic); Koucky, Michal (Gynaecology & Obstetrics unit of the Charles Univ.
Hospital, Prague, Czech Republic); Huptych, Michal (Czech Technical Univ. in Prague);
Bursa, Miroslav (Czech Technical Univ. in Prague)*

15:30-17:00 FrP22.6
Drowsiness Detection by Thoracic Effort Signal Analysis in Real Driving Environments 6055-6058
Rodriguez Ibañez, Noelia (FICOSA Intl.); Garcia-gonzalez, Miguel A. (Univ. Politècnica de
Catalunya); Fernandez-Chimeno, Mireya (Technical Univ. of Catalonia);
Ramos-Castro, Juan (Univ. Politecnica de Catalunya)*

15:30-17:00 FrP22.7
Single Channel-Based Myoelectric Control of Hand Movements with Empirical Mode Decomposition 6059-6062
Ali, Ali (Univ. of Plymouth); Bugmann, Guido (Ctr. for Robotics & Neural Systems, Univ. of Plymouth);
Outram, Nicholas (Univ. of Plymouth); Escudero, Javier (Univ. of Plymouth)*

FrP23: 15:30-17:00 America Ballroom Westin
1.2.11 Biomedical Signal Classification II (Poster Session)

15:30-17:00 FrP23.1
Automatic REM Sleep Detection Associated with Idiopathic REM Behavior Disorder 6063-6066
Kempfner, Jacob (Technical Univ. of Denmark); Jennum, Poul (Danish Ctr. for Sleep Medicing);
Sorensen, Gertrud Laura (Technical Univ. of Denmark); Sorensen, Helge B D (Technical Univ. of Denmark)*

15:30-17:00 FrP23.2
A Rule-Based Automatic Sleep Staging Method 6067-6070
Liang, Sheng-Fu (Natl. Cheng Kung Univ.); Kuo, Chih-En (Natl. Cheng Kung Univ.); Hu, Yu-Han (Natl. Cheng
Kung Univ.); Cheng, Yu-Shian (Natl. Cheng Kung Univ.)*

15:30-17:00	FrP23.3
Bayes Classification of snoring subjects with and without Sleep Apnea Hypopnea Syndrome, using a Kernel method	6071-6074
<i>Solà-Soler, Jordi* (Univ. Politècnica de Catalunya); Fiz Fernandez, José Antonio (Navarra Hospital); Morera Prat, Jose (Hospital Univ. Germans Trias i Pujol); Jané, Raimon (Univ. Politècnica de Catalunya)</i>	
15:30-17:00	FrP23.4
Detection of Post Apnea Sounds and Apnea Periods from Sleep Sounds	6075-6078
<i>Karci, Ersin (Middle East Technical Univ.); Serinagaoglu Dogrusoz, Yesim* (Middle East Technical Univ.); Ciloglu, Tolga (Middle East Technical Univ.)</i>	
15:30-17:00	FrP23.5
On Determining Available Stochastic Features by Spectral Splitting in Obstructive Sleep Apnea Detection	6079-6082
<i>Martínez-Vargas, Juan David* (Univ. Nacional de Colombia); Sepúlveda Cano, Lina María (Univ. Nacional de Colombia Sede Manizales); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia)</i>	
15:30-17:00	FrP23.6
Individualising EEG Frequency Bands for Sleep Deprivation Studies	6083-6086
<i>Henelius, Andreas* (Finnish Inst. of Occupational Health); Korpela, Jussi (Finnish Inst. of Occupational Health); Huutilainen, Minna (Finnish Inst. of Occupational Health)</i>	
15:30-17:00	FrP23.7
Optimization of EEG Frequency Bands for Improved Diagnosis of Alzheimer Disease	6087-6091
<i>Elgendi, Mohamed* (Nanyang Technological Univ.); Vialatte, Francois (ESPCI ParisTech); Cichocki, Andrzej (BSI RIKEN); Latchoumane, Charles (KAIST); Jeong, Jaeseung (KAIST); Dauwels, Justin (MIT)</i>	
15:30-17:00	FrP23.8
Generalizations of the Subject-Independent Feature Set for Music-Induced Emotion Recognition	6092-6095
<i>Lin, Yuan-Pin (Natl. Chiao Tung Univ.); Chen, Jyh-Horng (Natl. Taiwan Univ.); Duann, Jeng-Ren (Univ. of California San Diego); Lin, Chin-Teng (Natl. Chiao-Tung Univ.); Jung, Tzyy-Ping* (Univ. of California San Diego)</i>	
15:30-17:00	FrP23.9
EpiScan: Online Seizure Detection for Epilepsy Monitoring Units	6096-6099
<i>Hartmann, Manfred* (AIT Austrian Inst. of Tech. GmbH); Fürbaß, Franz (AIT Austrian Inst. of Tech. GmbH); Perko, Hannes (Austrian Inst. of Tech.); Skupch, Ana (AIT Austrian Inst. of Tech. GmbH); Lackmayer, Katharina (Neurological Dept. Rosenhügel at General Hospital Hietzing, Vienna, Austria); Baumgartner, Christoph (Neurological Dept. Rosenhügel at General Hospital Hietzing, Vienna, Austria); Kluge, Tilmann (Austrian Inst. of Tech.)</i>	
15:30-17:00	FrP23.10
Optimal Design of a Bank of Spatio-Temporal Filters for EEG Signal Classification	6100-6103
<i>Higashi, Hiroshi* (Tokyo Univ. of Agriculture & Tech.); Tanaka, Toshihisa (Tokyo Univ. of Agriculture & Tech.)</i>	
15:30-17:00	FrP23.11
Brain Tumor Detection Using Scalp EEG with Modified Wavelet-ICA and Multi Layer Feed Forward Neural Network	6104-6109
<i>Selvam, V Salai* (Sriram Eng. College); Devi, S Shenbaga (Anna Univ. Chennai)</i>	
15:30-17:00	FrP23.12
Characterization of Entropy Measures against Data Loss: Application to EEG Records	6110-6113
<i>Cirugeda-Roldan, Eva María* (Politechnic Univ. of Alcoy, Computer Science Dept. (DISCA)); Cuesta-Frau, David (Politechnic Univ. of Valencia)</i>	
15:30-17:00	FrP23.13
Wavelet Transform Cardiorespiratory Coherence Detects Patient Movement During General Anesthesia	6114-6117
<i>Brouse, Christopher* (Univ. of British Columbia); Karlen, Walter (UBC); Myers, Dorothy (British Columbia's Children's Hospital); Cooke, Erin (British Columbia's Children's Hospital); Stinson, Jonathan (British Columbia's Children's Hospital); Lim, Joanne (British Columbia Children's Hospital); Dumont, Guy (Univ. of British Columbia); Ansermino, J. Mark (British Columbia's Children's Hospital)</i>	

2.3.11 Optical Imaging, Microscopy, and Infrared Imaging (Poster Session)

- 15:30-17:00 FrP24.1
Development of Double Density Whole Brain Fnirs with EEG System for Brain Machine Interface **6118-6122**
Ishikawa, Akihiro (SHIMADZU Corp.); Udagawa, Haruhide (SHIMADZU Corp.); Masuda, Yoshinori (SHIMADZU Corp.); Kohno, Satoru (SHIMADZU Corp.); Amita, Takashi (SHIMADZU Corp.); Inoue, Yoshihiro (SHIMADZU Corp.)*
- 15:30-17:00 FrP24.2
Measurements of Right / Left Hemisphere Activation Using Functional Near-Infrared Spectroscopy During Incongruent Stroop Test **6123-6126**
Hiroyasu, Tomoyuki (Doshisha Univ.); Fukuhara, Michihiro (Doshisha Univ.); Yokouchi, Hisatake (Doshisha Univ.); Miki, Mitsunori (Doshisha Univ.); Yoshimi, Masato (Doshisha Univ.)*
- 15:30-17:00 FrP24.3
A Statistical Model of Retinal Optical Coherence Tomography Image Data **6127-6130**
Kulkarni, Prathamesh (Univ. of Houston); Lozano, Diana (Univ. of Houston College of Optometry); Zouridakis, George (Univ. of Houston); Twa, Michael (Univ. of Houston)*
- 15:30-17:00 FrP24.4
Optical Coherence Tomography: Health Information Embedded on OCT Signal Statistics **6131-6133**
Bernardes, Rui (Faculty of Medicine, Univ. of Coimbra, Coimbra, Portugal/AIBILI, Coimbra, Portugal)*
- 15:30-17:00 FrP24.5
23 Khz MEMS Based Swept Source for Optical Coherence Tomography Imaging **6134-6137**
Vuong, Barry (Ryerson Univ.); Sun, Cuiru (Ryerson Univ.); Harduar, Mark (Ryerson Univ.); Mariampillai, Adrian (Ryerson Univ.); Isamoto, Keiji (Santec Corp.); Chong, Changho (Santec Corp.); Standish, Beau (Ryerson Univ.); Yang, Victor (Univ. of Ryerson)*
- 15:30-17:00 FrP24.6
Ontology-based Malaria Parasite Stage and Species Identification from Peripheral Blood Smear Images **6138-6141**
Makkapati, Vishnu (Philips Elec. India Limited); Rao, Raghuveer (Army Research Lab.)*
- 15:30-17:00 FrP24.7
Development of Three Dimensional Blood Vessel Search System by Using Stereo and Autofocus Hybrid Method **6142-6145**
Nakamachi, Eiji (Doshisha Univ.)*
- 15:30-17:00 FrP24.8
Thermal Infrared Imaging: Toward Diagnostic Medical Capability **6146-6149**
Arthur, Daniel Terence John (Curtin Univ.); Khan, Masood Mehmood (Curtin Univ.)*
- 15:30-17:00 FrP24.9
Spatiotemporal Changes of Cerebral Blood Flow Following Hemorrhagic Stroke by Laser Speckle Imaging **6150-6153**
Liu, Chenwei (Shanghai Jiao Tong Univ.); Xie, Bohua (Shanghai Jiao Tong Univ.); Li, Minheng (Shanghai Jiao Tong Univ.); Yang, Guo-yuan (Shanghai Jiao Tong Univ.); Tong, Shanbao (Shanghai Jiao Tong Univ.)*
- 15:30-17:00 FrP24.10
Detection of Unstained Living Neurospheres from Phase Contrast Images with Very Large Illumination Variations **6154-6157**
Xiong, Wei (Inst. for Infocomm Research, A-STAR); Chia, Shue Ching (Inst. for Infocomm Research); Lim, Joo Hwee (Inst. for Infocomm Research)*
- 15:30-17:00 FrP24.11
L1-Regularized Cerenkov Luminescence Tomography with a SP3 Method and CT Fusion **6158-6161**
Zhong, Jianghong (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie (Chinese Acad. of Sciences); Yang, Xin (Inst. of Automation, Chinese Acad. of Sciences); Qin, Chenghu (Chinese Acad. of Sciences)*

15:30-17:00	FrP24.12
Mosaicing of Optical Microscope Imagery Based on Visual Information	6162-6165
<i>Carozza, Ludovico (Univ. of Bologna, ARCES); Bevilacqua, Alessandro (ARCES-DEIS Univ. of Bologna); Piccinini, Filippo* (Univ. of Bologna, ARCES)</i>	
15:30-17:00	FrP24.13
Vignetting Correction by Exploiting an Optical Microscopy Image Sequence	6166-6169
<i>Bevilacqua, Alessandro (ARCES-DEIS Univ. of Bologna); Piccinini, Filippo* (Univ. of Bologna, ARCES); Gherardi, Alessandro (ARCES-Univ. of Bologna)</i>	
15:30-17:00	FrP24.14
Next Generation Optical Surface Sensing for Real-Time Measurement in Radiotherapy	6170-6173
<i>Parkhurst, James* (The Christie NHS Foundation Trust); Price, Gareth (The Christie NHS Foundation Trust); Sharrock, Phil (The Christie NHS Foundation Trust); Marchant, Tom (The Christie NHS Foundation Trust); Moore, Christopher (The Christie NHS Foundation Trust)</i>	
15:30-17:00	FrP24.15
Automatic Cell Tracking Applied to Analysis of Cell Migration in Wound Healing Assay	6174-6179
<i>Bise, Ryoma* (Dai Nippon Printing); Kanade, Takeo (Carnegie Mellon Univ.); Yin, Zhaozheng (Carnegie Mellon Univ.); Huh, Seung-il (Carnegie Mellon Univ.)</i>	
15:30-17:00	FrP24.16
Synthesis of Cervical Tissue Second Harmonic Generation Images Using Markov Random Field Modeling	6180-6183
<i>Yousefi, Siamak* (Univ. of Texas at Dallas); Kehtarnavaz, Nasser (Univ. of Texas at Dallas); Gholipour, Ali (Univ. of Texas at Dallas)</i>	

FrP25: 15:30-17:00	America Ballroom Westin
2.4.14 Advances in X-Ray, CT, PET, and SPECT (Poster Session)	

15:30-17:00	FrP25.1
Improving Osteoporosis Diagnose in Children Using Image Texture Analysis	6184-6187
<i>Castellanos, Norma Pilar* (Univ. Autonoma Metropolitana Iztapalapa); Martinez, Elisa (Instituto Nacional de Rehabilitacion); Gutierrez, Josefina (Instituto Nacional de Rehabilitación)</i>	
15:30-17:00	FrP25.2
Semi-Automated Segmentation and Classification of Digital Breast Tomosynthesis Reconstructed Images	6188-6191
<i>Vedantham, Srinivasan* (Univ. of Massachusetts Medical School); Shi, Linxi (Univ. of Massachusetts Medical School); Karellas, Andrew (Univ. of Massachusetts Medical School); Michaelsen, Kelly (Dartmouth College); Krishnaswamy, Venkataramanan (Dartmouth College); Pogue, Brian (Dartmouth College); Paulsen, Keith (Dartmouth College)</i>	
15:30-17:00	FrP25.3
Spatially Different, Real-Time Temporal Filtering and Dose Reduction for Dynamic Image Guidance During Neurovascular Interventions	6192-6195
<i>Setlur Nagesh, Swetadri Vasan* (Univ. At Buffalo); Sharma, Prateek (Univ. at Buffalo); Ionita, Ciprian (SUNY at Buffalo); Titus, Albert (Univ. at Buffalo, The State Univ. of New York); Cartwright, Alexander (Elec. Eng., Univ. at Buffalo, SUNY); Bednarek, Daniel (Univ. at Buffalo); Rudin, Stephen (Univ. at Buffalo)</i>	
15:30-17:00	FrP25.4
Osteophyte Detection for Hand Osteoarthritis Identification in X-Ray Images Using CNNs	6196-6199
<i>Banerjee, Sreeparna* (West Bengal Univ. of Tech., Kolkata, India); Schaefer, Gerald (Loughborough Univ.); Bhunia, Satyajit (College of Eng. & Management, Kolaghat, India)</i>	
15:30-17:00	FrP25.5
Efficient and Effective Regularised ART for Computed Tomography	6200-6203
<i>Buzmakov, Alexey (A.V. Shubnikov Inst. of Crystallography, RAS); Nikolaev, Dmitry (Inst. for Information Transmission Problems, RAS); Chukalina, Marina (Inst. of MicroElec.Tech., RAS); Schaefer, Gerald* (Loughborough Univ.)</i>	

15:30-17:00 FrP25.6
Automatic Dent-Landmark Detection in 3-D CBCT Dental Volumes 6204-6207
Cheng, Erkang (Temple Univ.); Chen, Jinwu (Temple Univ. Kornberg School of Dentistry);
Gabler, Bryce (Temple Dental School); Wu, Yi (Nanjing Univ. of Information Science & Tech.);
Deng, Huiyang (Temple Univ.); Megalooikonomou, Vasilis (Temple Univ., Ctr. for Information Science & Tech.);
Yang, Jie (Temple Univ.); Ling, Haibin (Temple Univ.)*

15:30-17:00 FrP25.7
**An Automatic Detection Method for Carotid Artery Calcifications Using
Top-Hat Filter on Dental Panoramic Radiographs 6208-6211**
Sawagashira, Tsuyoshi (Gifu Univ.); Hayashi, Tatsuro (Gifu Univ.); Hara, Takeshi (Gifu Univ. Graduate Sch of
Medicine); Katsumata, Akitoshi (Asahi Univ.); Muramatsu, Chisako (Gifu Univ.); Zhou, Xiangrong (Gifu Univ.);
Iida, Yukihiko (Asahi Univ.); Katagi, Kiyoji (Asahi Univ. Hospital); Fujita, Hiroshi (Gifu Univ.)*

15:30-17:00 FrP25.8
Recognition-Based Segmentation and Registration Method for Image Guided Shoulder Surgery 6212-6215
Chaoui, Jean (LaTIM); Hamitouche, Chafiaâ (Télécommunications Bretagne); Stindel, Eric (Univ. de Bretagne
Occidentale); Roux, Christian (TELECOM Bretagne – INSERM)*

15:30-17:00 FrP25.9
**Monitoring Pulmonary Fibrosis by Fusing Clinical, Physiological, and
Computed Tomography Features 6216-6219**
Caban, Jesus (Natl. Inst. of Health); Yao, Jianhua (Natl. Inst. of Health); Bagci, Ulas (Natl. Inst. of Health);
Mollura, Daniel J. (Natl. Inst. of Health)*

15:30-17:00 FrP25.10
Principal Curve Based Semi-Automatic Segmentation of Organs in 3D-CT 6220-6223
*You, Sheng (Northeastern Univ.); Bas, Erhan (Northeastern Univ.); Ataer-Cansizoglu, Esra (Northeastern
Univ.); Kalpathy-Cramer, Jayashree (Oregon Health & Science Univ.); Erdogmus, Deniz* (Northeastern Univ.)*

FrP26: 15:30-17:00 America Ballroom Westin
2.8.41 Advances in Retinal Image Analysis II (Poster Session)

15:30-17:00 FrP26.1
Automatic Optic Disc Segmentation with Peripapillary Atrophy Elimination 6224-6227
Cheng, Jun (Inst. for Infocomm Research, AStar); Liu, Jiang (Inst. for Infocomm Research, A STAR);
Wong, Damon (Inst. for Infocomm Research); Yin, Fengshou (Inst. for Infocomm Research);
Cheung, Carol (Singapore Eye Research Inst.); Baskaran, Mani (Singapore Eye Research Inst.);
Aung, Tin (Singapore Eye Research Inst.); Wong, Tien Yin (Natl. Univ. of Singapore)*

15:30-17:00 FrP26.2
MRMR Optimized Classification for Automatic Glaucoma Diagnosis 6228-6231
Zhang, Zhuo (A*STAR); Kwok, Chee Keong (Nanyang Tech. Univ., Singapore); Liu, Jiang (Inst. for Infocomm
Research, A STAR); Yin, Fengshou (Inst. for Infocomm Research); Wirawan, Adrianto (Nanyang Tech. Univ.);
Cheung, Carol (Singapore Eye Research Inst.); Baskaran, Mani (Singapore Eye Research Inst.);
Aung, Tin (Singapore Eye Research Inst.); Wong, Tien Yin (Natl. Univ. of Singapore)*

15:30-17:00 FrP26.3
Automated Detection of Red Lesions from Digital Colour Fundus Photographs 6232-6235
Jaafar, Hussain F (Univ. of Liverpool); Nandi, Asoke K (The Univ. of Liverpool);
Al-Nuaimy, Waleed (Univ. of Liverpool)*

15:30-17:00 FrP26.4
Statistical Characterization and Segmentation of Drusen in Fundus Images 6236-6241
Santos-Villalobos, Hector (Oak Ridge Natl. Lab.); Karnowski, Thomas (Oak Ridge Natl. Lab.);
Aykan, Deniz (Oak Ridge Natl. Lab.); Giancardo, Luca (Univ. of Burgundy – Oak Ridge Natl. Lab.);
Li, Yaqin (Univ. of Tennessee Health Science Ctr.); Nichols, Trent Lee (Oak Ridge Natl. Lab.);
Tobin, Kenneth (Oak Ridge Natl. Lab.); Chaum, Edward (Univ. of Tennessee Hamilton Eye Inst)*

15:30-17:00 FrP26.5
Retinal Image Registration Based on Multiscale Products and Optic Disc Detection 6242-6245
Koukounis, Dimitris (Univ. of Bristol, UK); Nicholson, Lindsay (Univ. of Bristol); Bull, David Roger (Univ. of Bristol); Achim, Alin (Univ. of Bristol)*

15:30-17:00 FrP26.6
Predicting Phosphene Elicitation in Patients with Retinal Implants: A Mathematical Study 6246-6249
Savage, Craig Owen (Univ. of Melbourne); Grayden, David B. (Univ. of Melbourne); Meffin, Hamish (Natl. ICT Australia); Burkitt, Anthony Neville (Univ. of Melbourne)*

FrP27: 15:30-17:00 America Ballroom Westin
2.9.42 Functional Imaging (Poster Session)

15:30-17:00 FrP27.1
Thermographic Investigation of Osseous Stress Pathology 6250-6253
Arthur, Daniel Terence John (Curtin Univ.); Khan, Masood Mehmood (Curtin Univ.); Barclay, Luke Charles (Curtin Univ.)*

15:30-17:00 FrP27.2
Changes of Skin Temperature of Parts of the Body and Serum Asymmetric Dimethylarginine (ADMA) in Type 2 Diabetes Mellitus Indian Patients 6254-6259
Anburajan, Mariamichael (Professor & Head,); S, Sivanandam (Dept of BioMedical Eng., SRM Univ., Kattankulathur-603203); Sahu, Bidyarasmi (Dept of BioTech., SRM Univ., Kattankulathur); B, Venkatraman (Radiation Safety & Environmental Group, Indira Gandhi Ctr. for Atomic Research (IGCAR), Kalpakkam-603102, Tamil Nadu, India-); M, Menaka (Radiation Safety & Environmental Group, Indira Gandhi Ctr. for Atomic Research (IGCAR), Kalpakkam-603102, Tamil Nadu, India); B, Baldev Raj (Indira Gandhi Ctr. for Atomic Research (IGCAR), Kalpakkam-603102, Tamil Nadu, India)*

15:30-17:00 FrP27.3
A Method for Measuring the Accuracy of Multi-Modal Image Fusion System for Catheter-Based Cardiac Interventions Using a Novel Motion Enabled Targeting Phantom 6260-6264
Hatt, Charles (Univ. of Wisconsin – Madison); Stanton, Douglas (Philips Research North America); Parthasarathy, Vijay (Philips Research North America); Jain, Ameet (Philips Research); Raval, Amish (U. Wisconsin-Madison)*

15:30-17:00 FrP27.4
Gait Analysis with Multiple Depth Cameras 6265-6268
Auvinet, Edouard (Univ. de Montréal); Meunier, Jean (Univ. de Montreal); Multon, Franck (M2S – Univ. de Rennes 2)*

15:30-17:00 FrP27.5
Spatially Weighted Mutual Information (SWMI) for Registration of Digitally Reconstructed ex vivo Whole Mount Histology and in vivo Prostate MRI 6269-6272
Patel, Pratik (Rutgers Univ.); Chappelow, Jonathan (Rutgers Univ.); Tomaszewski, John (Univ. of Pennsylvania); Feldman, Michael (Univ. of Pennsylvania); Rosen, Mark (Univ. of Pennsylvania); Shih, Natalie (Univ. of Pennsylvania); Madabhushi, Anant (Rutgers Univ.)*

15:30-17:00 FrP27.7
Real-Time Quantitative Ex Vivo Direct Autoradiography with 10µM Pixel Resolution 6273-6276
Peng, Qiyu (Lawrence Berkeley Natl. Lab.); Stephen E, Holland (Lawrence Berkeley Natl. Lab.); Choong, Woon-Seng (Lawrence Berkeley Natl. Lab.); Budinger, Thomas (Lawrence Berkeley Natl. Lab.); Moses, William W (Lawrence Berkeley Natl. Lab.)*

6.2.48 Advances in Brain-Machine Interfaces (Poster Session)

- 15:30-17:00 FrP28.1
An EEG-Based Brain Computer Interface for Rehabilitation and Restoration of Hand Control Following Stroke Using Ipsilateral Cortical Physiology **6277-6280**
Fok, Sam (Washington Univ. in St. Louis); Schwartz, Raphael (Washington Univ. in St. Louis); Wronkiewicz, Mark (Washington Univ. in St. Louis); Holmes, Charles (Washington Univ. in St. Louis); Zhang, Jessica (Washington Univ. in St. Louis); Somers, Thane (Washington Univ. in St. Louis); Bundy, David (Washington Univ. in St. Louis); Leuthardt, Eric (Washington Univ. in St. Louis)*
- 15:30-17:00 FrP28.2
Classification of Intended Motor Movement Using Surface EEG Ensemble Empirical Mode Decomposition **6281-6284**
Kuo, Ching-Chang (Louisiana Tech Univ.); Lin, William S. (Louisiana Tech Univ.); Dressel, Chelsea A. (Louisiana Tech Univ.); Chiu, Alan Wing Lun (Louisiana Tech Univ.)*
- 15:30-17:00 FrP28.3
Classification of Resting, Anticipation and Movement States in Self-Initiated Arm Movements for EEG Brain Computer Interfaces **6285-6288**
Rodrigo, Miguel (Univ. de Zaragoza, Bit&Brain); Montesano, Luis (Univ. de Zaragoza); Minguez, Javier (Zaragoza Univ.)*
- 15:30-17:00 FrP28.4
Single-Trial EEG Discrimination between Wrist and Finger Movement Imagery and Execution in a Sensorimotor BCI **6289-6293**
Mohamed, Abdul-Khaaliq (Univ. of Witwatersrand); Marwala, Tshilidzi (Univ. of Johannesburg); John, Lester (Univ. of Cape Town)*
- 15:30-17:00 FrP28.5
Decoding Semantic Information from Human Electrocorticographic (ECoG) Signals **6294-6298**
Wang, Wei (Univ. of Pittsburgh); Degenhart, Alan (Univ. of Pittsburgh); Sudre, Gustavo (Carnegie Mellon Univ.); Pomerleau, Dean (Intel Labs Pittsburgh & Carnegie Mellon Univ.); Tyler-Kabara, Elizabeth (Univ. of Pittsburgh)*
- 15:30-17:00 FrP28.6
Using Scalp Electrical Biosignals to Control an Object by Concentration and Relaxation Tasks: Design and Evaluation **6299-6302**
George, Laurent (INRIA, VR4I (BUNRAKU) Research Team); Lotte, Fabien (Institute for Infocomm Research); Viciano Abad, Raquel (Univ. of Jaén); Lécuyer, Anatole (IRISA-INRIA Rennes)*
- 15:30-17:00 FrP28.7
Mental Tasks Classification for BCI Using Image Correlation **6303-6306**
Ubeda, Andres (Univ. Miguel Hernandez de Elche); Ianez, Eduardo (Univ. Miguel Hernandez de Elche); Azorín, José M. (Univ. Miguel Hernández de Elche)*
- 15:30-17:00 FrP28.8
Effect of Competing Stimuli on SSVEP-Based BCI **6307-6310**
Ng, Kian (Univ. of Queensland, Queensland Brain Inst.); Bradley, Andrew Peter (Univ. of Queensland); Cunningham, Ross (Univ. of Queensland)*
- 15:30-17:00 FrP28.9
Multimodal Target Detection Using Single Trial Evoked EEG Responses in Single and Dual-Tasks **6311-6314**
Cecotti, Hubert (Univ. of California, Santa Barbara); Kasper, Ryan (Univ. of California, Santa Barbara); Elliott, James (Univ. of California, Santa Barbara); Eckstein, Miguel (Univ. of California, Santa Barbara); Giesbrecht, Barry (Univ. of California, Santa Barbara)*
- 15:30-17:00 FrP28.10
Skilled Hindlimb Reaching Task in Rats As a Platform for a Brain-Machine Interface to Restore Motor Function after Complete Spinal Cord Injury **6315-6318**
Knudsen, Eric (Drexel Univ.); Moxon, Karen (Drexel Univ.); Sturgis, Eliot Berkowitz (Drexel Univ.); Shumsky, Jed (Drexel Univ. College of Medicine)*

15:30-17:00	FrP28.11
A Wireless Multichannel EEG Recording Platform	6319-6322
<i>Filipe, Sabine (CEA/LETI, MINATEC Campus); Charvet, Guillaume (CEA/LETI, MINATEC campus); Foerster, Michael (CEA/LETI, MINATEC Campus); Porcherot, Jean (CEA/LETI, MINATEC Campus); Bêche, Jean-François (CEA/LETI, MINATEC Campus); Bonnet, Stéphane (CEA Léti MINATEC); Audebert, Patrick (CEA/LETI, MINATEC Campus); Régis, Guillaume (CEA/LETI, MINATEC Campus); Zongo, Brice (CEA/LETI, MINATEC Campus); Robinet, Stéphanie (CEA/LETI, MINATEC Campus); Condemine, Cyril (CEA/LETI, MINATEC Campus); Mestais, Corinne (CEA-LETI MINATEC); Guillemaud, Regis* (CEA Léti MINATEC)</i>	
15:30-17:00	FrP28.12
Motor Imagery based Brain-Computer Interface: A Study of the Effect of Positive and Negative Feedback	6323-6326
<i>González-Franco, Mar* (Univ. de Barcelona); Yuan, Peng (Tsinghua Univ.); Zhang, Dan (Tsinghua Univ.); Hong, Bo (Tsinghua Univ.); Gao, Shangkai (Tsinghua Univ.)</i>	
15:30-17:00	FrP28.13
An Optical Brain Computer Interface for Environmental Control	6327-6330
<i>Ayaz, Hasan* (Drexel Univ.); Shewokis, Patricia A (Drexel Univ.); Bunce, Scott (Drexel Univ. College of Medicine); Onaral, Banu (Drexel Univ.)</i>	
15:30-17:00	FrP28.14
Estimating Human Response to Taste Using EEG	6331-6334
<i>Park, Cheolsoo* (Imperial College London); Looney, David (Imperial College London); Mandic, Danilo (Imperial College)</i>	
15:30-17:00	FrP28.15
Hand Movement Decoding by Phase-Locking Low Frequency EEG Signals	6335-6338
<i>Liu, Jiaen* (Univ. of Minnesota); Perdoni, Christopher (Univ. of Minnesota); He, Bin (Univ. of Minnesota)</i>	
15:30-17:00	FrP28.16
Towards a BCI for Sensorimotor Training: Initial Results from Simultaneous Fnirs and Biosignal Recordings	6339-6343
<i>Zimmermann, Raphael* (ETHZ); Marchal-Crespo, Laura (ETH Zurich); Lambercy, Olivier (ETHZ); Fluet, Marie-Christine (ETHZ, Rehabilitation Eng. Lab); Riener, Robert (ETH & Univ. Zurich); Wolf, Martin (UZH, BORL); Gassert, Roger (ETH Zurich)</i>	
15:30-17:00	FrP28.17
Performance of Common Spatial Pattern under a Smaller Set of EEG Electrodes in Brain-Computer Interface on Chronic Stroke Patients: A Multi-Session Dataset Study	6344-6347
<i>Tam, Wing Kin (the Hong Kong Polytechnic Univ.); Ke, Zheng (The Hong Kong Polytechnic Univ.); Tong, Kai Yu, Raymond* (The Hong Kong Polytechnic Univ.)</i>	
15:30-17:00	FrP28.18
Electronic Performance of a Dual Inductive Link for a Wireless Neural Recording Implant	6348-6351
<i>Rush, Alexander* (Illinois Institute of Tech.); Troyk, Philip (Illinois Inst. of Tech.)</i>	
15:30-17:00	FrP28.19
SSVEP-BCI Implementation for 37-40 Hz Frequency Range	6352-6355
<i>Müller, Sandra Mara Torres (Federal Univ. of Espirito Santo); Diez, Pablo Federico (Univ. Nacional de San Juan); Bastos, Teodiano* (Univ. Federal do Espírito Santo); Sarcinelli-Filho, Mario (Federal Univ. of Espirito Santo); Mut, Vicente (Univ. Nacional de San Juan); Laciari, Eric (Univ. Nacional de San Juan)</i>	
15:30-17:00	FrP28.20
Classifying Real and Imaginary Finger Press Tasks on a P300-Based Brain-Computer Interface	6356-6359
<i>Zhang, Jicai (Zhejiang Univ.); Chen, Weidong* (Zhejiang Univ.); Yanlei, Gu (Zhejiang Univ.); Wu, Bian (Zhejiang Univ.); Qi, Yu (Zhejiang Univ., QAAS); Zheng, Xiaoxiang (Zhejiang Univ.)</i>	
15:30-17:00	FrP28.21
GIBS Block Speller: Toward a Gaze-Independent P300-Based BCI	6360-6364
<i>Pires, Gabriel* (Univ. of Coimbra); Nunes, Urbano (Univ. of Coimbra)</i>	

15:30-17:00	FrP28.22
Neural Decoding Using Local Field Potential Based on Partial Least Squares Regression	6365-6368
<i>Wang, Rui (Zhejiang Univ.); Lou, Xin Xin (Zhejiang Univ.); Jiang, Bo (Zhejiang Univ.); Chen, Weidong (Zhejiang Univ.); Zheng, Xiaoxiang (Zhejiang Univ.); Zhang, Shaomin* (Zhejiang Univ.)</i>	
15:30-17:00	FrP28.23
Minimizing Calibration Time Using Inter-Subject Information of Single-Trial Recognition of Error Potentials in Brain-Computer Interfaces	6369-6372
<i>Iturrate, Iñaki* (Univ. of Zaragoza); Montesano, Luis (Univ. de Zaragoza); Chavarriaga, Ricardo (Ecole Polytechnique Federale de Lausanne); Millán, José del R. (Swiss Federal Inst. of Tech., Lausanne); Minguez, Javier (Zaragoza Univ.)</i>	
15:30-17:00	FrP28.24
Somatosensory Evoked Potentials Elicited by Stimulating Two Fingers from One Hand – Usable for BCI?	6373-6376
<i>Breitwieser, Christian* (Graz Univ. of Tech.); Pokorny, Christoph (Graz Univ. of Tech.); Neuper, Christa (Graz Univ. of Tech.); Müller-Putz, Gernot (Graz Univ. of Tech.)</i>	
15:30-17:00	FrP28.25
A Concept to Standardize Raw Biosignal Transmission for Brain-Computer Interfaces	6377-6380
<i>Breitwieser, Christian* (Graz Univ. of Tech.); Neuper, Christa (Graz Univ. of Tech.); Müller-Putz, Gernot (Graz Univ. of Tech.)</i>	
15:30-17:00	FrP28.26
Impact of Target Probability on Single-Trial EEG Target Detection in a Difficult Rapid Serial Visual Presentation Paradigm Task	6381-6384
<i>Cecotti, Hubert* (Univ. of California, Santa Barbara); Sato-Reinhold, Joyce (Univ. of California, Santa Barbara); Sy, Jocelyn (Univ. of California, Santa Barbara); Elliott, James (Univ. of California, Santa Barbara); Eckstein, Miguel (Univ. of California, Santa Barbara); Giesbrecht, Barry (Univ. of California, Santa Barbara)</i>	
15:30-17:00	FrP28.27
A Square Root Ensemble Kalman Filter Application to a Motor-Imagery Brain-Computer Interface	6385-6388
<i>Kamrunnahar, Mst (Kamrun)* (The Pennsylvania State Univ.); Schiff, Steven (Pennsylvania State Univ.)</i>	
15:30-17:00	FrP28.28
Towards Neuro-Silicon Interface Using Reconfigurable Dynamic Clamping	6389-6392
<i>Luo, JunWen (Newcastle Univ., UK); Mak, Terrence* (Newcastle Univ.); Yu, Bo (Tsinghua Univ.); Andras, Peter (Newcastle Univ.); Yakovlev, Alex (Newcastle Univ.)</i>	
15:30-17:00	FrP28.29
Using Speech Recognition to Enhance the Tongue Drive System Functionality in Computer Access	6393-6396
<i>Huo, Xueliang* (Georgia Inst. of Tech.); Ghovanloo, Maysam (Georgia Inst. of Tech.)</i>	
15:30-17:00	FrP28.30
Dual Inductive Link Coil Design for a Neural Recording System	6397-6400
<i>Rush, Alexander* (Illinois Institute of Tech.); Troyk, Philip (Illinois Inst. of Tech.)</i>	
15:30-17:00	FrP28.31
Identifying Neuron Communities During a Reach and Grasp Task Using an Unsupervised Clustering Analysis	6401-6404
<i>Newman, Geoffrey* (Johns Hopkins Univ.); Aggarwal, Vikram (Johns Hopkins Univ.); Schieber, Marc (Univ. of Rochester); Thakor, Nitish (Johns Hopkins Univ.)</i>	
15:30-17:00	FrP28.32
A P300-Based BCI System for Controlling Computer Cursor Movement	6405-6408
<i>Kanoh, Shin'ichiro* (Tohoku Institute of Tech.); Miyamoto, Ko-ichiro (Tohoku Univ.); Yoshinobu, Tatsuo (Tohoku Univ.)</i>	
15:30-17:00	FrP28.33
A 64-Channel Neural Signal Processor/Compressor Based on Haar Wavelet Transform	6409-6412
<i>Shaeri, Mohammad Ali (Elec. & Computer Eng. Dept., K.N. Toosi Univ. of Tech., Tehran, Iran); Sodagar, Amir M.* (Univ. of Michigan); Abrishami Moghaddam, Hamid (K. N. Toosi Univ. of Tech.)</i>	

15:30-17:00 FrP29.1

Behaviour Patterns Detection for Persuasive Design in Nursing Homes to Help Dementia Patients 6413-6417

Fernandez-Llatas, Carlos (Univ. Politecnica de Valencia); Garcia-Gomez, Juan Miguel (ITACA-IBIME, Univ. Politécnica de Valencia); Vicente, Javier (ITACA-IBIME, Univ. Politécnica de Valencia); Juan Carlos, Naranjo (TSB-ITACA Univ. Politecnica de Valencia); Robles, Montserrat (Technical Univ. of Valencia); Benedí, Jose Miguel (ITI – Univ. Politecnica de Valencia); Traver, Vicente (Inst. ITACA)*

15:30-17:00 FrP29.2

Using Pre-Treatment Electroencephalography Data to Predict Response to Transcranial Magnetic Stimulation Therapy for Major Depression 6418-6421

Khodayari-Rostamabad, Ahmad (McMaster Univ.); Reilly, James (McMaster Univ.); Hasey, Gary (McMaster Univ.); de Bruin, Hubert (McMaster Univ.); MacCrimmon, Duncan (McMaster Univ.)*

15:30-17:00 FrP29.3

Use of Radial Basis Functions in Computer-Aided Diagnosis of Prostate Cancer 6422-6425

Marin, Oscar (Univ. of Alicante); Ruiz Fernandez, Daniel (Univ. of Alicante); Pérez, Irene (Univ. of Alicante); Soriano Paya, Antonio (Univ. of Alicante)*

15:30-17:00 FrP29.4

iSyNCC: An Intelligent System for Patient Monitoring & Clinical Decision Support in Neuro-Critical-Care 6426-6429

Feng, Mengling (Inst. for Infocomm Research); Zhang, Zhuo (A*STAR); Zhang, Feng (Inst. for Infocomm Research Singapore); Ge, Yu (Inst. for Infocomm Research); Loy, Liang Yu (Inst. for Infocomm Research); Guo, Wenyuan (Inst. for Infocomm Research); Chin, Pei Loon (Inst. for Infocomm Research); King, Nicolas Kon Kam (Natl. Neuroscience Inst. Singapore); Ang, Beng Ti (Natl. Neuroscience Inst.); Guan, Cuntai (Inst. for Infocomm Research)*

15:30-17:00 FrP29.5

Development and Usability Testing of a Parent Decision Support Tool for the Neonatal Intensive Care Unit 6430-6433

Weyand, Sabine (Univ. of Ottawa); Frize, Monique (Carleton Univ.); Barciak, Erika (Univ. of Ottawa); Dunn, Sandra (Champlain Maternal Newborn Regional Program)*

15:30-17:00 FrP29.6

Supervised Regularized Canonical Correlation Analysis: Integrating Histologic and Proteomic Data for Predicting Biochemical Failures 6434-6437

Golugula, Abhishek (Rutgers Univ.); Lee, George (Rutgers Univ.); Master, Stephen (Univ. of Pennsylvania); Feldman, Michael (Univ. of Pennsylvania); Tomaszewski, John (Univ. of Pennsylvania); Madabhushi, Anant (Rutgers Univ.)*

15:30-17:00 FrP29.7

Rough Set Theory Based Prognostication of Life Expectancy for Terminally Ill Patients 6438-6441

Gil-Herrera, Eleazar (Univ. of South Florida); Yalcin, Ali (Univ. of South Florida); Djulbegovic, Benjamin (Univ. of South Florida); Tsalatsanis, Athanasios (Univ. of South Florida); Barnes, Laura (Univ. of South Florida)*

5.1.9 Pulse Wave Velocity-Based Methods in Cardiovascular Research (Oral Session)

Chair: Armentano, Ricardo Luis (*Favaloro Univ.*)

Co-Chair: Mukkamala, Ramakrishna (*Michigan State Univ.*)

17:15-17:30 FrD12.1

Quantitative Determination of Arterial Pulse Wave Velocity by Non-Interfering Bioimpedance Sensing 6442-6445

Baek, David B.; Lading, Lars (Sense A/S)*

17:30-17:45	FrD12.2
Robustness of the P-U and LnD-U Loop Wave Speed Estimation Methods: Effects of the Diastolic Pressure Decay and Vessel Wall Non-Linearities 6446-6449	
<i>Mynard, Jonathan*</i> (Murdoch Children's Research Inst.); <i>Davidson, Malcolm R.</i> (Dept. of Chemical & Biomolecular Eng., Univ. of Melbourne); <i>Penny, Daniel</i> (Murdoch Children's Research Inst.); <i>Smolich, Joseph</i> (Murdoch Children's Research Inst.)	
17:45-18:00	FrD12.3
Effects of Pressure-Dependent Segmental Arterial Compliance and Posture Changes on Pulse Wave Transmission in an Arterial Model of the Human Upper Limb 6450-6453	
<i>Xu, Ke*</i> (Macquarie Univ.); <i>Butlin, Mark</i> (Macquarie Univ.); <i>Avolio, Alberto</i> (Macquarie Univ.)	
18:00-18:15	FrD12.4
Age-Related Changes in Reservoir and Excess Components of Central Aortic Pressure in Asymptomatic Adults 6454-6457	
<i>Bia, Daniel</i> (School of Medicine, Republic Univ.); <i>Cyberknop, Leandro Javier*</i> (Univ. Tecnológica Nacional); <i>Zócalo, Yanina</i> (School of Medicine, Republic Univ.); <i>Farro, Ignacio</i> (School of Medicine, Republic Univ.); <i>Torrado, Juan</i> (School of Medicine, Republic Univ.); <i>Farro, Federico</i> (Univ. de la República, School of Medicine); <i>Pessana, Franco</i> (FICEN, Favaloro Univ.); <i>Armentano, Ricardo Luis</i> (Favaloro Univ.)	
18:15-18:30	FrD12.5
Carotid-Radial Pulse Wave Velocity As a Discriminator of Intrinsic Wall Alterations During Evaluation of Endothelial Function by Flow Mediated Dilatation 6458-6461	
<i>Torrado, Juan*</i> (School of Medicine, Republic Univ.); <i>Bia, Daniel</i> (School of Medicine, Republic Univ.); <i>Zócalo, Yanina</i> (School of Medicine, Republic Univ.); <i>Farro, Ignacio</i> (School of Medicine, Republic Univ.); <i>Farro, Federico</i> (Univ. de la República, School of Medicine); <i>Valero, Matías</i> (Favaloro Univ., Buenos Aires, Argentina); <i>Armentano, Ricardo Luis</i> (Favaloro Univ.)	
18:30-18:45	FrD12.6
Pulse Arrival Time Is Not an Adequate Surrogate for Pulse Transit Time in Terms of Tracking Diastolic Pressure 6462-6464	
<i>Zhang, Guanqun*</i> (Michigan State Univ.); <i>Xu, Da</i> (Univ. of Waterloo); <i>Olivier, Bari</i> (Michigan State Univ.); <i>Mukkamala, Ramakrishna</i> (Michigan State Univ.)	
FrD13: 17:15-18:45	Arlington Marriott
4.7.1 Advances in the Analysis of High-Throughput Systems Biology Datasets (Oral Session)	
Chair: Akay, Metin (Univ. of Houston)	
Co-Chair: Balestra, Gabriella (Pol. di Torino)	
17:15-17:30	FrD13.1
A Multidimensional Signal Processing Approach for Classification of Microwave Measurements with Application to Stroke Type Diagnosis 6465-6469	
<i>Yousefi Mesri, Hamed</i> (Chalmers Univ. of Tech.); <i>Khzaaeli Najafabadi, Masoud</i> (Chalmers Univ. of Tech.); <i>McKelvey, Tomas*</i> (Chalmers Univ. of Tech.)	
17:30-17:45	FrD13.2
Early Detection and Characterization of Alzheimer's Disease in Clinical Scenarios Using Bioprofile Concepts and K-Means 6470-6473	
<i>Escudero, Javier*</i> (Univ. of Plymouth); <i>Ifeakor, Emmanuel</i> (Univ. of Plymouth)	
17:45-18:00	FrD13.3
SVS: Data and Knowledge Integration in Computational Biology 6474-6478	
<i>Zycinski, Grzegorz</i> (Univ. of Genoa); <i>Barla, Annalisa*</i> (Univ. of Genoa); <i>Verrì, Alessandro</i> (Univ. of Genoa)	
18:00-18:15	FrD13.4
An Hybrid Framework for Genome Wide Epistasis Discovery 6479-6482	
<i>Tan, Zehao</i> (Inst. for Infocomm Research); <i>Zhang, Zhuo*</i> (A*STAR); <i>Liu, Jiang</i> (Inst. for Infocomm Research, A STAR); <i>Kwoh, Chee Keong</i> (Nanyang Tech. Univ., Singapore); <i>Ong, Sim Heng</i> (Natl. Univ. of Singapore); <i>Teo, Yik Ying</i> (Natl. Univ. of Singapore); <i>Khor, Chiea Chuen</i> (Genome Inst. of Singapore); <i>Tai, E Shyong</i> (Natl. Univ. of Singapore); <i>Aung, Tin</i> (Singapore Eye Research Inst.); <i>Vithana, Eranga</i> (Singapore Eye Research Inst.); <i>Wong, Tien Yin</i> (Natl. Univ. of Singapore)	

18:15-18:30 FrD13.5
MEET: Motif Estimation Elements Toolkit 6483-6486
Pairó, Erola (Institut of BioEng. of Catalonia); Maynou, Joan (Univ. Politècnica de Catalunya); Vallverdu, Montserrat (Univ. Politècnica de Catalunya); Caminal, Pere (Technical Univ. of Catalonia (UPC)); Marco, Santiago (Institut for BioEng. of Catalonia); Perera, Alexandre (Univ. Politècnica de Catalunya)*

18:30-18:45 FrD13.6
Using Multimodal Information for the Segmentation of Fluorescent Micrographs with Application to Virology and Microbiology 6487-6490
Held, Christian (Fraunhofer IIS); Wenzel, Jens (Univ. sklinik Erlangen, Mikrobiologisches Institut – Klinische Mikrobiologie Immunologie und Hygiene, Germany); Weibel, Rike (Univ. of Erlangen-Nuremberg, Inst. for Clinical & Molecular Virology); Marschall, Manfred (Inst. for Clinical & Molecular Virology, Univ. of Erlangen-Nuremberg); Lang, Roland (Univ. Hospital Erlangen); Palmisano, Ralf (SFB796); Wittenberg, Thomas (Fraunhofer Inst. for Integrated Circuits (IIS))*

FrD15: 17:15-18:45 Clarendon Marriott
7.4.2 Cell-Matrix Interactions within Tumors and Normal Tissue (Minisymposium)
Chair: Moore, Nicole (NCI/NIH)
Co-Chair: Wong, Joyce (Boston Univ.)

17:15-17:30 FrD15.1
Mechanobiology of Tumor Invasion and Angiogenesis *
Munn, Lance (Massachusetts General Hospital)*

17:30-17:45 FrD15.2
Control of Cell Phenotype by Tuning Cell-Substrate Interactions: Mechanics, Chemistry, and Structure *
Wong, Joyce (Boston Univ.)*

17:45-18:00 FrD15.3
Chemomechanics at the Cell-Material Interface: Pulling It All Together *
Van Vliet, Krystyn (Massachusetts Inst. of Tech.); Zeiger, Adam (Drexel Univ.); Maloney, John (Massachusetts Inst. of Tech.); Paradise, Ranjani K. (Massachusetts Inst. of Tech.)*

FrD16: 17:15-18:45 Dartmouth Marriott
9.2.18 Recent Advances in Clinical Gait Analysis Using Ambient and Wearable Sensors (Oral Session)
Chair: Caulfield, Brian (UCD)
Co-Chair: Tamura, Toshiyo (Chiba Univ.)

17:15-17:30 FrD16.1
Passive In-Home Measurement of Stride-To-Stride Gait Variability Comparing Vision and Kinect Sensing 6491-6494
Stone, Erik (Univ. of Missouri); Skubic, Marjorie (Univ. of Missouri)*

17:30-17:45 FrD16.2
Unobtrusive Monitoring of the Longitudinal Evolution of In-Home Gait Velocity Data with Applications to Elder Care 6495-6498
Austin, Daniel (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.); Kaye, Jeffrey A. (Oregon Health & Science Univ.); Mattek, Nora (Oregon Health & Science Univ.); Pavel, Michael (Oregon Health & Science Univ.)*

17:45-18:00 FrD16.3
Body-Worn Sensor Based Surrogates of Minimum Ground Clearance in Elderly Fallers and Controls 6499-6502
Greene, Barry R. (Intel); Doheny, Emer (Intel); Foran, Tim (St. James's Hospital); Caulfield, Brian (UCD); McGrath, Denise (Univ. College Dublin)*

18:00-18:15 FrD16.4
Estimation of End Point Foot Clearance Points from Inertial Sensor Data 6503-6506
Santhiranayagam, Braveena K. (Victoria Univ., Melbourne, Australia); Lai, Tze Huei, Daniel (Victoria Univ.); Begg, Rezaul (Victoria Univ.); Palaniswami, Marimuthu (Univ. of Melbourne)*

18:15-18:30 FrD16.5
Laboratory in a Box: Wearable Sensors and Its Advantages for Gait Analysis 6507-6510
Najafi, Bijan (Rosalind Franklin Univ. of Medicine & Science); Khan, Tahir (Rosalind Franklin Univ. of Medicine & Science); Wrobel, James (Rosalind Franklin Univ. of Medicine & Science)*

18:30-18:45 FrD16.6
Using a Tri-Axial Accelerometer to Detect Technique Breakdown Due to Fatigue in Distance Runners: A Preliminary Perspective 6511-6514
Patterson, Matt (Univ. College Dublin); Caulfield, Brian (UCD); McGrath, Denise (Univ. College Dublin)*

FrD17: 17:15-18:45 Exeter Marriott
11.2.2 Biomedical Engineering Education: Mobility, Harmonization, Innovation (Oral Session)
Chair: Magjarevic, Ratko (*Univ. of Zagreb*)
Co-Chair: Zequera Diaz, Martha Lucia (*Pontificia Univ. Javeriana*)

17:15-17:30 FrD17.1
Branding the Bio/Biomedical Engineering Degree 6515-6517
Voigt, Herbert (Boston Univ.)*

17:30-17:45 FrD17.2
Project-Based Learning with International Collaboration for Training Biomedical Engineers 6518-6521
Krishnan, Shankar Muthu (Wentworth Inst. of Tech.)*

17:45-18:00 FrD17.3
Promoting Harmonization of BME Education in Europe: The CRH-BME Tempus Project 6522-6525
Pallikarakis, Nicolas (Univ. of Patras); Bliznakov, Zhivko (Univ. of Patras); Miklavcic, Damijan (Univ. of Ljubljana); Jarm, Tomaz (Univ. of Ljubljana); Magjarevic, Ratko (Univ. of Zagreb); Lackovic, Igor (Univ. of Zagreb); Pecchia, Leandro (Univ. of Naples – Federico II); Stagni, Rita (Univ. of Bologna); Jobaggy, Akos (Budapest Univ. of Tech. & Economics); Barbenel, Joe (Univ. of Strathclyde)*

18:00-18:15 FrD17.4
Teaching Medical Instrumentation Fundamentals through Innovation Processes B#5
Cadena, Miguel (Univ. Autonoma Metropolitana); Azpiroz-Ieehan, Joaquin (Univ. Autonoma Metropolitana); Martinez-Licon, Fabiola (Univ. Autonoma Metropolitana)*

18:15-18:30 FrD17.5
Bioengineering Education @ NUS: A Design-Centered Curriculum 6530-6533
Goh, James, Cho Hong (Natl. Univ. of Singapore); Toh, Siew-Lok (Natl. Univ. of Singapore)*

FrD20: 17:15-18:45 Salons CD Marriott
1.4.1 Cognitive State Assessment Competition 2011 (Oral Session)
Chair: Estep, Justin (*Air Force Research Lab.*)
Co-Chair: Gray, Wayne (*Rensselaer Polytechnic Inst.*)

17:15-17:30 FrD20.1
An EEG Workload Classifier for Multiple Subjects 6534-6537
Wang, Ziheng (Rensselaer Polytechnic Inst.); Hope, Ryan (Rensselaer Polytechnic Inst.); Wang, Zuoguan (Rensselaer Polytechnic Inst.); Qiang, Ji (Rensselaer Polytechnic Inst.); Gray, Wayne (Rensselaer Polytechnic Inst.)*

17:30-17:45 FrD20.2
Physiological Cognitive State Assessment: Applications for Designing Effective Human-Machine Systems 6538-6541
Estep, Justin (Air Force Research Lab.); Christensen, James (U.S. Air Force Research Lab.)*

17:45-18:00 FrD20.3
QUASAR's QStates Cognitive Gauge Performance in the Cognitive State Assessment Competition 2011 6542-6546
McDonald, Neil (Quantum Applied Science & Research, Inc.); Soussou, Walid (Quantum Applied Science & Research Inc. (QUASAR))*

18:00-18:15 FrD20.4
Estimation of Task Workload from EEG Data: New and Current Tools and Perspectives 6547-6551
Kothe, Christian Andreas Edgar (Univ. of California San Diego); Makeig, Scott (Univ. of California San Diego)*

18:15-18:30 FrD20.5
An Assessment of Non-Stationarity in Physiological Cognitive State Assessment Using Artificial Neural Networks 6552-6555
Estep, Justin (Air Force Research Lab.); Klosterman, Samantha (Wright State Univ.); Christensen, James (U.S. Air Force Research Lab.)*

18:30-18:45 FrD20.6
Particle Swarm Optimization of Feature Selection for Cognitive State Detection 6556-6559
Firpi, Hiram (JHU); Vogelstein, R. Jacob (Johns Hopkins Univ.)*

FrD21: 17:15-18:45 Salon E Marriott
1.3.1 Nonlinear Biomedical Signal Processing: Advances and Challenges in Monitoring (Oral Session)
Chair: Signorini, Maria G. (*Politecnico di Milano*)
Co-Chair: Chon, Ki (*Worcester Polytechnic Inst.*)

17:15-17:30 FrD21.1
Assessment of Diabetic Cardiac Autonomic Neuropathy in Type I Diabetic Mice 6560-6563
Chon, Ki (Worcester Polytechnic Inst.); Yang, Bufan (WPI)*

17:30-17:45 FrD21.2
Monitoring in Cardiovascular Disease Patients by Nonlinear Biomedical Signal Processing 6564-6567
Voss, Andreas (Univ. of Applied Sciences Jena); Schulz, Steffen (Univ. of Applied Sciences Jena); Schroeder, Rico (Univ. of Applied Sciences Jena)*

17:45-18:00 FrD21.3
Advances in Monitoring Cardiovascular Signals. Contribution of Nonlinear Signal Processing 6568-6571
Signorini, Maria G. (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano); Magenes, Giovanni (Univ. of Pavia)*

FrD22: 17:15-18:45 Salon F Marriott
1.2.29 Biomedical Modeling and Simulation: Neurological Data (Oral Session)
Chair: Swindlehurst, A. Lee (*Univ. of California, Irvine*)
Co-Chair: Gutierrez, David (*Cinvestav*)

17:15-17:30 FrD22.1
EEG/MEG Source Localization Using Source Deflated Matching Pursuit 6572-6575
Wu, Shun Chi (Univ. of California, Irvine); Swindlehurst, A. Lee (Univ. of California, Irvine)*

17:30-17:45 FrD22.2
Investigaton of the Neuronal Efficacy and eeg Source Power under Steady-State Visual Stimulation 6576-6579
Duru, Adil Deniz (Bogazici Univ.); Erdogan, Sinem Burcu (Bogazici Univ.); Bayram, Ali (Bogazici Univ. Biomedical Eng. Inst.); Kasikci, Itir (Istanbul Medical School); Ademoglu, Ahmet (Bogazici Univ.); Demiralp, Tamer (Istanbul Medical School)*

17:45-18:00 FrD22.3
Neonatal Seizure Detection Using Blind Distributed Detection with Correlated Decisions 6580-6584
Jeremic, Aleksandar (McMaster Univ.); Li, Huaying (McMaster Univ.)*

18:00-18:15 FrD22.4
EEG Signal Classification Using Time-Varying Autoregressive Models and Common Spatial Patterns ... 6585-6588
Gutierrez, David (Cinvestav Monterrey); Salazar-Varas, Rocio (Cinvestav Monterrey)*

18:15-18:30 FrD22.5
Functional Near Infrared Spectroscopy (fNIRS) Synthetic Data Generation 6589-6592
Leamy, Darren John (NUI Maynooth); Ward, Tomas (NUI Maynooth)*

18:30-18:45 FrD22.6
EMG Contributes to Improve Cerebral State Index Modeling in Dogs Anesthesia 6593-6596
Bras, Susana (Univ. de Aveiro); Ferreira, David A (Univ. de Trás-os-Montes e Alto Douro);
Antunes, Luis (Univ. de Trás-os-Montes e Alto Douro); Ribeiro, Lénio (Hospital Veterinário do Porto);
Nunes, Catarina S (King's College London); Gouveia, Sonia (Univ. do Porto)*

FrD23: 17:15-18:45	Salon G Marriott
2.8.34 Cell Image Analysis (Oral Session)	
Chair: Kong, Jun (<i>Emory Univ.</i>)	
Co-Chair: Whelan, Paul F. (<i>Dublin City Univ.</i>)	

17:15-17:30 FrD23.1
Evaluating Descriptors for the Lateral Translocation of Membrane Proteins 6597-6600
Domanova, Olga (RWTH Aachen); Borbe, Stefan (Fraunhofer Institute for Applied Information Tech. FIT);*
Mühlfeld, Stefanie (Heinrich-Heine Univ. of Düsseldorf, Medical Faculty, Dept. of Gastroenterology, Hepatology
& Infectiology); Becker, Martin (Heinrich-Heine Univ. of Düsseldorf, Medical Faculty, Dept. of Gastroenterology,
Hepatology & Infectiology); Kubitz, Ralf (Heinrich-Heine Univ. of Düsseldorf, Medical Faculty, Dept. of
Gastroenterology, Hepatology & Infectiology); Häussinger, Dieter (Heinrich-Heine Univ. of Düsseldorf, Medical
Faculty, Dept. of Gastroenterology, Hepatology & Infectiology); Berlage, Thomas (Fraunhofer Institute for
Applied Information Tech. FIT)

17:30-17:45 FrD23.2
Features for Cells and Nuclei Classification 6601-6604
Liu, Song (Nanyang Technological Univ.); Mundra, Piyushkumar A. (Nanyang Technological Univ.);*
Rajapakse, Jagath C (Bioinformatics Research Ctr., School of Computer Eng., Nanyang Technological Univ.)

17:45-18:00 FrD23.3
Towards Building Computerized Image Analysis Framework for Nucleus
Discrimination in Microscopy Images of Diffuse Glioma 6605-6608
Kong, Jun (Emory Univ.); Cooper, Lee (Emory); Kurc, Tahsin (Emory);*
Brat, Daniel (Emory Univ.); Saltz, Joel (Emory Univ.)

18:00-18:15 FrD23.4
New Robust Algorithm for Tracking Cells in Videos of Drosophila Morphogenesis Based on
Finding an Ideal Path in Segmented Spatio-Temporal Cellular Structures 6609-6612
Bellaiche, Yohanns (Institut CURIE Paris); Bosveld, Floris (Institut CURIE Paris); Graner, Francois (Institut
CURIE Paris); Mikula, Karol (Slovak Univ. of Tech.); Remesikova, Mariana (Slovak Univ. of Tech. Bratislava);*
Smisek, Michal (Slovak Univ. of Tech. Bratislava)

18:15-18:30 FrD23.5
An Active Particle-based Tracking Framework for 2D and 3D Time-lapse Microscopy Images 6613-6618
Hossain, M. Julius (Dublin City Univ.)*

18:30-18:45 FrD23.6
Spherical Harmonics Based Extraction and Annotation of Cell Shape in
3D Time-Lapse Microscopy Sequences 6619-6622
Ducroz, Christel (Institut Pasteur, Quantitative Image Analysis Unit); Olivo-Marin, Jean-Christophe (Institut*
Pasteur); Dufour, Alexandre (Institut Pasteur)

FrD24: 17:15-18:45	Salon HI Marriott
2.8.36 Endoscopic and Motion Imaging (Oral Session)	
Chair: Coimbra, Miguel (<i>Inst. de Telecomunicações/Univ. do Porto</i>)	
Co-Chair: Branzan Albu, Alexandra (<i>Univ. of Victoria</i>)	

17:15-17:30 FrD24.1
Real-Time Laryngoscopic Measurements of Vocal-Fold Vibrations 6623-6626
Ishii, Idaku (Hiroshima Univ.); Takemoto, Shoichi (Hiroshima Univ.); Takaki, Takeshi (Hiroshima Univ.);*
Takamoto, Muneo (Hiroshima Univ.); Imon, Kentaro (Hiroshima Univ.); Hirakawa, Katsuhiko (Hiroshima Univ.)

17:30-17:45	FrD24.2
Towards Integrating Temporal Information in Capsule Endoscopy Image Analysis	6627-6630
<i>Zhao, Qian (The Chinese Univ. of Hong Kong); Dassopoulos, Themistocles (Washington Univ. School of Medicine); Mullin, Gerard (Johns Hopkins Univ.); Hager, Gregory D (Johns Hopkins Univ.); Meng, Max Q.-H. (The Chinese Univ. of Hong Kong); Kumar, Rajesh* (Johns Hopkins Univ.)</i>	
17:45-18:00	FrD24.3
Compressed Domain Topographic Classification for Capsule Endoscopy	6631-6634
<i>Marques, Nuno (Instituto de Telecomunicações, Faculdade de Ciências da Univ. do Porto); Cunha, João Paulo Silva (Univ. of Aveiro); Dias, Eduardo (Univ. de Aveiro, IEETA); Coimbra, Miguel* (Instituto de Telecomunicações/Univ. do Porto)</i>	
18:00-18:15	FrD24.4
Gap Detection in Endoscopic Video Sequences Using Graphs	6635-6638
<i>Behrens, Alexander* (RWTH Aachen Univ.); Takami, Masato (RWTH Aachen Univ.); Gross, Sebastian (RWTH Aachen Univ.); Aach, Til (RWTH Aachen Univ.)</i>	
18:15-18:30	FrD24.5
Feature-Based Tracking of Urethral Motion in Low-Resolution Trans-Perineal Ultrasound	6639-6642
<i>Jean, Frederic (Laval Univ.); Branzan Albu, Alexandra* (Univ. of Victoria); Dumoulin, Chantal (Univ. of Montreal)</i>	
18:30-18:45	FrD24.6
Bleeding Detection in Wireless Capsule Endoscopy Images Based on Color Invariants and Spatial Pyramids Using Support Vector Machines	6643-6646
<i>Lv, Guolan* (Shanghai Jiao Tong Univ.); Yan, Guo-Zheng (Shanghai Jiao Tong Univ.); Wang, Zhiwu (Shanghai Jiao Tong Univ.)</i>	

FrD25: 17:15-18:45	Salon JK Marriott
2.2.17 Health Informatics: eHealth Solutions for Cardiovascular Risk Screening II (Minisymposium)	
Chair: Poon, Carmen CY (<i>The Chinese Univ. of Hong Kong</i>)	
Co-Chair: Sonka, Milan (<i>Univ. of Iowa</i>)	

17:15-17:30	FrD25.1
IVUS-Based Assessment of 3D Morphology and Virtual Histology: Prediction of Atherosclerotic Plaque Status and Changes	6647-6650
<i>Sonka, Milan* (Univ. of Iowa)</i>	
17:30-17:45	FrD25.2
Automated High-Performance Cimt Measurement Techniques Using Patented AtheroEdge™: A Screening and Home Monitoring System	6651-6654
<i>Molinari, Filippo* (Politecnico di Torino); Meiburger, Kristen Mariko (Politecnico di Torino); Suri, Jasjit (Biomedical Technologies)</i>	
17:45-18:00	FrD25.3
First and Second Order Statistical Texture Features in Carotid Plaque Image Analysis: Preliminary Results From Ongoing Research	6655-6658
<i>Nicolaides, Andrew (Imperial College); Kyriacou, Efthymoulos* (Frederick Univ. Cyprus); Pattichis, Constantinos (Univ. of Cyprus); Petroudi, Styliani (Univ. of Oxford); Pattichis, Marios (Univ. of New Mexico.); Griffin, Maura (Vascular Noninvasive Screening & Diagnostic Ctr., London, UK); Kakkos, Stavros (Imperial College)</i>	
18:00-18:15	FrD25.4
Challenges and Opportunities for the Detection of Neovascularization in IVUS Data	*
<i>Kakadiaris, Ioannis* (Univ. of Houston)</i>	

FrD26: 16:30-17:45	Provincetown Marriott
4.3.16 Control in Synthetic Biology V (Minisymposium)	
Chair: Tidor, Bruce (<i>Massachusetts Inst. of Tech.</i>)	
Co-Chair: Lu, Timothy (<i>Massachusetts Inst. of Tech.</i>)	

16:30-17:00	FrD26.1
Metabolic Engineering to Potentiate Immunity	*
<i>Brynildsen, Mark* (Princeton Univ.)</i>	

17:15-17:45

FrD26.2

RNA Expression Signatures to Determine Antibiotic Responses *

*Hung, Deborah** (Massachusetts General Hospital)

Saturday, 3 September 2011

SaA01: 08:00-09:30

St. George AB Westin

8.7.31 Micro-Biorobotics (Oral Session)

Chair: Martel, Sylvain (*Ec. Pol. de Montreal*)

Co-Chair: Kaneko, Makoto (*Osaka Univ.*)

08:00-08:15

SaA01.1

Autonomous Locomotion of Capsule Endoscope in Gastrointestinal Tract **6659-6663**

Yang, Sungwook (*Korea Inst. of Science & Tech.*); *Park, Kitae* (*Univ. of Science & Tech., Korea*);

Kim, Jinseok (*Korea Inst. of Science & Tech.*); *Kim, Tae Song* (*Korea Inst. of Science & Tech.*);

*Yoon, Eui-Sung** (*Korea Inst. of Science & Tech.*)

08:15-08:30

SaA01.2

Electromagnetic Drive of Microrobot Geometrically Constrained in Blood Vessel **6664-6667**

*Nakamura, Sho** (*the Univ. of Tokyo*); *Harada, Kanako* (*The Univ. of Tokyo*); *Sugita, Naohiko* (*The Univ. of Tokyo*); *Mitsuishi, Mamoru* (*The Univ. of Tokyo*); *Kaneko, Makoto* (*Osaka Univ.*)

08:30-08:45

SaA01.3

Encapsulation of Magnetotactic Bacteria for Targeted and Controlled Delivery of Anticancer Agents for Tumor Therapy **6668-6671**

Martel, Sylvain (*Ecole Polytechnique de Montreal*); *Afkhami Zarreh, Fatemeh* (*Ecole Polytechnique de Montreal*); *Taherkhani, Samira* (*Ecole Polytechnique of Montreal*);

*Mohammadi, Mahmood** (*École polytechnique de Montréal*)

08:45-09:00

SaA01.4

Human Neuroblastoma Cultures for Biorobotics **6672-6675**

*Ferrandez, Jose M.** (*Univ. Politecnica de Cartagena*); *Fernandez, Eduardo* (*Univ. Miguel Hernandez*); *Lorente, Victor* (*UPCT*); *Cuadra, Jose Manuel* (*UNED*); *Álvarez Sánchez, José Ramón* (*UNED*); *de la Paz, Felix* (*UNED*)

09:00-09:15

SaA01.5

A Stereotaxic Instrument for Precise Localization of Honeybee Brain **B#5**

Wang, Shen (*Qiushi Acad. for Advanced Studies, Zhejiang Univ.*); *Zheng, Nenggan* (*Zhejiang Univ., China*);

Zhao, Huixia (*Zhejiang Univ.*); *Guo, Songchao* (*Zhejiang Univ., China*); *Hu, Fulliang* (*Zhejiang Univ.*);

Sun, Chao (*Zhejiang Univ.*); *Zheng, Xiaoxiang** (*Zhejiang Univ.*)

09:15-09:30

SaA01.6

An Image-Based Guidewire Navigation Method for Robot-Assisted Intravascular Interventions **6680-6685**

*Ji, Cheng** (*Chinese Acad. of Sciences*); *Hou, Zeng-Guang* (*Inst. of Automation, Chinese Acad. of Sciences*);

Xie, Xiao (*Chinese Acad. of Sciences*)

SaA02: 08:00-09:30

St. George CD Westin

8.6.1 Robot-Aided Surgery (Oral Session)

Chair: Fischer, Gregory (*Worcester Pol. Inst.*)

Co-Chair: Desai, Jaydev (*Univ. of Maryland*)

08:00-08:15

SaA02.1

Robust 3D Tracking for Robotic-Assisted Beating Heart Surgery **6686-6686**

*Poignet, Philippe** (*LIRMM, UMR CNRS 5506, Univ. of Montpellier II*); *Richa, Rogério* (*Univ. Montpellier 2*);

Padilha Lanari Bó, Antônio (*Univ. de Brasília*); *Liu, Chao* (*LIRMM – CNRS*)

08:15-08:30

SaA02.2

Approaches to Creating and Controlling Motion in MRI **6687-6690**

*Fischer, Gregory** (*Worcester Polytechnic Inst.*); *Cole, Gregory* (*Worcester Polytechnic Inst.*)

08:30-08:45 SaA02.3
Towards a Soft-Tissue Cutting Simulator Using the Cohesive Zone Approach 6691-6694
Lister, Kevin (Univ. of Maryland, College Park); Lau, Alan (Drexel Univ.); Desai, Jaydev (Univ. of Maryland)*

08:45-09:00 SaA02.4
Force Detecting Gripper and Flexible Micro Manipulator for Neurosurgery 6695-6699
Yoneyama, Takeshi (Kanazawa Univ.); Watanabe, Tetsuyou (Kanazawa Univ.); Kagawa, Hiroyuki (Kanazawa Univ.); Hamada, Junichiro (Kanazawa Univ.); Hayashi, Yutaka (Kanazawa Univ.); Nakada, Mitsutoshi (Kanazawa Univ.)*

09:00-09:15 SaA02.5
Microsurgical Skill Assessment: Toward Skill-Based Surgical Robotic Control 6700-6703
Harada, Kanako (The Univ. of Tokyo); Minakawa, Yoshiaki (The Univ. of Tokyo); Baek, Young Min (The Univ. of Tokyo); Kozuka, Yasuhide (The Univ. of Tokyo); Sora, Shigeo (Tokyo Metropolitan Police Hospital); Morita, Akio (NTT Medical Ctr. Tokyo); Sugita, Naohiko (The Univ. of Tokyo); Mitsuishi, Mamoru (The Univ. of Tokyo)*

09:15-09:30 SaA02.6
Haptic Feedback Control in Medical Robots through Fractional Viscoelastic Tissue Model 6704-6708
Kobayashi, Yo (Waseda Univ.); Moreira, Pedro (LIRMM-UMR CNRS, Univ. of Montpellier II); Poignet, Philippe (LIRMM, UMR CNRS 5506, Univ. of Montpellier II); Zemiti, Nabil (Univ. Montpellier); Liu, Chao (LIRMM – CNRS); Fujie, Masakatsu G. (Waseda Univ.)*

SaA03: 08:00-09:30 Essex Ballroom South Westin
6.11.7 Rehabilitation Robotics (Minisymposium)
Chair: Krebs, Hermano Igo (MIT)
Co-Chair: Volpe, Bruce (Cornell Univ.)

08:00-08:15 SaA03.1
NeuRO-BOTICS Ushers in the Age of Recovery *
Volpe, Bruce (Cornell Univ.)*

08:15-08:30 SaA03.2
Rehabilitation Robotics: An Academic Engineer Perspective 6709-6712
Krebs, Hermano Igo (MIT)*

08:30-08:45 SaA03.3
Rehabilitation Robotics (RR): An Industry Perspective *
Jansen, Paul (Medical Devices Sanofi-Aventis)*

SaA05: 08:00-09:30 Essex Ballroom North Westin
6.1.3 Recent Experiences with Non-Penetrating Micro-Electrodes in the CNS (Minisymposium)
Chair: Sahin, Mesut (New Jersey Inst. of Tech.)
Co-Chair: Bruns, Tim M. (Univ. of Pittsburgh)

08:00-08:15 SaA05.1
Single and Multi-Unit Activity Recorded from the Surface of the Dorsal Root Ganglia with Non-Penetrating Electrode Arrays 6713-6716
Gaunt, Robert (Univ. of Pittsburgh); Bruns, Tim M. (Univ. of Pittsburgh); Crammond, Donald (Univ. of Pittsburgh); Tomycz, Nestor (Univ. of Pittsburgh); Moossy, John (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh)*

08:15-08:30 SaA05.2
Cerebellar Activity Patterns Revealed by Micro-EcoG Technique *
Sahin, Mesut (New Jersey Inst. of Tech.); Groth, Jonathan (New Jersey Inst. of Tech., Newark)*

08:30-08:45 SaA05.3
Decoding Tradeoffs in Multiscale Neuronal Recording for Brain-Machine Interfaces *
Prasad, Abhishek (Univ. of Miami); Pohlmeyer, Eric (Univ. of Miami); Mahmoudi, Babak (Univ. of Miami); Sanchez, Justin C. (Univ. of Miami)*

SaA07: 08:00-09:30 Boylston Marriott
6.4.34 Visual Prostheses (Oral Session)
Chair: Weiland, James (*Univ. of Southern California*)
Co-Chair: Suaning, Gregg (*The Univ. of New South Wales*)

08:00-08:15 SaA07.1
Chip-Scale Hermetic Feedthroughs for Implantable Bionics 6717-6720
*Guenther, Thomas** (*The Univ. of New South Wales*); *Dodds, Christopher William Douglas* (*Univ. of New South Wales*); *Lovell, Nigel* (*Univ. of New South Wales*); *Suaning, Gregg* (*The Univ. of New South Wales*)

08:15-08:30 SaA07.2
Theoretical Framework for Estimating the Conductivity Map of the Retina through Finite Element Analysis 6721-6724
*Tahayori, Bahman** (*Univ. of Melbourne*); *Meffin, Hamish* (*Natl. ICT Australia*); *Venables, Nicholas Alexander* (*Univ. of Melbourne*); *Grayden, David B.* (*Univ. of Melbourne*); *Burkitt, Anthony Neville* (*Univ. of Melbourne*)

08:30-08:45 SaA07.3
Interphase Gap Decreases Electrical Stimulation Threshold of Retinal Ganglion Cells 6725-6728
*Weitz, Andrew** (*Univ. of Southern California*); *Behrend, Matthew* (*Univ. of Southern California*); *Humayun, Mark* (*Univ. of Southern California*); *Chow, Robert* (*Univ. of Southern California*); *Weiland, James* (*Univ. of Southern California*)

08:45-09:00 SaA07.4
A Prototype 64-Electrode Stimulator in 65 nm CMOS Process towards a High Density Epi-Retinal Prosthesis 6729-6732
*Tran, Nhan** (*Univ. of Melbourne*); *Skafidas, Stan* (*NICTA Victoria Research Lab*); *Yang, Jiawei* (*Univ. of Melbourne*); *Bai, Shun* (*Univ. of Melbourne*); *Fu, Meng* (*Univ. of Melbourne*); *Ng, David* (*NICTA Victoria Research Lab*); *Halpern, Mark E* (*NICTA Victoria Res. Lab.*); *Mareels, Iven* (*Melbourne Univ., Australia*)

09:00-09:15 SaA07.5
CMOS-Based Smart-Electrode-Type Retinal Stimulator with Bullet-Shaped Bulk Pt Electrodes 6733-6736
*Tokuda, Takashi** (*Nara Inst. of Science & Tech.*); *Ito, Takasuke* (*Nara Inst. of Science & Tech.*); *Kitao, Takuya* (*Nara Inst. of Science & Tech.*); *Noda, Toshihiko* (*Nara Inst. of Science & Tech.*); *Sasagawa, Kiyotaka* (*Nara Inst. of Science & Tech.*); *Terasawa, Yasuo* (*NIDEK Co., Ltd*); *Tashiro, Hiroyuki* (*Kyushu Univ.*); *Kanda, Hiroyuki* (*Osaka Univ.*); *Fujikado, Takashi* (*Osaka Univ.*); *Ohta, Jun* (*Nara Inst. of Science & Tech.*)

09:15-09:30 SaA07.6
Towards a Chip Scale Neurostimulator: System Architecture of a Current-Driven 98 Channel Neurostimulator via a Two-Wire Interface 6737-6740
*Jung, Louis Hyunsuk** (*Univ. of New South Wales*); *Shany, Nitzan* (*The Univ. of New South Wales*); *Lehmann, Torsten* (*Univ. of New South Wales*); *Byrnes-Preston, Philip* (*The Univ. of New South Wales*); *Lovell, Nigel* (*Univ. of New South Wales*); *Suaning, Gregg* (*The Univ. of New South Wales*)

SaA08: 08:00-09:30 Tremont Marriott
6.7.18 Virtual Reality in Rehabilitation (Oral Session)
Chair: Kenyon, Robert V. (*Univ. of Illinois at Chicago*)
Co-Chair: Adamovich, Sergei (*NJIT*)

08:00-08:15 SaA08.1
Smart Calibration for Video Game Play by People with a Movement Impairment 6741-6744
*Perez, Sergi** (*Univ. of California Irvine*); *Benitez, Raul* (*Univ. Politecnica de Catalunya*); *Reinkensmeyer, David J.* (*Univ. of California*)

08:15-08:30 SaA08.2
Preliminary Investigation into the Effects of Visual Feedback Distortion on Range of Motion 6745-6748
Supple, Kelli (*Univ. of Pittsburgh*); *Brewer, Bambi** (*Univ. of Pittsburgh*)

08:30-08:45 SaA08.3
Adaptive Rehabilitation Gaming System: On-line individualization of stroke rehabilitation 6749-6752
Nirme, Jens (*Lab. of Synthetic Perceptive, Emotive & Cognitive Systems, Univ. Pompeu Fabra*); *Duff, Armin* (*Lab. of Synthetic Perceptive, Emotive & Cognitive Systems, Univ. Pompeu Fabra*); *Verschure, Paul F M J** (*SPECS, ICREA & Univ. Pompeu Fabra*)

08:45-09:00 SaA08.4
Sensorimotor Enhancement with a Mixed Reality System for Balance and Mobility Rehabilitation 6753-6757
Fung, Joyce (McGill Univ.); Perez, Claire (Jewish Rehabilitation Hospital)*

09:00-09:15 SaA08.5
Human Augmentics: Augmenting Human Evolution 6758-6761
Kenyon, Robert V. (Univ. of Illinois at Chicago); Leigh, Jason (Univ. of Illinois at Chicago)*

09:15-09:30 SaA08.6
Simultaneous Coordinate Representations Are Influenced by Visual Feedback in a Motor Learning Task 6762-6768
Parmar, Pritesh (Univ. of Illinois at Chicago, The Rehabilitation Inst. of Chicago); Huang, Felix (Rehabilitation Inst. of Chicago); Patton, James (Jim) (Rehab Inst. of Chicago & U. of Illinois at Chicago)*

SaA09: 08:00-09:30 Regis Marriott
6.5.35 Deep Brain Stimulation (Oral Session)
Chair: Patel, Shyamal (*Harvard Medical School*)
Co-Chair: Lowery, Madeleine (*Univ. Coll. Dublin*)

08:00-08:15 SaA09.1
Cortical Mapping of the Optically Evoked Responses in Channelrhodopsin-2 Mouse Model 6769-6772
Choi, Jee Hyun (Korea Inst. of Science & Tech.); Kim, Guk Bae (Korea Inst. of Science & Tech.)*

08:15-08:30 SaA09.2
Study on Dbs Device for Small Animals 6773-6776
Qian, Xing (Tsinghua Univ., School of Aerospace); Hao, Hongwei (Tsinghua Univ.); Ma, Bozhi (Tsinghua Univ.); Wen, Xiongwei (Tsinghua Univ.); Li, Luming (Tsinghua Univ.)*

08:30-08:45 SaA09.3
Instrumentation to Record Evoked Potentials for Closed-Loop Control of Deep Brain Stimulation 6777-6780
Kent, Alexander (Duke Univ.); Grill, Warren (Duke Univ.)*

08:45-09:00 SaA09.4
Real Time Epileptic Seizure Detection with the Local Field Potential of Anterior Thalamic of Rats 6781-6784
Liu, Xiaoyin (Tsinghua Univ.); Hao, Hongwei (Tsinghua Univ.); Yang, Linchang (Tsinghua Univ.); Li, Luming (Tsinghua Univ.); Zhang, Jianguo (Beijing Neurosurgical Inst., Capital Medical Univ.); Yang, Anchao (Beijing Neurosurgical Inst., Capital Medical Univ.); Ma, Yu (Beijing Neurosurgical Inst., Capital Medical Univ.)*

09:00-09:15 SaA09.5
Application of Non-Linear Control Theory to a Model of Deep Brain Stimulation 6785-6788
Davidson, Clare Muireann (Univ. College Dublin); Lowery, Madeleine (Univ. College Dublin); de Paor, Annraoi (Univ. College Dublin)*

09:15-09:30 SaA09.6
Quantitative Measurement of Motor Symptoms in Parkinson's Disease: A Study with Full-Body Motion Capture Data 6789-6792
Das, Samarjit (Carnegie Mellon Univ.); Trutoiu, Laura Cristina (Carnegie Mellon Univ.); Murai, Akihiko (Disney); Alcindor, Dunbar (Allegheny General Hospital); Oh, Michael (Allegheny General Hospital); Torre, Fernando De la (Carnegie Mellon Univ.); Hodgins, Jessica (Carnegie Mellon Univ.)*

SaA10: 08:00-09:30 Simmons Marriott
10.8.8 Low Cost Healthcare Delivery, Public and Environmental Health (Oral Session)
Chair: Moussavi, Zahra (*Univ. of Manitoba*)
Co-Chair: Ozcan, Aydogan (*UCLA*)

08:00-08:15 SaA10.1
Measuring Changes in Activity Patterns During a Norovirus Epidemic at a Retirement Community 6793-6796
Campbell, Ian (Oregon Health & Science Univ.); Austin, Daniel (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.); Pavel, Michael (Oregon Health & Science Univ.); Riley, Thomas (Oregon Health & Science Univ.); Mattek, Nora (Oregon Health & Science Univ.); Kaye, Jeffrey A. (Oregon Health & Science Univ.)*

08:15-08:30	SaA10.2
Detailed Analysis of the Relationship between Tracheal Breath Sounds and Airflow in Relation to OSA During Wake and Sleep	6797-6800
<i>Yadollahi, Azadeh* (Toronto Rehab Inst.); Moussavi, Zahra (Univ. of Manitoba)</i>	
08:30-08:45	SaA10.3
Wide-Field Fluorescent Microscopy on a Cell-Phone	6801-6804
<i>Zhu, Hongying* (UCLA); Ozcan, Aydogan (UCLA)</i>	
08:45-09:00	SaA10.4
Instrumented Insole vs. Force Plate: A Comparison of Center of Plantar Pressure	6805-6809
<i>Dyer, Philip S* (Univ. of Utah); Bamberg, Stacy J Morris (Univ. of Utah)</i>	
09:00-09:15	SaA10.5
Aedes Aegypti Egg Counting System	6810-6812
<i>Gomes Netto Monte da Silva, Marilú (Federal Univ. of Pernambuco); Rodrigues, Marco Aurélio Benedetti (Federal Univ. of Pernambuco); de Araujo, Renato Evangelista* (Federal Univ. of Pernambuco)</i>	
09:15-09:30	SaA10.6
Liquid Cooling System for the Vibro-Tactile Threshold Device	6813-6816
<i>Parsons, Erin* (Univ. of Utah); Redd, Christian Brandt (Univ. of Utah); Gandhi, Minu (Univ. of Utah); Tuckett, Robert (Univ. of Utah); Bamberg, Stacy J Morris (Univ. of Utah)</i>	
SaA11: 08:00-09:30	Wellesley Marriott
5.1.12 Cardiovascular Mechanics (Oral Session)	
Chair: Soraghan, John J. (Univ. of Strathclyde)	
Co-Chair: Nadkarni, Seemantini (Massachusetts General Hospital, Harvard Medical School)	
08:00-08:15	SaA11.1
Left Ventricular Model Parameters and Cardiac Rate Variability	6817-6820
<i>Palladino, Joseph* (Trinity College); Noordergraaf, Abraham (Univ. of Pennsylvania); Zukus, Ryan (Trinity College); Marchidan, Andrei (Trinity College)</i>	
08:15-08:30	SaA11.2
CMRI Based 3D Left Ventricle Motion Analysis on Patients with Acute Myocardial Infarction	6821-6824
<i>Gao, Hao* (Univ. of Strathclyde); Kadir, Kushsairy (Univ. of Strathclyde); Berry, Colin (Univ. of Glasgow); Payne, Alexander (Univ. of Glasgow); Soraghan, John J (Univ. of Strathclyde); Luo, Xiaoyu (Univ. of Glasgow)</i>	
08:30-08:45	SaA11.3
Replication of the Frank-Starling Response in a Mock Circulation Loop	6825-6828
<i>Gregory, Shaun David* (Queensland Univ. of Tech.); Stevens, Michael Charles (Univ. of Queensland); Timms, Daniel Lee (Bivacor Pty Ltd); Percy, Mark (Queensland Univ. of Tech.)</i>	
08:45-09:00	SaA11.4
Polynomial Regularization for Robust MRI-Based Estimation of Blood Flow Velocities and Pressure Gradients	6829-6832
<i>Delles, Michael* (Karlsruhe Inst. of Tech. (KIT)); Rengier, Fabian (Dept. of Diagnostic & Interventional Radiology, Univ. Hospital Heidelberg); Ley, Sebastian (Dept. of Diagnostic & Interventional Radiology, Univ. Hospital Heidelberg); von Tengg-Kobligk, Hendrik (Dept. of Diagnostic & Interventional Radiology, Univ. Hospital Heidelberg); Kauczor, Hans-Ulrich (Dept. of Diagnostic & Interventional Radiology, Univ. Hospital Heidelberg); Dillmann, Rüdiger (Karlsruhe Inst. of Tech. (KIT)); Unterhinninghofen, Roland (Karlsruhe Inst. of Tech. (KIT))</i>	
09:00-09:15	SaA11.5
Identification of Nonlinear Cardiac Cell Dynamics Using Radial Basis Function Regression	6833-6836
<i>Kanaan-Izquierdo, Samir (Univ. Politecnica de Catalunya); Velazquez, Susana (Univ. Politecnica de Catalunya); Benitez, Raul* (Univ. Politecnica de Catalunya)</i>	

SaA12: 08:00-09:30 Suffolk Marriott
5.1.21 Computational Modeling of Lung Mechanical Function (Minisymposium)
Chair: Bates, Jason H.T. (*Univ. of Vermont, Coll. of Medicine*)
Co-Chair: Kaczka, David W. (*Harvard Medical School/Beth Israel Deaconess Med Ctr.*)

08:00-08:15 SaA12.1
Modeling the Dynamics of Active Airway Narrowing *
Bates, Jason H T (Univ. of Vermont, College of Medicine)*

08:15-08:30 SaA12.2
Linking Changes in Mechanical Impedance to Altered Lung Structure Using Computational Modeling *
Kaczka, David W. (Harvard Medical School/Beth Israel Deaconess Med Ctr.)*

08:30-08:45 SaA12.3
Model Predictions of Spatial Self-Organization and Symmetry Breaking in the Lung *
Winkler, Tilo (Massachusetts General Hospital & Harvard Medical School)*

08:45-09:00 SaA12.4
Modeling the Progression of Lung Parenchymal Diseases *
Suki, Bela (Boston Univ.)*

SaA13: 08:00-09:30 Arlington Marriott
4.6.13 Bioinformatics for Integrated Genomics I (Oral Session)
Chair: Chang, Hsun-Hsien (*Children's Hospital Boston*)
Co-Chair: Wang, May Dongmei (*Georgia Tech. & Emory Univ.*)

08:00-08:15 SaA13.1
A Phenotype-Driven Dimension Reduction (PhDDR) Approach to Integrated Genomic Association Analyses **6837-6840**
Gao, Cuilan (Dept. of Biostatistics, St. Jude Children's Research Hospital); Cheng, Cheng (St. Jude Children's Research Hospital)*

08:15-08:30 SaA13.2
Image Processing Challenges in the Creation of Spatiotemporal Gene Expression Atlases of Developing Embryos **6841-6844**
Castro Gonzalez, Carlos (Univ. Politécnica de Madrid); Luengo-Oroz, Miguel Angel (Univ. Politécnica de Madrid); Duloquin, Louise (CNRS); Savy, Thierry (Ecole Polytechnique); Melani, Camilo (Univ. de Buenos Aires); Desnoullez, Sophie (CNRS); Bourguine, Paul (Ecole Polytechnique); Peyrieras, Nadine (CNRS); Ledesma-Carbayo, Maria J. (Univ. Politécnica de Madrid); Santos, Andres (Univ. Politécnica Madrid)*

08:30-08:45 SaA13.3
Enrichment of Protein Expression Datasets through Protein-Protein Interaction Analysis **6845-6848**
Massanet-Vila, Raimon (Univ. Politécnica de Catalunya); Padró, Teresa (Cardiovascular Research Ctr. (CSIC-ICCC), IIB Sant Pau, Barcelona, Spain); Cardús, Anna (Cardiovascular Research Ctr. (CSIC-ICCC), IIB Sant Pau, Barcelona, Spain); Badimón, Lina (Cardiovascular Research Ctr. (CSIC-ICCC), IIB Sant Pau, Barcelona, Spain); Caminal, Pere (Technical Univ. of Catalonia (UPC)); Perera, Alexandre (Univ. Politécnica de Catalunya)*

08:45-09:00 SaA13.4
Phenotype Prediction by Integrative Network Analysis of SNP and Gene Expression Microarrays **6849-6852**
Chang, Hsun-Hsien (Children's Hospital Boston); McGeachie, Michael (Channing Lab, Brigham & Women's Hospital, Harvard Medical School)*

09:00-09:15 SaA13.5
Prioritizing Predicted Cis-Regulatory Elements for Co-Expressed Gene Sets Based on Lasso Regression Models **6853-6856**
Hu, Hong (Univ. of Illinois at Chicago); Roqueiro, Damian (Univ. of Illinois at Chicago); Dai, Yang (Univ. of Illinois at Chicago)*

09:15-09:30 SaA13.6
Topology Aware Functional Similarity of Protein Interaction Networks Based on Gene Ontology 6857-6860
*Li, Fei** (Beijing Inst. of Radiation Medicine); *Cui, Xiuliang* (Beijing Inst. of Radiation Medicine,);
Xie, Dafei (Beijing Inst. of Radiation Medicine); *Bo, Xiaochen* (Beijing Inst. of Radiation Medicine);
Wang, Shengqi (Beijing Inst. of Radiation Medicine)

SaA15: 08:00-09:30	Clarendon Marriott
7.5.1 Stem Cells in Regenerative Medicine (Minisymposium)	
Chair: Alsberg, Eben (Case Western Res. Univ.)	
Co-Chair: Radisic, Milica (Univ. of Toronto)	

08:00-08:15 SaA15.1
**Guiding Stem Cell Fate in High-Density Hmsc Systems with Incorporated Bioactive
 Microspheres for Cartilage Tissue Engineering** *
Solorio, Loran (Case Western Reserve Univ.); *Alsberg, Eben** (Case Western Reserve Univ.)

08:15-08:30 SaA15.2
**Comparison between Embryonic Stem Cell and Adult Bone Marrow-Derived
 Mesenchymal Stem Cells for Chondrogenesis** *
Brown, Patrick (Univ. of Wisconsin-Madison); *Li, Wan-Ju** (Univ. of Wisconsin-Madison)

08:30-08:45 SaA15.3
In Vitro Model System for Cardiac Stem Cell Therapy *
*Radisic, Milica** (Univ. of Toronto)

SaA16: 08:00-09:30	Darthmouth Marriott
9.6.3 Ablation Therapies (Oral Session)	
Chair: Poon, Carmen CY (The Chinese Univ. of Hong Kong)	
Co-Chair: Gilbert, James (Covidien)	

08:00-08:15 SaA16.1
Nanosecond Pulsed Electric Field Ablation of Hepatocellular Carcinoma 6861-6865
*Beebe, Stephen** (Old Dominion Univ.); *Chen, Xinhua* (Old Dominion Univ.);
Liu, Jie (Old Dominion Univ.); *Schoenbach, Karl* (Old Dominion Univ.)

08:15-08:30 SaA16.2
Mathematical Study of the Effects of Different Intrahepatic Cooling on Thermal Ablation Zones 6866-6869
*Peng, Tingying** (Univ. of Oxford); *O'Neill, David Patrick* (Univ. of Oxford);
Payne, Stephen John (Univ. of Oxford)

08:30-08:45 SaA16.3
A New System Architecture Improves Output Power Regulation in Electrosurgical Generators 6870-6873
*Friedrichs, Daniel** (Univ. of Colorado); *Erickson, Robert* (Univ. of Colorado); *Gilbert, James* (Covidien)

08:45-09:00 SaA16.4
**Design of a New Probe for Tumor Treatment in the Alternate Thermal
 System Base on Numerical Simulation** 6874-6877
Cai, Zhanghao (School of Biomedical Eng. & Med-X Research Inst., Shanghai Jiaotong Univ.);
Song, Mingyang (SJTU); *Sun, Jianqi** (Shanghai Jiao Tong Univ.); *Zhang, Aili* (Shanghai Jiao Tong Univ.);
Xu, Lisa Xuemin (Shanghai Jiaotong Univ.)

09:00-09:15 SaA16.5
**Experimental and Theoretical Study of an Internally Cooled Bipolar Electrode for
 RF Coagulation of Biological Tissues** 6878-6881
*González, Ana** (Polytechnic Univ. of Valencia); *Alba, José* (Polytechnic Univ. of Valencia);
Trujillo, Macarena (Univ. Politécnica de Valencia); *Berjano, Enrique* (Polytechnic Univ. of Valencia)

SaA17: 08:00-09:30 Exeter Marriott
3.4.8 In Vivo Neurotransmitter Sensing: State of the Art and Applications (Oral Session)
Chair: Besio, W.G. (*Univ. of Rhode Island*)
Co-Chair: Kennedy, Robert (*Univ. of Michigan*)

08:00-08:15 SaA17.1
**High Temporal and Spatial Resolution Monitoring of Neurochemicals
in Vivo Using Sampling and Segmented Flow** *
Kennedy, Robert (Univ. of Michigan)*

08:15-08:30 SaA17.2
**Cell-based Neurotransmitter Fluorescent Engineered Reporters (CNiFERs) to
Image Neurotransmitter Modulation of Brain Activity** *
Muller, Arnaud (Univ. of California San Diego); Schroeder, Lee (Univ. of California San Diego);
Taylor, Natalie (Salk Inst. for Biological Studies); Slesinger, Paul (Salk Inst. for Biological Studies);
Kleinfeld, David (Univ. of California San Diego)*

08:30-08:45 SaA17.3
**Conformal Ceramic-Based Microelectrode Arrays for Second-By-Second
Measurements of Neurotransmitters in the CNS** *
Gerhardt, Greg (Univ. of Kentucky Medical Ctr.); Pomerleau, Francois (Univ. of Kentucky Medical Ctr.);
Burmeister, Jason (Univ. of Kentucky Medical Ctr.); Huettl, Peter (Univ. of Kentucky Medical Ctr.)*

08:45-09:00 SaA17.4
Advancements in PET Radiotracer Development for Neuroscience Applications *
Hooker, Jacob (MGH & Harvard Medical School)*

09:00-09:15 SaA17.5
**Luminescent Glucose and Lactate Sensors Using Nanoparticles and
Fiber Optics for Neurochemical Monitoring** *
McShane, Mike (Texas A&M Univ.)*

09:15-09:30 SaA17.6
Neurotransmitter Modulation in Rat Hippocampus via Extracranial Focal Electrical Stimulation *
Besio, W.G. (Univ. of Rhode Island); Luna-Munguía, Hiram (Ctr. for Research & Advanced Studies);
Rocha, Luisa (Ctr. for Research & Advanced Studies)*

SaA19: 08:00-09:30 Salons AB Marriott
3.7.20 Wearable Sensors and Systems II (Oral Session)
Chair: Van Hoof, Chris (*IMEC*)
Co-Chair: Sazonov, Edward (*Univ. of Alabama*)

08:00-08:15 SaA19.1
An In-The-Ear Platform for Recording Electroencephalogram **6882-6885**
Looney, David (Imperial College London); Park, Cheolsoo (Imperial College London); Kidmose, Preben
(Aarhus Univ., Denmark); Rank, Mike Lind (Widex A/S); Ungstrup, Michael (Widex A/S); Rosenkranz, Karin
(UCL Inst. of Neurology, WC1N 3BG London, UK); Mandic, Danilo (Imperial College)*

08:15-08:30 SaA19.2
Ultra-Thin Chip Package (UTCP) and Stretchable Circuit Technologies for Wearable ECG System **6886-6889**
Sterken, Tom (IMEC); Vanfleteren, Jan (IMEC/Ghent Univ.); Torfs, Tom (IMEC); Op de Beeck, Maaïke (IMEC);
Bossuyt, Frederick (TFCG IMEC Ghent); Van Hoof, Chris (IMEC)*

08:30-08:45 SaA19.3
Swallowing Detection by Sonic and Subsonic Frequencies: A Comparison **6890-6893**
Fontana, Juan M. (Univ. of Alabama); Melo, Pedro Lopes (Univ. do Estado do Rio de Janeiro);
Sazonov, Edward (Univ. of Alabama)*

08:45-09:00 SaA19.4
A Real Time, Wearable ECG and Continuous Blood Pressure Monitoring System for First Responders ... 6894-6898
Ribeiro, David (Univ. of Aveiro); Ferreira Marques, Fábio André (Univ. of Aveiro); Colunas, Márcio (Inst. of Elec. & Telematics Eng. of Aveiro, Univ. of Aveiro); Fernandes, José Maria (Univ. of Aveiro (PT 501461108)); Cunha, João Paulo Silva (Univ. of Aveiro)*

09:00-09:15 SaA19.5
Telefetalcare: A First Prototype of a Wearable Fetal Electrocardiograph 6899-6902
Fanelli, Andrea (Politecnico di Milano); Signorini, Maria G. (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano); Perego, Paolo (Politecnico di Milano, Indaco dept.); Piccini, Luca (Politecnico di Milano); Andreoni, Giuseppe (Politecnico di Milano); Mageses, Giovanni (Univ. of Pavia)*

09:15-09:30 SaA19.6
A Wearable ECG-HR Detector and Its Application to Automatic Assist-Mode Selection of an Electrically Assisted Bicycle 6903-6906
Ueno, Akinori (Tokyo Denki Univ.); Miyashita, Osamu (Tokyo Denki Univ.); Yoshida, Toshiya (Tokyo Denki Univ.); Yamamoto, Junich (Tokyo Denki Univ.); Lataire, Philippe (Vrije Univ. Brussel)*

SaA20: 08:00-09:30 Salons CD Marriott
3.6.22 Body Sensor Networks (Oral Session)
Chair: Lymberis, Andreas (*European Commission*)
Co-Chair: Maglaveras, Nikolaos (*Aristotle Univ. of Thessaloniki*)

08:00-08:15 SaA20.1
Initial Study on Pulse Wave Velocity Acquired from One Hand Using Two Synchronized Wireless Reflectance Pulse Oximeters 6907-6910
Li, Kejia (Kansas State Univ.); Warren, Steve (Kansas State Univ.)*

08:15-08:30 SaA20.2
A Trimodal System for the Acquisition of Synchronous Echocardiography, Electrocardiography, and Seismocardiography Data 6911-6914
Wick, Carson (Georgia Inst. of Tech.); Su, Jin-Jyh (Georgia Inst. of Tech.); Brand, Oliver (Georgia Inst. of Tech.); McClellan, James (Georgia Inst. of Tech.); Bhatti, Pamela (Georgia Inst. of Tech.); Tridandapani, Srini (Emory Univ.)*

08:30-08:45 SaA20.3
The Smart Patches and Wearable Band (W-Band) for Comfortable Sleep Monitoring System 6915-6918
Lee, Seulki (KAIST); Yan, Long (KAIST); Roh, Taehwan (KAIST); Hong, Sunjoo (KAIST); Yoo, Hoi-Jun (KAIST)*

08:45-09:00 SaA20.4
A Wireless Modular Multi-Modal Multi-Node Patch Platform for Robust Biosignal Monitoring 6919-6922
Pantelopoulos, Alexandros (West Wireless Health Inst.); Saldivar, Enrique (West Wireless Health Inst.); Roham, Masoud (West Wireless Health Inst.)*

09:00-09:15 SaA20.5
Development of a Body Joint Angle Measurement System Using Imu Sensors 6923-6926
Bakhshi, Saba (Univ. of Denver); Mahoor, Mohammad H. (Univ. of Denver); Davidson, Bradley (Univ. of Denver)*

09:15-09:30 SaA20.6
Development of the Wireless Ultra-Miniaturized Inertial Measurement Unit WB-4: Preliminary Performance Evaluation 6927-6930
Lin, Zhuohua (Waseda Univ.); Zecca, Massimiliano (Waseda Univ.); Sessa, Salvatore (Waseda Univ.); Bartolomeo, Luca (Waseda Univ.); Ishii, Hiroyuki (Waseda Univ.); Takanishi, Atsuo (Waseda Univ.)*

SaA21: 08:00-09:30 Salon E Marriott
1.2.23 Signal Processing in Physiological Systems IV (Oral Session)
Chair: Magenes, Giovanni (*Univ. of Pavia*)
Co-Chair: Reisner, Andrew (*Massachusetts General Hospital*)

08:00-08:15 SaA21.1
ECG-Based Detection of Body Position Changes Using a Laplacian Noise Model 6931-6934
*Mincholé, Ana** (*Univ. of Zaragoza*); *Sornmo, Leif* (*Lund Univ.*); *Laguna, Pablo* (*Zaragoza Univ. & CIBER-BBN*)

08:15-08:30 SaA21.2
Latency Variable Source Separation for Heart Rate Detection in Low-Quality ECG Signals 6935-6938
*Vullings, Rik** (*Eindhoven Univ. of Tech.*)

08:30-08:45 SaA21.3
Using Confidence Intervals to Assess the Reliability of Instantaneous Heart Rate and Respiratory Rate ... 6939-6942
*Chen, Xiaoxiao** (*U.S. Army Medical Research & Materiel Command*); *Chen, Liangyou* (*Sears Holdings Corp.*);
Reisner, Andrew (*Massachusetts General Hospital*); *Reifman, Jaques* (*U.S. Army Medical Research*)

08:45-09:00 SaA21.4
A New Density-Ratio Based Approach for Patient-Specific Biomedical Monitoring 6943-6946
*Chen, Dongmei** (*The Chinese Univ. of Hong Kong*); *Meng, Max Q.-H.* (*The Chinese Univ. of Hong Kong*)

09:00-09:15 SaA21.5
An Efficient Method for Ectopic Beats Cancellation Based on Radial Basis Function 6947-6950
Mateo, Jorge (*Univ. of Castilla la Mancha*); *Torres, Ana* (*Univ. of Castilla la Mancha*);
*Rieta, J. J.** (*Univ. Politecnica de Valencia*)

09:15-09:30 SaA21.6
Sympathetic Neural Recruitment Patterns During the Valsalva Maneuver 6951-6954
*Salmanpour, Aryan** (*The Univ. of Western Ontario*); *Frances, Maria* (*the Univ. of Western Ontario*);
Goswami, Ruma (*the Univ. of Western Ontario*); *Shoemaker, Kevin* (*the Univ. of Western Ontario*)

SaA22: 08:00-09:30 Salon F Marriott
1.10.45 Principal Component Analysis (Oral Session)
Chair: Gao, Shangkai (*Tsinghua Univ.*)
Co-Chair: Molinari, Filippo (*Pol. di Torino*)

08:00-08:15 SaA22.1
Blind Separation and Localization of Correlated P300 Subcomponents from Single Trial Recordings Using Extended PARAFAC2 Tensor Model 6955-6958
*Makki Abadi, Bahador** (*Univ. of Surrey*); *Jarchi, Delaram* (*Univ. of Surrey*); *Sanei, Saeid* (*Univ. of Surrey*)

08:15-08:30 SaA22.2
Learning Event-Related Potentials (ERPs) from Multichannel EEG Recordings: A Spatio-Temporal Modeling Framework with a Fast Estimation Algorithm 6959-6962
*Wu, Wei** (*Tsinghua Univ.*); *Gao, Shangkai* (*Tsinghua Univ.*)

08:30-08:45 SaA22.3
A Non-Orthogonal SVD-Based Decomposition for Phase Invariant Error-Related Potential Estimation 6963-6966
*Phlypo, Ronald** (*Grenoble Univ./CNRS*); *Jrad, Nisrine* (*GIPSA Lab – Grenoble Univ.*); *Rousseau, Sandra* (*ViBS Research Group, GIPSA-Lab, Univ. of Grenoble/CNRS*); *Congedo, Marco* (*cnrs*)

08:45-09:00 SaA22.4
Principal Component Analysis to Quantify Anaesthetic Effects on Atrial Fibrillation Morphology 6967-6970
*Cervigon, Raquel** (*UCLM*); *Moreno, Javier* (*Hospital Clínico*); *Reilly, Richard* (*Trinity College Dublin*);
Castells, Francisco (*Univ. Politécnic de Valencia*)

09:00-09:15 SaA22.5
A Hybrid Least Squares and Principal Component Analysis Algorithm for Raman Spectroscopy 6971-6974
*Van de Sompel, Dominique** (*Stanford Univ.*); *Gambhir, Sanjiv Sam* (*Stanford Univ.*)

09:15-09:30 SaA22.6
A Pipeline for Copy Number Variation Detection Based on Principal Component Analysis 6975-6978
Chen, Jiayu (Univ. of New Mexico); Liu, Jingyu (Inst. of Living); Boutte, David (The Mind Research Network); Calhoun, Vince (The Mind Research Network/Univ. of New Mexico)*

SaA23: 08:00-09:30 Salon G Marriott
2.8.43 Brain Tissue and Tumor Segmentation (Minisymposium)
Chair: Khan, Iftakharuddin (*Univ. of Memphis*)
Co-Chair: Kakadiaris, Ioannis (*Univ. of Houston*)

08:00-08:15 SaA23.1
Multi-Parametric Analysis and Registration of Brain Tumors: Constructing Statistical Atlases and Diagnostic Tools of Predictive Value 6979-6981
Davatzikos, Christos (Univ. of Pennsylvania); Zacharaki, Evangelia (Univ. of Patras); Gooya, Ali (Univ. of Pennsylvania); Clark, Vanessa (Univ. of Pennsylvania)*

08:15-08:30 SaA23.2
3D Slicer As a Tool for Interactive Brain Tumor Segmentation 6982-6984
Kikinis, Ron (Brigham & Women's Hospital & Harvard Medical School); Pieper, Steve (Isomics, Inc.)*

08:30-08:45 SaA23.3
Multiresolution Texture Models for Brain Tumor Segmentation in MRI 6985-6988
Khan, Iftakharuddin (Univ. of Memphis); Shaheen, Ahmed (Univ. of Memphis); Jakir, Hossen (Univ. of Memphis)*

08:45-09:00 SaA23.4
Discriminative and Generative Models for Brain Tumor MR Images *
Prastawa, Marcel (Univ. of Utah); Gerig, Guido (Univ. of Utah)*

SaA24: 08:00-09:30 Salon HI Marriott
2.1.2 MR Neuroimaging (Oral Session)
Chair: Warfield, Simon K. (*Harvard Medical School*)
Co-Chair: Talavage, Thomas (*Purdue Univ.*)

08:00-08:15 SaA24.1
Combination of Nonlinear Registration Methods with High Resolution fMRI for a Fine Exploration of Human Primary Motor Hand Area 6989-6992
Pizzagalli, Fabrizio (INSERM U836 UJF-CEA-CHU (Grenoble Inst. of Neuroscience)); Auzias, Guillaume (UMR CNRS 6168); Delon-Martin, Chantal (INSERM U836 UJF-CEA-CHU (Grenoble Inst. of Neuroscience)); Dojat, Michel (INSERM U836 UJF-CEA-CHU (Grenoble Inst. of))*

08:15-08:30 SaA24.2
Continuous Arterial Spin Labeling of Mouse Cerebral Blood Flow Using an Actively-Detuned Two-Coil System at 9.4T 6993-6996
Lei, Hongxia (Ecole Polytechnique Federale de Lausanne); Pilloud, Yves (Ecole Polytechnique Federale de Lausanne); Magill, Arthur (Ecole Polytechnique Federale de Lausanne); Gruetter, Rolf (Ecole Polytechnique Federale de Lausanne)*

08:30-08:45 SaA24.3
On the Accuracy of Unwarping Techniques for the Correction of Susceptibility-Induced Geometric Distortion in Magnetic Resonance Echo-Planar Images 6997-7000
Gholipour, Ali (Children's Hospital Boston & Harvard Medical School); Kehtarnavaz, Nasser (Univ. of Texas at Dallas); Scherrer, Benoit (INSERM U836 UJF-CEA-CHU, IMAG); Warfield, Simon K. (Harvard Medical School)*

08:45-09:00 SaA24.4
Cluster Sizes in Interleaved Silent Steady State (ISSS) Imaging 7001-7004
Akrofi, Kwaku (Univ. of Illinois at Urbana-Champaign); Sutton, Bradley P. (Univ. of Illinois at Urbana-Champaign); Ouyang, Cheng (Univ. of Illinois at Urbana-Champaign); Husain, Fatima (Univ. of Illinois at Urbana-Champaign)*

09:00-09:15 SaA24.5
In vivo Manganese-enhanced MRI and Diffusion Tensor Imaging of Developing and Impaired Visual Brains 7005-7008
Chan, Kevin C. (Univ. of Pittsburgh); Cheng, Joe S. (The Univ. of Hong Kong); Fan, Shu Juan (The Univ. of Hong Kong); Zhou, Iris Yuwen (The Univ. of Hong Kong); Wu, Ed X. (The Univ. of Hong Kong)*

09:15-09:30 SaA24.6
Generalized Regional Disorder-Sensitive-Weighting Scheme for 3D Neuroimaging Retrieval 7009-7012
Liu, Sidong (Univ. of Sydney); Cai, Weidong (Univ. of Sydney); Wen, Lingfeng (Univ. of Sydney); Eberl, Stefan (Royal Prince Alfred Hospital); Fulham, Michael (Royal Prince Alfred Hospital); Feng, Dagan (The Univ. of Sydney)*

SaA25: 08:00-09:30 Salon JK Marriott
2.5.18 Electrical Source and Impedance Imaging (Oral Session)
Chair: Woo, Eung Je (*Kyung Hee Univ.*)
Co-Chair: Laine, Andrew (*Columbia Univ.*)

08:00-08:15 SaA25.1
Investigation of EEG and MEG Source Imaging Accuracy in Reconstructing Extended Cortical Sources 7013-7016
Ding, Lei (Univ. of Oklahoma); Yuan, Han (Laureate Inst. for Brain Research)*

08:15-08:30 SaA25.2
A New Method for Localizing the Sources of Correlated Cross-Frequency Oscillations in Human Brains 7017-7020
Tanaka, Hiroaki (Kumamoto Univ.); Hayashida, Yuki (Osaka Univ.); Igasaki, Tomohiko (Kumamoto Univ.); Murayama, Nobuki (Kumamoto Univ.)*

08:30-08:45 SaA25.3
Objective Evaluation of Somatic Sensation for Mechanical Stimuli by Means of Cortical Dipole Layer Imaging 7021-7024
Hori, Junichi (Niigata Univ.)*

08:45-09:00 SaA25.4
High-Resolution MREIT Using Low Imaging Currents 7025-7028
Woo, Eung Je (Kyung Hee Univ.)*

09:00-09:15 SaA25.5
A Portable Instrument for High-Speed Brain Function Imaging: Feiter 7029-7032
McCann, Hugh (Univ. of Manchester); Ahsan, Syed Talha (Univ. of Manchester); Davidson, John (The Univ. of Manchester); Robinson, Rebecca (The Univ. of Manchester); Wright, Paul (The Univ. of Manchester); Pomfrett, Chris (Univ. of Manchester)*

09:15-09:30 SaA25.6
Electrical Impedance Tomography Reconstruction through Simulated Annealing with Incomplete Evaluation of the Objective Function 7033-7036
Martins, Thiago de Castro (Escola Politecnica da Univ. de Sao Paulo); Camargo, Erick Dario Leon Bueno (Escola Politecnica da USP); Lima, Raul Gonzalez (Escola Politecnica da Univ. de Sao Paulo); Amato, Marcelo Brito Passos (Hospital da Clinicas da Univ. de Sao Paulo); Tsuzuki, Marcos de Sales Guerra (Escola Politecnica da Univ. de Sao Paulo)*

SaA27: 08:00-09:30 Staffordshire at the Westin
8.6.23 Surgical Robotics (Oral Session)
Chair: Fischer, Gregory (*Worcester Pol. Inst.*)
Co-Chair: Riviere, Cameron N. (*Carnegie Mellon Univ.*)

08:00-08:15 SaA27.1
Design of a Force-Reflective Master Robot for Haptic Telesurgery Applications: RoboMaster1 7037-7040
Hadavand, Mostafa (Sharif Univ. of Tech.); Mirbagheri, Alireza (Sharif Univ. of Tech.); Farahmand, Farzam (Sharif Univ. of Tech.)*

08:15-08:30 SaA27.2
Fourier Modeling of Porcine Heartbeat and Respiration in Vivo for Synchronization of HeartLander Robot Locomotion 7041-7044
*Wood, Nathan** (Carnegie Mellon Univ.); *Patronik, Nicholas* (St. Jude Medical); *Zenati, Marco* (Harvard Medical School); *Riviere, Cameron N* (Carnegie Mellon Univ.)

08:30-08:45 SaA27.3
In Vivo Experiments of a Surgical Robot with Vision Field Control for Single Port Endoscopic Surgery 7045-7048
*Sekiguchi, Yuta** (Waseda Univ.); *Kobayashi, Yo* (Waseda Univ.); *Watanabe, Hiroki* (Waseda Univ.); *Tomono, Yu* (Waseda Univ.); *Noguchi, Takehiko* (Waseda Univ.); *Takahashi, Yu* (Waseda Univ.); *Fujie, Masakatsu G.* (Waseda Univ.)

08:45-09:00 SaA27.4
Real-Time Control and Evaluation of a Teleoperated Miniature Arm for Single Port Laparoscopy 7049-7053
*Sánchez Secades, Luis Alonso** (Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier); *Liu, Chao* (LIRMM – CNRS); *Stefanini, Cesare* (Scuola Superiore Sant'Anna); *Zemiti, Nabil* (Univ. Montpellier); *Menciassi, Arianna* (Scuola Superiore Sant'Anna); *Poignet, Philippe* (LIRMM, UMR CNRS 5506, Univ. of Montpellier II); *Dario, Paolo* (IIT Italian Inst. of Tech.)

09:00-09:15 SaA27.5
3D Force Control for Robotic-Assisted Beating Heart Surgery Based on Viscoelastic Tissue Model 7054-7058
*Liu, Chao** (LIRMM – CNRS); *Moreira, Pedro* (LIRMM-UMR CNRS, Univ. of Montpellier II); *Zemiti, Nabil* (Univ. Montpellier); *Poignet, Philippe* (LIRMM, UMR CNRS 5506, Univ. of Montpellier II)

SaAT1: 09:30-10:30 Provincetown Marriott
4.5.9 Modeling Biomedical Systems I (Minisymposium)
Chair: Dai, Hongyue (Merck Res. Lab. Boston, Massachusetts)
Co-Chair: Tidor, Bruce (Massachusetts Inst. of Tech.)

09:30-10:00 SaAT1.1
Predictive Patient Stratification through Parameter Reduction, Modeling, and Simulation *
*Natarajan, Madhusudan** (Pfizer); *Jasper, Paul* (RES Group, Inc.); *Boukharov, Natalia V.* (Natalia V. Boukharov); *Crawford, Matthew E.* (Matthew E. Crawford); *Chabot, Jeffrey* (Pfizer, Inc.); *Gomes, Bruce* (Pfizer, Inc.)

10:00-10:30 SaAT1.2
Large Scale Gene Expression Analysis of Cellular States *
*Subramanian, Aravind** (Broad Inst.)

SaP11: 09:30-11:00 America Ballroom Westin
1.1.3 Time-Scale, Wavelets and Empirical Mode Decomposition (Poster Session)

09:30-11:00 SaP11.1
Wepilet, Optimal Orthogonal Wavelets for Epileptic Seizure Prediction with One Single Surface Channel 7059-7062
*Bandarabadi, Mojtaba** (CISUC, Univ. of Coimbra); *Teixeira, César* (CISUC, Univ. of Coimbra); *Sales, Francisco* (Hospitais da Univ. de Coimbra); *Dourado, António* (FCTUC, Univ. of Coimbra)

09:30-11:00 SaP11.2
Spike Detection in the Preterm Fetal Sheep EEG Using Haar Wavelet Analysis 7063-7066
*Walbran, Anita Charlotte** (The Univ. of Auckland); *Unsworth, Charles Peter* (Univ. of Auckland); *Gunn, Alistair Jan* (Univ. of Auckland); *Bennet, Laura* (The Univ. of Auckland)

09:30-11:00 SaP11.3
Electroencephalographic Compression Based on Modulated Filter Banks and Wavelet Transform 7067-7070
Bazán-Prieto, Carlos (Univ. Central "Marta Abreu" de Las Villas); *Cárdenas-Barrera, Julián* (Univ. Central "Marta Abreu" de Las Villas); *Blanco-Velasco, Manuel** (Univ. of Alcalá); *Cruz-Roldán, Fernando* (Univ. de Alcalá)

09:30-11:00 SaP11.4
Multiscale Autoregressive Identification of Neuro-Electrophysiological Systems 7071-7074
*Gilmour, Timothy P.** (The Pennsylvania State Univ.); *Subramanian, Thyagarajan* (Penn State Univ.)

09:30-11:00	SaP11.5
Towards Automated Ingestion Detection: Swallow Sounds	7075-7078
<i>Walker, William* (Univ. of Texas at Dallas); Bhatia, Dinesh (The Univ. of Texas at Dallas)</i>	
09:30-11:00	SaP11.6
Efficient Thresholding-Based ECG Compressors for High Quality Applications Using Cosine Modulated Filter Banks	7079-7082
<i>Hernando-Ramiro, Carlos (Univ. of Alcalá); Blanco-Velasco, Manuel* (Univ. of Alcalá); Cruz-Roldán, Fernando (Univ. de Alcalá); Pedroviejo-Benito, Fátima (Univ. of Alcalá)</i>	
09:30-11:00	SaP11.7
Effect of Acute Myocardial Ischemia on Different High-Frequency Bandwidths and Temporal Regions of the QRS	7083-7086
<i>Magrans, Rudys (Univ. Politècnica de Catalunya); Gomis, Pedro* (Technical Univ. of Catalonia); Voss, Andreas (Univ. of Applied Sciences Jena); Caminal, Pere (Technical Univ. of Catalonia (UPC))</i>	
09:30-11:00	SaP11.8
A Wavelet Based Technique for Suppression of EMG Noise and Motion Artifact in Ambulatory ECG	7087-7090
<i>Mithun, P (IIT Bombay); Pandey, Prem C.* (IIT Bombay); Sebastian, Toney (IIT Bombay); Mishra, Prashant (ECIL Hydrabad); Pandey, Vinod K. (Tata Consultancy Services,)</i>	
09:30-11:00	SaP11.9
Cubic Spline Interpolation with Overlapped Window and Data Reuse for On-Line Hilbert Huang Transform Biomedical Microprocessor	7091-7094
<i>Chang, Nai-Fu* (Natl. Taiwan Univ.); Chiang, Cheng-Yi (Natl. Taiwan Univ. DSP/IC Lab); Chen, Tung-Chien (Natl. Taiwan Univ.); Chen, Liang-Gee (NTU)</i>	
09:30-11:00	SaP11.10
Telephone-Quality Pathological Speech Classification Using Empirical Mode Decomposition	7095-7098
<i>Kaleem, Muhammad Farhat* (Ryerson Univ.); Ghoraani, Behnaz (Ryerson Univ.); Guergachi, Aziz (Ryerson Univ.); Krishnan, Sridhar (Ryerson Univ.)</i>	
09:30-11:00	SaP11.11
Differential Neural Responses to Acupuncture Revealed by MEG Using Wavelet-Based Time-Frequency Analysis: A Pilot Study	7099-7102
<i>You, Youbo (Inst. of Automation, Chinese Acad. of Sciences); Bai, Lijun (Life Science Research Ctr., Xidian Univ.); Dai, Ruwei (Inst. of Automation, Chinese Acad. of Sciences); Xue, Ting (Life Science Research Ctr., Xidian Univ.); Zhong, Chongguang (Inst. of Automation, Chinese Acad. of Sciences); Feng, Yuanyuan (Inst. of Automation); Wang, Hu (Inst. of Automation, Chinese Acad. of Sciences); Liu, Zhenyu (Inst. of Automation, Chinese Acad. of Sciences); Tian, Jie* (Chinese Acad. of Sciences)</i>	

SaP12: 09:30-11:00	America Ballroom Westin
1.2.4 Biomedical Modeling and Simulation (Poster Session)	

09:30-11:00	SaP12.1
Simulating Electrical Stimulation of Degenerative Retinal Ganglion Cells with Bi-Phasic Pulse Trains ...	7103-7106
<i>Kameneva, Tatiana* (Univ. of Melbourne); Grayden, David B. (Univ. of Melbourne); Meffin, Hamish (Natl. ICT Australia); Burkitt, Anthony Neville (Univ. of Melbourne)</i>	
09:30-11:00	SaP12.2
Effect of Subthalamic Nucleus Interconnectivity at Deep Brain Stimulation Onset and Offset: A Simulation Study	7107-7110
<i>Kang, Guiyeom* (Univ. College Dublin); Lowery, Madeleine (Univ. College Dublin)</i>	
09:30-11:00	SaP12.3
Artificial Neural Network Based Intracranial Pressure Mean Forecast Algorithm for Medical Decision Support	7111-7114
<i>Zhang, Feng* (Inst. for Inforcomm Research Singapore); Feng, Mengling (Inst. for Infocomm Research); Pan, Sinno Jialin (Inst. for Inforcomm Research); Loy, Liang Yu (Inst. for Inforcomm Research); Guo, Wenyuan (Inst. for Inforcomm Research); Zhang, Zhuo (A*STAR); Chin, Pei Loon (Inst. for Inforcomm Research); Guan, Cuntai (Inst. for Infocomm Research); King, Nicolas Kon Kam (Natl. Neuroscience Inst. Singapore); Ang, Beng Ti (Natl. Neuroscience Inst.)</i>	

09:30-11:00	SaP12.4
Cramér-Rao Bounds on the Performance of Simulated Annealing and Genetic Algorithms in EEG Source Localization	7115-7118
<i>Escalona-Vargas, Diana Irazú (Cinvestav Monterrey); Gutierrez, David* (Cinvestav Monterrey); Lopez-Arevalo, Ivan (Cinvestav Tamaulipas)</i>	
09:30-11:00	SaP12.5
Diagnostic Biomarkers for Alzheimer's Disease Using Dynamic Nonlinear Models Based on Principal Dynamic Modes	7119-7122
<i>Marmarelis, Vasilis* (Univ. of Southern California); Shin, Dae (Univ. of Southern California); Diaz-Arrastia, Ramon (Univ. of Texas Southwestern Medical Ctr.); Zhang, Rong (Univ. of Texas Southwestern Medical Ctr. at Dallas)</i>	
09:30-11:00	SaP12.6
Video Assessment of Finger Tapping for Parkinson's Disease and Other Movement Disorders	7123-7126
<i>Criss, Kjersten* (Portland State Univ.); McNamers, James (Portland State Univ.)</i>	
09:30-11:00	SaP12.7
Surface EMG Model of the Bicep During Aging: A Preliminary Study	7127-7130
<i>Wheeler, Katherine A.* (RMIT); Kant Kumar, Dinesh (RMIT Univ.); Shimada, Hirokazu (Oita Natl. College of Tech.); Poosapadi Arjunan, Sridhar (RMIT Univ.)</i>	
09:30-11:00	SaP12.8
System Identification of Mechanomyograms Detected with an Acceleration Sensor and a Laser Displacement Meter	7131-7134
<i>Uchiyama, Takanori* (Keio Univ.); Shinohara, Keita (Graduate School of Science & Tech., Keio Univ.)</i>	
09:30-11:00	SaP12.9
Modeling MR Induced Artifacts Contaminating Electrophysiological Signals Recorded During MRI	7135-7138
<i>El-Tatar, Aziz* (Univ. de Technologie de Compiègne); Fokapu, Odette (UTC)</i>	
09:30-11:00	SaP12.10
Simulated Performance Intensity Functions	7139-7142
<i>Hines, Andrew* (Trinity College Dublin); Harte, Naomi (Trinity College Dublin)</i>	
09:30-11:00	SaP12.11
A Whole Body Statistical Shape Model for Radio Frequency Simulation	7143-7146
<i>Lee, Su-Lin (Imperial College London); Ali, Khaleda (Queen Mary Univ. London); Brizzi, Alessio (Queen Mary Univ. London); Keegan, Jennifer (Royal Brompton Hospital, London); Hao, Yang (Queen Mary Univ. London); Yang, Guang-Zhong* (Imperial College London)</i>	

SaP13: 09:30-11:00	America Ballroom Westin
1.4.13 Advances in Multivariate Signal Processing (Poster Session)	

09:30-11:00	SaP13.1
Classification of Multi-Modal Data for Self-Paced Binary BCI in Freely Moving Animals	7147-7150
<i>Eliseyev, Andrey* (Clinatec); Faber, Jean (Clinatec); Aksenova, Tetiana (Clinatec)</i>	
09:30-11:00	SaP13.2
EEG Source Localization Based on Multivariate Autoregressive Models Using Kalman Filtering	7151-7154
<i>Giraldo, Eduardo* (Univ. Tecnológica de Pereira); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia); Padilla-Burítica, Jorge Ivan (Univ. Nacional de Colombia, sede Manizales)</i>	
09:30-11:00	SaP13.3
Community Detection for Directional Neural Networks Inferred from EEG Data	7155-7158
<i>Liu, Ying* (Michigan State Univ.); Moser, Jason (Michigan state Univ.); Aviyente, Selin (Michigan State Univ.)</i>	
09:30-11:00	SaP13.4
Detection and Removal of Stimulation Artifacts in Electroencephalogram Recordings	7159-7162
<i>Hoffmann, Ulrich* (Tecnalia Research & Innovation); Keller, Thierry (Tecnalia Research & Innovation)</i>	

09:30-11:00 SaP13.5
Comparative Muscle Study Fatigue with sEMG Signals During the Isotonic and Isometric Tasks for Diagnostics Purposes 7163-7166
Vela, Jhon Freddy (Federal Univ. of Espirito Santo); Benevides, Alessandro (Federal Univ. of Espirito Santo);
 Moreira, Marcelo (Federal Univ. of Espirito Santo); Elias, Arlindo (Univ. Federal do Espirito Santo);
 Bastos, Teodiano (Univ. Federal do Espirito Santo); Silva, Ian (Federal Univ. of Espirito Santo);
 Chamorro, Claudinei (Federal Univ. of Espirito Santo)*

SaP14: 09:30-11:00 America Ballroom Westin
1.10.19 Principal Component Analysis and Independent Component Analysis (Poster Session)

09:30-11:00 SaP14.1
Sparse Approximation of Long-Term Biomedical Signals for Classification via Dynamic PCA 7167-7170
Xie, Shengkun (Ryerson Univ., Canada); Jin, Feng (Ryerson Univ.); Krishnan, Sridhar (Ryerson Univ.)*

09:30-11:00 SaP14.2
Principle Component Analysis on Photoplethysmograms: Blood Oxygen Saturation Estimation and Signal Segmentation 7171-7174
Li, Kejia (Kansas State Univ.); Warren, Steve (Kansas State Univ.)*

09:30-11:00 SaP14.3
Bed Posture Classification for Pressure Ulcer Prevention 7175-7178
Yousefi, Rasoul (Univ. of Texas at Dallas); Sarah, Ostadabbas (Univ. of Texas at Dallas); Faezipour, Miad (Univ. of Texas at Dallas); Farshbaf, Masoud (Univ. of Texas at Dallas); Nourani, Mehrdad (Univ. of Texas at Dallas); Tamil, Lakshman (Univ. of Texas at Dallas); Pompeo, Matthew (Presbyterian Wound Care Clinic)*

09:30-11:00 SaP14.4
Dimensionality Reduction for the Quantitative Evaluation of a Smartphone-Based Timed up and Go Test 7179-7182
Palmerini, Luca (Univ. of Bologna); Mellone, Sabato (Univ. of Bologna); Rocchi, Laura (Univ. of Bologna); Chiari, Lorenzo (Univ. of Bologna)*

09:30-11:00 SaP14.5
Comparison of EEG Blind Source Separation Techniques to Improve the Classification of P300 Trials 7183-7186
Cashero, Zach (Colorado State Univ.); Anderson, Chuck (Colorado State Univ.)*

SaP15: 09:30-11:00 America Ballroom Westin
2.2.7 Ultrasound Imaging (Poster Session)

09:30-11:00 SaP15.1
Ultrasound Standoff Optimization for Maximum Image Quality of a Robot-Assisted Flat-Panel Ultrasound Device 7187-7190
Gumprecht, Jan (Technische Univ. München); Bartl, Andreas (Technische Univ. München); Stolzenburg, Jens-Uwe (Univ. of Leipzig); Lueth, Tim (Technical Univ. of Munich)*

09:30-11:00 SaP15.2
A Momentum-Based Constraint on Optical Flow Tracking of the Endocardial Surface 7191-7194
Gamarnik, Viktor (Columbia Univ.); Po, Ming Jack (Columbia Univ.); Lorsakul, Auranuch (Columbia Univ.); Duan, Qi (NIH); Laine, Andrew (Columbia Univ.)*

09:30-11:00 SaP15.3
Development of an Interactive Coronary Doppler Vibrometry System for Detection of Coronary Artery Disease 7195-7198
Choi, Joon Hwan (Univ. of Washington); Comess, Keith (Corazonx, Inc.); Xu, Canxing (Univ. of Washington); Park, Jongin (Pohang Univ. of Science & Tech.); Kim, Yongmin (Univ. of Washington)*

09:30-11:00 SaP15.4
Imaging of Sebaceous Glands in Human Skin by Three-Dimensional Ultrasound Microscopy and Its Relation to Elasticity 7199-7202
Kumagai, Kazutoshi (Tohoku Univ.); Koike, Hideyuki (Tohoku Univ.); Kudo, Yukina (Tohoku Univ.); Nagaoka, Ryo (Tohoku Univ.); Kubo, Kiyono (Tohoku Univ.); Kobayashi, Kazuto (Honda Elec.Co., Ltd.); Saijo, Yoshifumi (Tohoku Univ.)*

- 09:30-11:00 SaP15.5
Tubular Structure Enhancement for Surgical Instrument Detection in 3D Ultrasound 7203-7206
Ren, Hongliang (Harvard Medical School & Childrens Hospital Boston); Dupont, Pierre (Children's Hospital/Harvard Medical School)*
- 09:30-11:00 SaP15.6
Effect of Therapeutic Ultrasound on Acoustically Sensitive Microcapsules 7207-7210
Thirumalai, Shruthi (San Jose State Univ.); Mobed-Miremadi, Maryam (San Jose State Univ.); Sridhar-Keralapura, Mallika (San Jose State Univ.)*
- 09:30-11:00 SaP15.7
A Quantitative Study to Design an Experimental Setup for Photoacoustic Imaging 7211-7214
Marion, Adrien (Univ. de Lyon, CREATIS ; CNRS UMR5220 ; Inserm U1044 ; INSA-Lyon ; Univ. Lyon 1, France.); Boutet, Jérôme (CEA-LETI Minatec); Debourdeau, Mathieu (CEA-LETI, MINATEC); Dinten, Jean-Marc (CEA-LETI, MINATEC); Vray, Didier (INSA-LYON, CNRS UMR5220, INSERM U630)*
- 09:30-11:00 SaP15.8
Automatic Left Ventricle Detection in Echocardiographic Images for Deformable Contour Initialization 7215-7218
Seng, Cher Hau (Univ. of Wollongong); Demirli, Ramazan (Villanova Univ.); Amin, Moeness G. (Villanova Univ.); Seachrist, Jason L. (Gwynedd-Mercy College); Bouzerdoum, Abdesselam (Univ. of Wollongong)*
- 09:30-11:00 SaP15.9
Segmentation of 2D Fetal Ultrasound Images by Exploiting Context Information using Conditional Random Fields 7219-7222
Gupta, Lalit (Philips Elec.India Ltd.); Sisodia, Rajendra Singh (Philips Research Asia – Bangalore); Vajinipalli, Pallavi (Philips Research Asia – Bangalore); Firtion, Celine (Philips Elec.India Ltd); Ramachandran, Ganesan (Philips Elec.India Ltd)*
- 09:30-11:00 SaP15.10
Non-Invasive Assessment for Endothelial CD81 Expression via Targeted Microbubbles 7223-7225
Yan, Fei (Chinese Acad. of Sciences); Jin, Qiaofeng (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Liu, Xin (Shenzhen Inst. of Advanced Tech., Chinese Acad. of Sciences); Zheng, Hairong (Shenzhen Inst of Advanced Tech)*

SaP16: 09:30-11:00	America Ballroom Westin
6.3.49 Advances in Motor Neuroprostheses (Poster Session)	

- 09:30-11:00 SaP16.1
Computational Study of Subdural and Epidural Cortical Stimulation of the Motor Cortex 7226-7229
Kim, Donghyeon (Gwangju Inst. of Science & Tech.); Jun, Sung Chan (Gwangju Inst. of Science & Tech.); Kim, Hyoung-lhl (Gwangju Inst. of Science & Tech.)*
- 09:30-11:00 SaP16.2
A Fully Implantable Stimulator with Wireless Power and Data Transmission for Experimental Use in Epidural Spinal Cord Stimulation 7230-7233
Xu, Qi (Huangzhong Univ. of Science & Tech., Wuhan, P.R. China); Li, Jun (Huangzhong Univ. of Science & Tech., Wuhan, P.R. China); Han, Wenjuan (Huangzhong Univ. of Science & Tech., Wuhan, P.R. China); Zhou, Houlun (Huangzhong Univ. of Science & Tech., Wuhan, P.R. China)*
- 09:30-11:00 SaP16.3
Mechanical Power of Ankle Plantar Flexion and Subjective Pain by Monophasic Electrical Stimulation 7234-7237
Suzuki, Tatsuto (Maizuru Natl. College of Tech.); Watanabe, Takashi (Tohoku Univ.); Saura, Ryuichi (Osaka Medical College); Uchiyama, Hironobu (Kansai Univ.)*
- 09:30-11:00 SaP16.4
Efficient Search and Fit Methods to Find Nerve Stimulation Parameters for Multi-Contact Electrodes 7238-7241
Freeberg, Max (Case Western Reserve Univ.); Schiefer, Matthew A. (Case Western Reserve Univ.); Triolo, Ronald J. (US Dept. of Veterans Affairs & Case Western Reserve Univ.)*

09:30-11:00 SaP16.5
Correlation between Mechanomyography Features and Passive Movements in Healthy and Paraplegic Subjects 7242-7245
*Krueger, Eddy** (Federal Technological Univ. of Paraná); *Scheeren, Eduardo Mendonça* (Federal Technological Univ. of Paraná); *Nogueira-Neto, Guilherme* (State Univ. of Campinas); *Button, Vera Lúcia da Silveira Nantes* (State Univ. of Campinas); *Nohama, Percy* (Univ. Tecnológica Federal do Paraná)

09:30-11:00 SaP16.6
Online Feedback Control of Functional Electrical Stimulation Using Dorsal Root Ganglia Recordings ... 7246-7249
*Bauman, Matthew J** (Univ. of Pittsburgh); *Bruns, Tim M.* (Univ. of Pittsburgh); *Wagenaar, Joost* (Univ. of Philadelphia); *Gaunt, Robert* (Univ. of Pittsburgh); *Weber, Douglas* (Univ. of Pittsburgh)

09:30-11:00 SaP16.7
Development of a Bayesian Recursive Algorithm to Find Free-Spaces for an Intelligent Wheelchair 7250-7253
*Nguyen, Anh V.** (Univ. of Tech., Sydney); *Su, Steven Weidong* (Univ. of Tech., Sydney); *Nguyen, Hung T.* (Univ. of Tech., Sydney)

SaP17: 09:30-11:00 America Ballroom Westin
6.7.53 Recent Developments in Virtual Reality in Rehabilitation (Poster Session)

09:30-11:00 SaP17.1
Classification of EMG Signals Using Artificial Neural Networks for Virtual Hand Prosthesis Control 7254-7257
*Mattioli, Fernando Eduardo Resende** (Federal Univ. of Uberlândia); *Lamounier Jr., Edgard* (Federal Univ. of Uberlândia); *Cardoso, Alexandre* (Federal Univ. of Uberlândia); *Soares, Alcimar* (Federal Univ. of Uberlândia); *Andrade, Adriano* (Federal Univ. of Uberlândia)

09:30-11:00 SaP17.2
Pneumatic Robotic Device for Early Delivering of Rehabilitation Therapy 7258-7261
Morales, Ricardo, Ricardo (Univ. Miguel Hernandez); *Badesa, Francisco Javier, Javier* (Univ. Miguel Hernandez); *Garcia, Nicolas, Nicolas** (Univ. Miguel Hernandez); *Sabater, Jose Maria, Jose Maria* (Univ. Miguel Hernandez); *Perez, Carlos, Carlos* (Univ. Miguel Hernandez)

09:30-11:00 SaP17.3
Visuomotor Discordance in Virtual Reality: Effects on Online Motor Control 7262-7265
*Bagce, Hamid** (UMDNJ); *Saleh, Soha* (NJIT); *Adamovich, Sergei* (NJIT); *Tunik, Eugene* (Univ. of Medicine & Dentistry of New Jersey (UMDNJ))

SaP18: 09:30-11:00 America Ballroom Westin
6.9.55 Advances in Brain Physiology and Modeling (Poster Session)

09:30-11:00 SaP18.1
Planar Saline Bath Phantom of the Rush Head Model 7266-7269
Shephard, Clarissa (North Carolina State Univ.); *Jochum, Thomas** (Duke Univ.); *Abzug, Zachary* (Duke Univ.); *Wolf, Patrick* (Duke Univ.)

09:30-11:00 SaP18.2
A Mathematical Model to Explore the Interdependence between the Serotonin and Orexin/Hypocretin Systems 7270-7273
*Joshi, Alok** (Intelligent Systems Research Ctr., Univ. of Ulster); *Wong-Lin, KongFatt* (Univ. of Ulster); *McGinnity, T. Martin* (Univ. of Ulster); *Prasad, Girijesh* (Univ. of Ulster)

09:30-11:00 SaP18.3
Iono-Neuromorphic Implementation of Spike-Time-Dependent Synaptic Plasticity 7274-7277
Meng, Yicong (Massachusetts Inst. of Tech.); *Poon, Chi-Sang** (Massachusetts Inst. of Tech.)

09:30-11:00 SaP18.4
Information Transfer between Neurons in the Motor Cortex Triggered by Visual Cues 7278-7281
*Kim, Sanggyun** (Univ. of Illinois at Urbana-Champaign); *Coleman, Todd* (Univ. of Illinois); *Takahashi, Kazutaka* (Univ. of Chicago); *Hatsopoulos, Nicholas* (Univ. of Chicago)

09:30-11:00	SaP18.5
A Hardware-Based Computational Platform for Generalized Laguerre-Volterra	
MIMO Model for Neural Activities	7282-7285
<i>Li, Will X. Y.* (City Univ. of Hong Kong); Chan, Rosa H. M. (Univ. of Southern California); Zhang, Wei (City Univ. of Hong Kong); Cheung, Ray C. C. (City Univ. of Hong Kong); Song, Dong (Univ. of Southern California); Berger, Theodore (Univ. of Southern California)</i>	
09:30-11:00	SaP18.6
A Mechanism to Explain Zero-Delay Bilateral Seizure Synchronization	
<i>Wang, Yang* (Case Western Reserve Univ.); Toprani, Sheela (Case Western Reserve Univ.); Vrabec, Tina (Case Western Reserve Univ.); Durand, Dominique (Case Western Reserve Univ.)</i>	
09:30-11:00	SaP18.7
Addition of Deep Brain Stimulation Signal to a Local Field Potential Driven Izhikevich	
Model Masks the Pathological Firing Pattern of an STN Neuron	7290-7293
<i>Michmizos, Kostis P.* (Massachusetts Inst. of Tech.); Nikita, Konstantina (Natl. Technical Univ. of Athens)</i>	
SaP19: 09:30-11:00	America Ballroom Westin
6.10.56 Advances in the Analysis of Neural Signals (Poster Session)	
09:30-11:00	SaP19.1
Implantable Neural Spike Detection Using Lifting-Based Stationary Wavelet Transform	
<i>Yang, Yuning* (Michigan State Univ.); Mason, Andrew (Michigan State Univ.)</i>	
09:30-11:00	SaP19.2
Real-Time Neuronal Networks Reconstruction Using Hierarchical Systolic Arrays	
<i>Yu, Bo* (Tsinghua Univ.); Mak, Terrence (Newcastle Univ.); Poon, Chi-Sang (Massachusetts Inst. of Tech.)</i>	
09:30-11:00	SaP19.3
LivBioSig: Development of a Toolbox for Online Bio-Signals Processing and Experimentation	
<i>Lorrain, Thomas (Aalborg Univ.); Niazi, Imran* (Aalborg Univ.); Thibergien, Olivier (Aalborg Univ.); Jiang, Ning (Univ. Medical Ctr. Goettingen); Farina, Dario (Bernstein Ctr. for Computational Neuroscience, Univ. Medical Ctr. Göttingen)</i>	
09:30-11:00	SaP19.4
A Data-Driven Process for the Development of an Eyes-Closed EEG Normative Database	
<i>Aguilar Herrero, Monica* (Bit&Brain Technologies S.L.); Congedo, Marco (cnrs); Minguez, Javier (Zaragoza Univ.)</i>	
09:30-11:00	SaP19.5
Afferent and Efferent Activity Control in the Design of Brain Computer	
Interfaces for Motor Rehabilitation	7310-7315
<i>Ramos Murguialday, Ander* (Fatronik Tecnalia Germany)</i>	
09:30-11:00	SaP19.6
Independent Component Analysis As a Preprocessing Step for Data Compression of Neonatal EEG	
<i>Mijovic, Bogdan* (Katholieke Univ. Leuven); De Vos, Maarten (KU Leuven); Matic, Vladimir (Dept. of Elec. Eng. (ESAT-SCD), Katholieke Univ. Leuven, Belgium); Van Huffel, Sabine (Katholieke Univ. Leuven)</i>	
09:30-11:00	SaP19.7
Detection and Classification of Multiple Finger Movements Using a Chronically	
Implanted Utah Electrode Array	7320-7323
<i>Egan, Joshua* (Univ. of Utah); Baker, Justin (Univ. of Utah); House, Paul (Univ. of Utah); Greger, Bradley (Univ. of Utah)</i>	
09:30-11:00	SaP19.8
Assessing Directed Information As a Method for Inferring Functional	
Connectivity in Neural Ensembles	7324-7327
<i>So, Kelvin* (Univ. of California, Berkeley); Gastpar, Michael (Univ. of California, Berkeley); Carmena, Jose M. (Univ. of California, Berkeley)</i>	

09:30-11:00 SaP19.9
Stochastic Resonance with a Mixture of Sub and Supra-Threshold Stimuli in a Population of Neuron Models 7328-7331
*Kawaguchi, Minato** (Kanto Gakuin Univ.); *Mino, Hiroyuki* (Kanto Gakuin Univ.);
Durand, Dominique (Case Western Reserve Univ.); *Momose, Keiko* (Waseda Univ.)

SaP110: 09:30-11:00	America Ballroom Westin
6.13.59 Advances in Human Performance (Poster Session)	

09:30-11:00 SaP110.1
Fully-Automated Test of Upper-Extremity Function 7332-7335
*Kowalczewski, Jan** (Univ. of Alberta); *Ravid, Einat (Natalie)* (Univ. of Alberta);
Prochazka, Arthur (Univ. of Alberta)

09:30-11:00 SaP110.2
Mobility Profile and Wheelchair Driving Skills of Powered Wheelchair Users: Sensor-Based Event Recognition Using a Support Vector Machine Classifier 7336-7339
Kardehi Moghaddam, Athena (McGill Univ.); *Pineau, Joëlle* (McGill Univ.); *Frank, Jordan* (McGill Univ.);
Archambault, Philippe S. (McGill Univ.); *Routhier, François* (Institut de réadaptation en déficience physique de Québec); *Audet, Thérèse* (Univ. de Sherbrooke); *Polgar, Jan* (Univ. of Western Ontario);
Michaud, François (Univ. de Sherbrooke); *Boissy, Patrick** (Univ. de Sherbrooke)

09:30-11:00 SaP110.3
Investigation of Sit-To-Stand and Stand-To-Sit in an above Knee Amputee 7340-7343
*Gao, Fan** (UT Southwestern Medical Ctr. at Dallas); *Zhang, Fan* (Univ. of Rhode Island);
Huang, He (Univ. of Rhode Island)

09:30-11:00 SaP110.4
New Ergonomic Headset for Tongue-Drive System with Wireless Smartphone Interface 7344-7347
Park, Hangué (Georgia Tech); *Kim, Jeonghee* (Georgia Inst. of Techonology); *Huo, Xueliang* (Georgia Inst. of Tech.);
Hwang, In-O (Georgia Tech); *Ghovanloo, Maysam** (Georgia Inst. of Tech.)

09:30-11:00 SaP110.5
Regression Equations for RT3 Activity Monitors to Estimate Energy Expenditure in Manual Wheelchair Users 7348-7351
*Hiremath, Shivayogi V** (Univ. of Pittsburgh); *Ding, Dan* (Univ. of Pittsburgh)

09:30-11:00 SaP110.6
Control of Reaching Finger Movement Accompanied with Inhibitory Intention 7352-7355
*Fukuda, Hiroshi** (Hiroshima City Univ.); *Hiwaki, Osamu* (Hiroshima City Univ.)

09:30-11:00 SaP110.7
Visual and Proprioceptive Contributions to Compensatory and Pursuit Tracking Movements in Humans 7356-7359
*Heenan, Megan** (Marquette Univ.); *Scheidt, Robert A.* (Marquette Univ.); *Beardsley, Scott* (Marquette Univ.)

09:30-11:00 SaP110.8
Evidence of Rapid Gender Processing Revealed by ERSP 7360-7363
Gu, Zhong-lei (Shanghai Jiaotong Univ.); *Shi, Lichen* (Shanghai Jiao Tong Univ.);
*Lu, Bao-Liang** (Shanghai Jiao Tong Univ.)

09:30-11:00 SaP110.9
Evaluation System for Minor Nervous Dysfunction by Pronation and Supination of Forearm Using Wireless Acceleration and Angular Velocity Sensors 7364-7367
*Iramina, Keiji** (Kyushu Univ., Japan); *Kamei, Yuichiro* (Graduate School of Information Science & Elec. Eng., Kyushu Univ.); *Katayama, Yoshinori* (Kyushu Univ.)

8.6.28 Recent Developments in Surgical Robotics (Poster Session)

- 09:30-11:00 SaP111.1
Evaluation of a Synergistic Handheld Instrument for Resternotomy Controlled by an Integrated Optical Sensor 7368-7371
Korff, Alexander (RWTH Aachen Univ.); Jalowy, Thomas (RWTH Aachen Univ.); Müller, Meiko (RWTH Aachen Univ.); Fuertjes, Tobias (RWTH Aachen Univ.); Dohmen, Guido (Dept. of Thoracic & Cardiovascular Surgery, Univ. Hospital Aachen); Radermacher, Klaus (RWTH Aachen Univ.); Follmann, Axel (RWTH Aachen Univ.)*
- 09:30-11:00 SaP111.2
Towards a Micropositioning System for Targeted Drug Delivery in Wireless Capsule Endoscopy 7372-7375
Woods, Stephen (Imperial College London); Constandinou, Timothy G. (Imperial College of Science, Tech. & Medicine)*
- 09:30-11:00 SaP111.3
Comparative Evaluation of User Interfaces for Robot-Assisted Laser Phonomicrosurgery 7376-7379
Dagnino, Giulio (Italian Inst. of Tech.); Mattos, Leonardo (IIT – Istituto Italiano di Tecnologia); Becattini, Gabriele (Italian Inst. of Tech.); Dellepiane, Massimo (Univ. of Genoa – ENT Dept.); Caldwell, Darwin G. (Italian Inst. of Tech.)*
- 09:30-11:00 SaP111.4
Robotic Endoscope Motor Module and Gearing Design 7380-7383
Oliveira, Jillian M. (MIT); Chen, Yi (MIT); Hunter, Ian (Massachusetts Inst. of Tech.)*
- 09:30-11:00 SaP111.5
A Fuzzy-Based Shared Controller for Brain-Actuated Simulated Robotic System 7384-7387
Liu, Rong (Dalian Univ. of Tech.); Xue, Kuang-zheng (The Dalian Univ. of Tech.); Wang, Yong-xuan (Dalian Univ. of Tech.); Yang, Le (DanXia Sensor Tech. Co. Ltd.)*

8.8.14 New Technologies and Methodologies in Medical Robotics and Biomechanics I (Poster Session)

- 09:30-11:00 SaP112.1
Analysis of Foot Pressure Distribution Data for the Evaluation of Foot Arch Type 7388-7392
Imaizumi, Kazuya (Tokyo Healthcare Univ.); Iwakami, Yumi (Tokyo Healthcare Univ.); Yamashita, Kazuhiko (Tokyo Healthcare Univ.)*
- 09:30-11:00 SaP112.2
Palpation Nonlinear Reaction Force Analysis for Characterization of Breast Tissues 7393-7396
Kobayashi, Yo (Waseda Univ.); Tsukune, Mariko (Waseda Univ.); Hoshi, Takeharu (Waseda Univ.); Miyashita, Tomoyuki (Waseda Univ.); Shiraishi, Yasuyuki (Tohoku Univ.); Yambe, Tomoyuki (Tohoku Univ.); Fujie, Masakatsu G. (Waseda Univ.)*
- 09:30-11:00 SaP112.3
Validation of a Software Program for Measuring Fatigue-Related Changes in Keystroke Durations 7397-7400
Kim, Jeong Ho (Univ. of Washington); Johnson, Peter (Univ. of Washington)*
- 09:30-11:00 SaP112.4
Physical Human Interaction for an Inflatable Manipulator 7401-7404
Sanan, Siddharth (Carnegie Mellon Univ.); Ornstein, Mike (Carnegie Mellon Univ.); Atkeson, Christopher (Carnegie Mellon Univ.)*
- 09:30-11:00 SaP112.5
Evaluation and Comparison of the Nonlinear Elastic Properties of the Soft Tissues of the Breast 7405-7408
Tsukune, Mariko (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Hoshi, Takeharu (Waseda Univ.); Miyashita, Tomoyuki (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*

09:30-11:00 SaP112.6
Cortical Response to Psycho-Physiological Changes in Auto-Adaptive Robot Assisted Gait Training 7409-7412
Jelinek, Herbert Franz (Charles Sturt Univ.); August, Katherine (INI Univ. of Zurich ETH Zurich);
 Imam, Hasan (Univ. of Melbourne); Khandoker, Ahsan Habib (Univ. of Melbourne);
 Koenig, Alexander (ETH Zurich); Riener, Robert (ETH & Univ. Zurich)*

SaP113: 09:30-11:00	America Ballroom Westin
8.9.11 Brain Machine Interfaces and Robotics Applications (Poster Session)	

09:30-11:00 SaP113.1
An Automatic Control Model for Rat-Robot 7413-7416
*Sun, Chao (Zhejiang Univ.); Zheng, Nenggan (Zhejiang Univ., China); Zhang, Xinlu (Zhejiang Univ.);
 Chen, Weidong* (Zhejiang Univ.); Zheng, Xiaoxiang (Zhejiang Univ.)*

09:30-11:00 SaP113.2
Estimation of Direction of Attention Using EEG and Out-Of-Head Sound Localization 7417-7420
Ebisawa, Masashi (Nagaoka Univ. of Tech.); Kogure, Masumi (Nagaoka Univ. of Tech.);
 Yano, Shouhei (Nagaoka Natl. College of Tech.); Matsuzaki, Shuichi (Nagaoka Univ. of Tech., JAPAN);
 Wada, Yasuhiro (Nagaoka Univ. of Tech.)*

09:30-11:00 SaP113.3
A Hybrid Brain Interface for a Humanoid Robot Assistant 7421-7424
Finke, Andrea (Bielefeld Univ., Bielefeld, Germany); Knoblauch, Andreas (Honda Research Inst. Europe);
 Koesling, Hendrik (Bielefeld Univ.); Ritter, Helge (CITEC, CoR-Lab, Bielefeld Univ., Bielefeld, Germany)*

09:30-11:00 SaP113.4
Temporal Representation of Arm Force Direction Using Fnirs Signals 7425-7428
Muto, Yasuyuki (Nagaoka Univ. of Tech.); Ishii, Taiki (Nagaoka Univ. of Tech.);
 Matsuzaki, Shuichi (Nagaoka Univ. of Tech., JAPAN); Wada, Yasuhiro (Nagaoka Univ. of Tech.)*

09:30-11:00 SaP113.5
EEG Correlates of Submovements 7429-7432
Dipietro, Laura (MIT); Poizner, Howard (UCSD); Krebs, Hermano Igo (MIT)*

SaP114: 09:30-11:00	America Ballroom Westin
8.10.13 New Technologies and Methodologies in Medical Robotics and Biomechanics II (Poster Session)	

09:30-11:00 SaP114.1
Strength Evaluation of a Variable Diameter Acetabular Trial Implant under Realistic Loading Conditions 7433-7436
Levasseur, Annie (Imaging & Orthopaedic Research Laboratornt); Petit, Yvan (École de Technologie Supérieure); Dansereau, Mathieu (École de technologie supérieure); Fernandes, Julio (Univ. of Montréal)*

09:30-11:00 SaP114.2
Blood Flow Measurement Algorithms to Detect Bleeding Source Noninvasively 7437-7440
Ito, Keiichiro (Waseda Univ.); Asayama, Tomofumi (Waseda Univ.); Sugano, Shigeki (Waseda Univ.);
 Iwata, Hiroyasu (Waseda Univ.)*

09:30-11:00 SaP114.3
Estimation of Intraoperative Blood Flow During Liver RF Ablation Using a Finite Element Method-Based Biomechanical Simulation 7441-7445
Watanabe, Hiroki (Waseda Univ.); Yamazaki, Nozomu (Waseda Univ.); Kobayashi, Yo (Waseda Univ.);
 Miyashita, Tomoyuki (Waseda Univ.); Hashizume, Makoto (Kyushu Univ.); Fujie, Masakatsu G. (Waseda Univ.)*

09:30-11:00 SaP114.4
Simulations and Experimental Demonstration of Coupling Molecular and Macroscopic Level Modalities with a Robotic Manipulator 7446-7449
Sonmez, Ahmet Eren (Univ. of Houston); Hedayati, Yousef (Univ. of Houston); Ozcan, Alpay (Washington Univ. in St. Louis);
 Spees, William (Washington Univ. in St. Louis); Tsekos, Nikolaos (Univ. of Houston)*

- 09:30-11:00 SaP115.1
Stability of a Double Inverted Pendulum Model During Human Quiet Stance with Continuous Delay Feedback Control **7450-7453**
Suzuki, Yasuyuki (Osaka Univ.); Nomura, Taishin (Osaka Univ.); Morasso, Pietro (Univ. of Genova)*
- 09:30-11:00 SaP115.2
Local Analysis of Trabecular Bone Fracture **7454-7457**
Tassani, Simone (Inst. of Communication & Computer Systems); Demenegas, Fragiskos (Natl. Technical Univ. of Athens); Matsopoulos, George K (Inst of Comm & Computer Systems)*
- 09:30-11:00 SaP115.3
Quantifying Anti-Gravity Torques in the Design of a Powered Exoskeleton **7458-7461**
Ragonesi, Daniel (Univ. of Delaware); Agrawal, Sunil (Univ. of Delaware); Sample, Whitney (A.I. duPont Hospital for Children); Rahman, Tariq (Nemours)*
- 09:30-11:00 SaP115.4
Design and Evaluation of a Prosthetic Shoulder Controller **7462-7465**
Barton, Joseph (Univ. of Maryland School of Medicine)*

- 11:15-11:30 SaB01.1
Control of an Omnidirectional Walking Support Walker by Forearm Pressures **7466-7469**
Jiang, Yinlai (Kochi Univ. of Tech.); Wang, Shuoyu (Kochi Univ. of Tech.); Ishida, Kenji (Kochi Medical School Hospital); Ando, Takeshi (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*
- 11:30-11:45 SaB01.2
Predicting Efficacy of Robot-Aided Rehabilitation in Chronic Stroke Patients Using an MRI-Compatible Robotic Device **7470-7473**
Sergi, Fabrizio (Univ. Campus Bio-Medico di Roma); Krebs, Hermano Igo (MIT); Groisser, Benjamin (Massachusetts General Hospital, Martinos Ctr. for Biomedical Imaging); Rykman, Avrielle (Burke Medical Research Inst.); Guglielmelli, Eugenio (Campus Bio-Medico Univ.); Volpe, Bruce (Cornell Univ.); Schaechter, Judith D. (Massachusetts General Hospital, Martinos Ctr. for Biomedical Imaging)*
- 11:45-12:00 SaB01.3
Feasibility of Entrainment with Ankle Mechanical Perturbation to Treat Locomotor Deficit of Neurologically Impaired Patients **7474-7477**
Ahn, Joeun (MIT); Patterson, Tara (Providence VA Medical Ctr.; Brown Univ.); Lee, Hyunglae (Massachusetts Inst. of Tech.); Klenk, Daniel (MIT); Lo, Albert (Brown Univ.; Dept. of Veteran Affairs); Krebs, Hermano Igo (MIT); Hogan, Neville (Massachusetts Inst. of Tech.)*
- 12:00-12:15 SaB01.4
Development of a Dynamic Model for Bevel-Tip Flexible Needle Insertion into Soft Tissues **7478-7482**
Haddadi, Amir (Queen's Univ.); Hashtrudi-Zaad, Keyvan (Queen's Univ.)*
- 12:15-12:30 SaB01.5
Develop a Wearable Ankle Robot for In-Bed Acute Stroke Rehabilitation **7483-7486**
Ren, Yupeng (Rehabilitation Inst. of Chicago); Xu, Tao (Rehabilitation Inst. of Chicago); Wang, Liang (Illinois Inst. of Chicago); Guo, Xin (Hebei Univ. of Tech.); Harvey, Richard (Rehabilitation Inst. of Chicago); Zhang, Li-Qun (Northwestern Univ.)*
- 12:30-12:45 SaB01.6
Filtering Essential Tremor Noise on Surface EMG Based on Squared Sine Wave Approximation **7487-7491**
Seki, Masatoshi (Waseda Univ.); Matsumoto, Yuya (Waseda Univ.); Ando, Takeshi (Waseda Univ.); Kobayashi, Yo (Waseda Univ.); Iijima, Hiroshi (Yokohama Rehabilitation Foundation); Nagaoka, Masanori (Juntendo Univ., Graduate School); Fujie, Masakatsu G. (Waseda Univ.)*

SaB02: 11:15-12:45 St. George CD Westin
8.5.3 Robot-Assisted Training in Sports: Not Needed or Too Challenging? (Minisymposium)
Chair: Wolf, Peter (*ETH Zurich*)
Co-Chair: O'Malley, Marcia K. (*Rice Univ.*)

11:15-11:30 SaB02.1
Robot-Assisted Training in Sports: Haptic Rendering and Multimodal Feedback to Facilitate Motor Learning in Rowing *
*Wolf, Peter** (*ETH Zurich*); *Rauter, Georg* (*Sensory-Motor Systems Lab, ETH Zurich*); *Sigrist, Roland* (*Sensory-Motor Systems Lab, ETH Zurich*); *von Zitzewitz, Joachim* (*Sensory-Motor Systems Lab, ETH Zurich*); *Riener, Robert* (*ETH & Univ. Zurich*)

11:30-11:45 SaB02.2
Robot-Assisted Training in Sports: Rowing Training from Task Analysis to Multimodal Feedback *
*Ruffaldi, Emanuele** (*Scuola Superiore S.Anna, Pisa, Italy*);
Filippeschi, Alessandro (*Scuola Superiore S.Anna, Pisa, Italy*)

11:45-12:00 SaB02.3
Robot-Assisted Training in Sports: Considerations for the Design and Implementation of Guidance Architectures *
*O'Malley, Marcia K.** (*Rice Univ.*)

SaB03: 11:15-12:45 Essex Ballroom South Westin
6.4.6 Development of a Retinal Prosthesis for the Blind: Technical and Biological Challenges (Minisymposium)
Chair: Rizzo, Joseph F. (*Boston VA Healthcare System*)
Co-Chair: Suaning, Gregg (*The Univ. of New South Wales*)

11:15-11:30 SaB03.1
Overview of the Boston Retinal Prosthesis: Challenges and Opportunities to Restore Useful Vision to the Blind **7492-7495**
*Rizzo, Joseph F.** (*Boston VA Healthcare System*); *Shire, Douglas* (*Boston VA Healthcare System*); *Kelly, Shawn* (*Boston VA Healthcare System*); *Troyk, Philip* (*Illinois Inst. of Tech.*); *Gingerich, Marcus* (*Boston VA Healthcare System*); *McKee, Bruce* (*VA CIVR*); *Priplata, Attila* (*VA CIVR*); *Chen, Jinghua* (*Massachusetts Eye & Ear Infirmary*); *Drohan, William* (*Boston VA Healthcare System*); *Doyle, Patrick* (*Boston VA Research Inst.*); *Mendoza, Oscar* (*MIT*); *Theogarajan, Luke* (*Univ. of California*); *Cogan, Stuart* (*EIC Laboratories, Inc.*); *Wyatt, John* (*Massachusetts Inst. of Tech.*)

11:30-11:45 SaB03.2
What Patients Can See with Subretinal Implants *
*Zrenner, Eberhart** (*Univ. of Tuebingen*); *Bruckmann, Anna* (*Univ. of Tuebingen*); *Greppmaier, Udo* (*Retina Implant AG*); *Kernstock, Christoph* (*Univ. of Tuebingen*); *Sliesoraityte, Ieva* (*Univ. of Tuebingen*); *Stingl, Katarina* (*Univ. of Tuebingen*); *Wilhelm, Barbara* (*Univ. of Tuebingen*)

11:45-12:00 SaB03.3
The Supra-Choroidal Space: The Place to Be for Retinal Prosthesis? *
*Suaning, Gregg** (*The Univ. of New South Wales*)

12:00-12:15 SaB03.4
Challenges for Epiretinal Prostheses *
*Weiland, James** (*Univ. of Southern California*)

SaB05: 11:15-12:45

Essex Ballroom North Westin

6.6.37 EMG Processing and Applications (Oral Session)

Chair: Holobar, Ales (*Univ. of Maribor, Faculty of Elec. Eng. & Computer Science*)

Co-Chair: Zhou, Ping (*Northwestern Univ. & Rehab Inst. of Chicago*)

11:15-11:30

SaB05.1

EMG and Acceleration Signal Analysis for Quantifying the Effects of

Medication in Parkinson's Disease 7496-7499

Rissanen, Saara Mirjami (Univ. of Eastern Finland); Kankaanpää, Markku Juhani (Kuopio Univ. Hospital);
Tarvainen, Mika (Univ. of Eastern Finland); Nuutinen, Juho (Univ. hospital of Kuopio);
Airaksinen, Veikko Olavi Pietari (Kuopio Univ. Hospital); Karjalainen, Pasi, A (Univ. of Eastern Finland)*

11:30-11:45

SaB05.2

A SNR-Independent Formulation of a Double Threshold Algorithm for the

Estimation of Muscle Activation Intervals 7500-7503

Severini, Giacomo (Univeristà degli Studi Roma Tre); Conforto, Silvia (Univ. Roma TRE); De Marchis, Cristiano
(Univ. degli Studi Roma Tre); Schmid, Maurizio (Roma Tre Univ.); d'Alessio, Tommaso (Univ. Roma TRE)*

11:45-12:00

SaB05.3

Alterations in Spike Amplitude Distribution of the Surface Electromyogram Post-Stroke 7504-7507

Li, Xiaoyan (Rehabilitation Inst. of Chicago); Suresh, Aneesha (Northwestern Univ.); Zhou, Ping (Northwestern
Univ. & Rehab Inst of Chicago); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)*

12:00-12:15

SaB05.4

Detection of Tremor Bursts from the sEMG Signal: An Optimization Procedure for

Different Detection Methods 7508-7511

De Marchis, Cristiano (Univ. degli Studi Roma Tre); Conforto, Silvia (Univ. Roma TRE); Severini, Giacomo
(Univeristà degli Studi Roma Tre); Schmid, Maurizio (Roma Tre Univ.); d'Alessio, Tommaso (Univ. Roma TRE)*

12:15-12:30

SaB05.5

Noninvasive Analysis of Motor Unit Behavior in Pathological Tremor 7512-7515

Holobar, Ales (Univ. of Maribor, Faculty of Elec. Eng. & Computer Science); Glaser, Vojko (Univ. of Maribor,
Faculty of Elec. Eng. & Computer Science); Gallego, Juan Alvaro (Consejo Superior de Investigaciones
Científicas CSIC); Dideriksen, Jakob (Aalborg Univ.); Farina, Dario (Bernstein Ctr. for Computational
Neuroscience, Univ. Medical Ctr. Göttingen)*

12:30-12:45

SaB05.6

Trust Sensor Interface for Improving Reliability of EMG-Based User Intent Recognition 7516-7520

Liu, Yuhong (Univ. of Rhode Island); Zhang, Fan (Univ. of Rhode Island); Sun, Yan (Univ. of Rhode Island);
Huang, He (Univ. of Rhode Island)*

SaB07: 11:15-12:45

Boylston Marriott

6.3.11 Stimulation Techniques for Neuroprostheses (Oral Session)

Chair: Carmena, Jose M. (*Univ. of California, Berkeley*)

Co-Chair: Venkatraman, Subramaniam (*Univ. of California, Berkeley*)

11:15-11:30

SaB07.1

Designing Stimulation Patterns for an Afferent BMI: Representation of

Kinetics in Somatosensory Cortex 7521-7524

London, Brian (Northwestern Univ.); Ruiz Torres, Ricardo (Northwestern Univ.);
Slutzky, Marc (Northwestern Univ.); Miller, Lee (Northwestern Univ.)*

11:30-11:45

SaB07.2

Approaches to Optical Neuromodulation from Rodents to Non-Human Primates by

Integrated Optoelectronic Devices 7525-7528

*Wang, Jing (Brown Univ.); Ozden, Ilker (Brown Univ.); Diagne, Mohamed (Connecticut College);
Wagner, Fabien (Brown Univ.); Borton, David (Brown Univ.); Brush, Benjamin (Brown Univ.);
Agha, Naubahar (Brown Univ.); Burwell, Rebecca (Brown Univ.); Sheinberg, David (Brown Univ.);
Diester, Ilka (Stanford Univ.); Deisseroth, Karl (Stanford Univ.); Nurmikko, Arto* (Brown Univ.)*

11:45-12:00 SaB07.3
Chronically Implanted Hyperdrive for Cortical Recording and Optogenetic Control in Behaving Mice 7529-7532
Siegle, Joshua (Massachusetts Inst. of Tech.); Carlen, Marie (Karolinska Inst.); Meletis, Konstantinos (Karolinska Inst.); Tsai, Li-Huei (Massachusetts Inst. of Tech.); Moore, Christopher (Massachusetts Inst. of Tech.); Ritt, Jason (Boston Univ.)*

12:00-12:15 SaB07.4
Effects of Spatial and Temporal Parameters of Primary Afferent Microstimulation on Neural Responses Evoked in Primary Somatosensory Cortex of an Anesthetized Cat 7533-7536
Hokanson, James (Univ. of Pittsburgh); Ayers, Christopher (Univ. of Pittsburgh); Gaunt, Robert (Univ. of Pittsburgh); Bruns, Tim M. (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh)*

12:15-12:30 SaB07.5
Robustness of Implantable Algorithms to Detect Epileptiform Activity in the Presence of Broad-Spectrum Background Noise 7537-7540
Wingeier, Brett (Neuropace, Inc.); Sillay, Karl (Univ. of Wisconsin-Madison)*

12:30-12:45 SaB07.6
Rat Behavioral Model for High-Throughput Parametric Studies of Intracortical Microstimulation 7541-7544
Koivuniemi, Andrew (Purdue Univ.); Regele, Oliver (Purdue Univ.); Brenner, Jessica (Purdue Univ.); Otto, Kevin (Purdue Univ.)*

SaB08: 11:15-12:45 Tremont Marriott
8.3.5 Exoskeletons for Functional Training (Minisymposium)
Chair: Agrawal, Sunil (*Univ. of Delaware*)
Co-Chair: Rahman, Tariq (*Nemours*)

11:15-11:30 SaB08.1
Robotic Exoskeletons for Gait Training of the Motor Impaired *
Agrawal, Sunil (Univ. of Delaware)*

11:30-11:45 SaB08.2
Upper Extremity Exoskeletons for People with Disabilities *
Rahman, Tariq (Nemours)*

11:45-12:00 SaB08.3
Mobility Training of Infants and Toddlers Using Novel Mobile Robots and Interfaces *
Agrawal, Sunil (Univ. of Delaware); Chen, Xi (Univ. of Delaware); Galloway, James (Univ. of Delaware); Ragonesi, Christina (Univ. of Delaware)*

SaB09: 11:15-12:45 Regis Marriott
6.11.42 Epilepsy – I (Oral Session)
Chair: Dumont, Guy (*Univ. of British Columbia*)
Co-Chair: Dourado, António (*FCTUC, Univ. of Coimbra*)

11:15-11:30 SaB09.1
A Novel Unsupervised Spike Sorting Algorithm for Intracranial EEG 7545-7548
Yadav, Rajeev (Concordia Univ.); Shah, Aashit K. (Wayne State Univ. School of Medicine, Detroit, Michigan); Loeb, Jeffrey A. (Ctr. for Molecular Medicine & Genetics, Wayne State Univ. School of Medicine, Detroit, Michigan); Swamy, M. N. S. (Concordia Univ.); Agarwal, Rajeev (Concordia Univ.)*

11:30-11:45 SaB09.2
Epileptic Seizure Prediction Using Variational Mixture of Gaussians 7549-7552
Shahidi Zandi, Ali (The Univ. of British Columbia); Dumont, Guy (Univ. of British Columbia); Javidan, Manouchehr (Univ. of British Columbia & Vancouver General Hospital); Tafreshi, Reza (Texas A&M Univ. at Qatar)*

11:45-12:00 SaB09.3
Rapid Identification of Epileptogenic Sites in the Intracranial EEG 7553-7556
Yadav, Rajeev (Concordia Univ.); Swamy, M. N. S. (Concordia Univ.); Agarwal, Rajeev (Concordia Univ.)*

12:00-12:15 SaB09.4
A Study of Multi-Site Brain Dynamics During Limbic Seizures 7557-7559
Sobayo, Tiwalade (Illinois Inst. of Tech.); Fine, Ananda (Univ. of Illinois at Chicago); Mogul, David (Illinois Inst. of Tech.)*

12:15-12:30 SaB09.5
Transcranial Focal Stimulation via Concentric Ring Electrodes Reduced Power of Pentylentetrazole-Induced Seizure Activity in Rat Electroencephalogram 7560-7563
Makeyev, Oleksandr (Univ. of Rhode Island); Liu, Xiang (Univ. of Rhode Island); Koka, Kanthaiiah (Otolitics LLC); Kay, Steven (Univ. of Rhode Island); Besio, W. G. (Univ. of Rhode Island)*

12:30-12:45 SaB09.6
Seizure Prediction Based on Classification of EEG Synchronization Patterns with On-Line Retraining and Post-Processing Scheme 7564-7569
Chiang, Cheng-Yi (Natl. Taiwan Univ. DSP/IC Lab); Chang, Nai-Fu (Natl. Taiwan Univ.); Chen, Tung-Chien (Natl. Taiwan Univ.); Chen, Hong-Hui (Natl. Taiwan Univ.); Chen, Liang-Gee (NTU)*

SaB10: 11:15-12:45 Simmons Marriott
10.1.3 Impact of Wireless Health on Proactive Loss Control and Wellness Strategies (Oral Session)
Chair: Reaston, Mary Rose (*Insight Diagnostics Inc.*)
Co-Chair: Patel, Shyamal (*Harvard Medical School*)

11:15-11:30 SaB10.1
Legal Changes Necessitate Proactive Management of Musculoskeletal Disorders: The Role of Electrodiagnostic Functional Assessment Soft Tissue Management Program 7570-7573
Reaston, Mary Rose (Insight Diagnostics Inc.); Carney, Brendan (Insight Diagnostics Inc.)*

11:30-11:45 SaB10.2
Assessing Disease and Wellness in the Occupational Setting: Electrodiagnostic Functional Assessment from Wired to Wireless 7574-7576
Seidner, Adam (Travelers Insurance)*

11:45-12:00 SaB10.3
Impact of Wireless Health on Proactive Loss Control and Wellness Strategies 7577-7580
Davis, Michael (Lockton)*

12:00-12:15 SaB10.4
Event Detection in an Assisted Living Environment 7581-7584
Stroiescu, Florin (Shimmer Research); Daly, Kieran (Shimmer Research); Kuris, Benjamin (Shimmer Research)*

12:15-12:30 SaB10.5
Electrodiagnostic Functional Assessment: Commercialization Issues *
Colpoys, Matthew (Insight Diagnostics Inc.)*

SaB11: 11:15-12:45 Wellesley Marriott
10.5.5 Ambient Assisted Living and Smart Homes II (Oral Session)
Chair: Lichter, Patrick (*Koronis Biomedical Tech.*)
Co-Chair: Puiatti, Alessandro (*Univ. of Applied Science of Southern Switzerland*)

11:15-11:30 SaB11.1
Public Transportation Assistant for the Cognitively Impaired 7585-7588
Riehle, Timothy H (Koronis Biomed. Technologies Corp.); Anderson, Shane (Koronis Biomedical Technologies); Lichter, Patrick (Koronis Biomedical Technologies); Brown, Allen (Mayo Clinic, Rochester MN); Hedin, Daniel (Advanced Medical Electronics)*

11:30-11:45 SaB11.2
Improving Acoustic Fall Recognition by Adaptive Signal Windowing 7589-7592
Li, Yun (Univ. of Missouri); Popescu, Mihail (Univ. of Missouri); Ho, K.C. (Univ. of Missouri); Nabelek, Daniel P. (Univ. of Missouri)*

11:45-12:00 SaB11.3
Activity Recognition Using Correlated Pattern Mining for People with Dementia 7593-7597
Sim, Kelvin (Inst. for Infocomm Research); Phua, Clifton (Inst. for Infocomm Research); Yap, Ghim-Eng (Inst. for Infocomm Research); Biswas, Jit (Inst. for Infocomm Research); Mokhtari, Mounir (Institut Telecom France)*

12:00-12:15 SaB11.4
Indoor Localization Using Pedestrian Dead Reckoning Updated with RFID-Based Fiducials 7598-7601
House, Samuel (Oregon State Univ.); Connell, Sean (Oregon State Univ.); Milligan, Ian (Oregon State Univ.); Austin, Daniel (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.); Chiang, Patrick (Oregon State Univ.)*

12:15-12:30 SaB11.5
Design of a Home-Based Adaptive Mixed Reality Rehabilitation System for Stroke Survivors 7602-7605
Baran, Michael (Arizona State Univ.); Lehrer, Nicole (Arizona State Univ.); Siwiak, Diana (Arizona State Univ.); Chen, Yinpeng (Arizona State Univ.); Duff, Margaret (Arizona State Univ.); Ingalls, Todd (Arizona State Univ.); Rikakis, Thanassis (Arizona State Univ.)*

12:30-12:45 SaB11.6
Quantitative Analysis of 180 Degree Turns for Fall Risk Assessment Using Video Sensors 7606-7609
Wang, Fang (Univ. of Missouri); Skubic, Marjorie (Univ. of Missouri); Abbott, Carmen (Univ. of Missouri); Keller, James M (Univ. of Missouri)*

SaB12: 11:15-12:45 Suffolk Marriott
5.1.22 Modeling the Respiratory Control System During Sleep: Applications to Sleep Disordered Breathing (Minisymposium)
Chair: Wellman, David Andrew (Harvard Medical School)
Co-Chair: Yana, Kazuo (Hosei Univ.)

11:15-11:30 SaB12.1
Manipulating the Gain of the Ventilatory Feedback Loop As a Treatment for Obstructive Sleep Apnea *
Edwards, Bradley Allan (Brigham & Women's Hospital & Harvard Medical School); Sands, Scott Aaron (Brigham & Women's Hospital & Harvard Medical School); Eckert, Danny J (Brigham & Women's Hospital & Harvard Medical School); White, David P (Brigham & Women's Hospital & Harvard Medical School); Butler, James P (Brigham & Women's Hospital & Harvard Medical School); Malhotra, Atul (Brigham & Women's Hospital & Harvard Medical School); Wellman, David Andrew (Harvard Medical School)*

11:30-11:45 SaB12.2
Obstructive Sleep Apnea: A Mechanistic Approach *
Malhotra, Atul (Brigham & Women's Hospital & Harvard Medical School); White, David P (Brigham & Women's Hospital & Harvard Medical School); Eckert, Danny J (Brigham & Women's Hospital & Harvard Medical School); Edwards, Bradley Allan (Brigham & Women's Hospital & Harvard Medical School); Owens, Robert (Harvard Medical School); Sands, Scott Aaron (Brigham & Women's Hospital & Harvard Medical School); Nemati, Shamim (Harvard Medical School); Butler, James P (Brigham & Women's Hospital & Harvard Medical School); Passaglia, Chris (Boston Univ.); Jackson, Andrew (Boston Univ.); Wellman, David Andrew (Harvard Medical School)*

11:45-12:00 SaB12.3
Estimation of Respiratory Control Parameters and Loop Gain from Spontaneous Breathing *
Sands, Scott Aaron (Brigham & Women's Hospital & Harvard Medical School); Nemati, Shamim (Harvard Medical School); Edwards, Bradley Allan (Brigham & Women's Hospital & Harvard Medical School); Wellman, David Andrew (Harvard Medical School); Skuza, Elizabeth (Monash Univ., Australia); Hamilton, Garun (Dept. of Respiratory & Sleep Medicine, Monash Medical Ctr., Melbourne, Australia); Naughton, Matthew (Monash Univ., Melbourne); Verghese, George (Massachusetts Inst. of Tech.); Malhotra, Atul (Brigham & Women's Hospital & Harvard Medical School); Butler, James P (Brigham & Women's Hospital & Harvard Medical School); Berger, Philip (Monash Univ., Australia)*

SaB13: 11:15-12:45 Arlington Marriott
4.6.14 Bioinformatics for Integrated Genomics II (Oral Session)
Chair: Chang, Hsun-Hsien (*Children's Hospital Boston*)
Co-Chair: Wang, May Dongmei (*Georgia Tech. & Emory Univ.*)

11:15-11:30 SaB13.1
Generation of Intervention Strategy for a Genetic Regulatory Network
Represented by a Family of Markov Chains **7610-7613**
Berlow, Noah (Texas Tech Univ.); Pal, Ranadip (Texas Tech Univ.)*

11:30-11:45 SaB13.2
A Dual Kalman Filter for Parameter-State Estimation in Real-Time DNA Microarrays **7614-7617**
Shamaiah, Manohar (UT Austin); Vikalo, Haris (Caltech)*

11:45-12:00 SaB13.3
Exploring the Feasibility of Next-Generation Sequencing and Microarray Data Meta-Analysis **7618-7621**
Wu, Po-Yen (Georgia Inst. of Tech.); Phan, John H. (Georgia Inst. of Tech.); Wang, May Dongmei (Georgia Tech & Emory Univ.)*

SaB15: 11:15-12:45 Clarendon Marriott
7.10.1 Translational Tissue Engineering (Minisymposium)
Chair: Christman, Karen (*Univ. of California, San Diego*)
Co-Chair: Yang, Yunzhi (*Univ. of Texas Health Science Ctr. at Houston*)

11:15-11:30 SaB15.1
Biodegradable Photoluminescent Polymers for Tissue Engineering, Drug Delivery, and Bioimaging *
Yang, Jian (Univ. of Texas at Arlington)*

11:30-11:45 SaB15.2
Functionally Graded Scaffolds Regulated Biodegradation and Enhanced Bone Formation *
Yang, Yunzhi (Univ. of Texas Health Science Ctr. at Houston)*

11:45-12:00 SaB15.3
Native Cardiac Extracellular Matrix As a Tool to Enhance Cardiac Differentiation of Stem Cells Prior to Implantation *
Black, Lauren (Tufts Univ.)*

12:00-12:15 SaB15.4
Voltage Mapping of Cardiac Grafts *
Jacot, Jeffrey G (Rice Univ./Texas Children's Hospital)*

12:15-12:30 SaB15.5
Bioengineered Silks for Tissue-Based Medical Devices *
Kaplan, David (Tufts Univ.)*

SaB16: 11:15-12:45 Darthmouth Marriott
9.4.4 Neuromuscular Stimulation II (Oral Session)
Chair: ÓLaighin, Gearoid (*Natl. Univ. of Ireland Galway*)
Co-Chair: Micera, Silvestro (*École Polytechnique Fédérale de Lausanne*)

11:15-11:30 SaB16.1
Neuromuscular Electrical Stimulation Training Results in Enhanced Activation of Spinal Stabilizing Muscles During Spinal Loading and Improvements in Pain Ratings **7622-7625**
Coghlan, Simon (Unviversity College Dublin); Crowe, Louis (Univ. College Dublin); Minogue, Conor M (Biomedical Research Ltd); Caulfield, Brian (UCD)*

11:30-11:45 SaB16.2
Central Sleep Apnea Detection and Stimulation **7626-7629**
Kinio, Steven (McMaster Univ.); Islam, Mohammed (McMaster Univ.); Qasim, Taimur (McMaster Univ.)*

11:45-12:00 SaB16.3
Hemodynamic Performance of NMES During Recovery Post Orthopaedic Surgery 7630-7633
Broderick, Barry (Natl. Univ. of Ireland Galway); Breathnach, Oisín (Mid-Western Regional Orthopaedic Hospital, Croom, Co. Limerick, Ireland); Masterson, Eric (Mid-Western Regional Orthopaedic Hospital, Croom, Co. Limerick, Ireland); Breen, Paul (Natl. Univ. of Ireland Galway); ÓLaighin, Gearoid (Natl. Univ. of Ireland Galway)*

12:00-12:15 SaB16.4
Preliminary Results on the Design of a Tool for Inserting of Transverse Intrafascicular Multichannel Electrodes (TIME) into Peripheral Nervous System 7634-7638
Ghionzoli, Alessio (Scuola Superiore Sant'Anna); Genovese, Vincenzo (Scuola Superiore Sant'Anna); Bossi, Silvia (Scuola Superiore Sant'Anna); Stefanini, Cesare (Scuola Superiore Sant'Anna); Micera, Silvestro (École Polytechnique Fédérale de Lausanne)*

12:15-12:30 SaB16.5
Effect of Electrode Profile and Conductivity on Current Density and Cutaneous Sensation During Transcranial DC Stimulation B#5
Dutta, Anirban (Georg-August-Univ.); Mudaliar, Ashvin (Univ. of Twente); Chugh, Sanjay (Neuro-Psychiatric Clinic)*

12:30-12:45 SaB16.6
Effect of Transcranial Direct Current Stimulation on Cortico-Muscular Coherence and Standing Postural Steadiness B#5
Dutta, Anirban (Georg-August-Univ.); Chugh, Sanjay (Neuro-Psychiatric Clinic)*

SaB17: 11:15-12:45 Exeter Marriott
3.3.1 Advanced Lab on Chip Systems for In Vitro Testing (Oral Session)
Chair: Lymberis, Andreas (*European Commission*)
Co-Chair: Ruano, Jesus (*Ikerlan-Ik4*)

11:15-11:30 SaB17.1
Laboratory Skinpatches and Smart Cards Based on Foils 7647-7649
Ruano, Jesus (Ikerlan-Ik4)*

11:30-11:45 SaB17.2
Micro-Sized Syringes for Single-Cell Fluidic Access Integrated on a Micro-Electrode Array CMOS Chip 7650-7653
Huys, Roeland (IMEC); Braeken, Dries (IMEC); Micholt, Liesbeth (Imec); Jans, Danny (IMEC); Stassen, Andim (Imec); Collaert, Nadine (Imec); Loo, Josine (IMEC); Bartic, Carmen (IMEC); Verstreken, Kris (IMEC); Eberle, Wolfgang (imec)*

11:45-12:00 SaB17.3
Monolithically Integrated Mach-Zehnder Biosensors for Real-Time Label-Free Monitoring of Biomolecular Reactions 7654-7657
Makarona, Eleni (NCSR "Demokritos"); Petrou, Panagiota (NCSR "Demokritos"); Botsialas, Athanasios (NCSR "Demokritos"); Kitsara, Maria (NCSR "Demokritos"); Kakabakos, Sotirios (NCSR "Demokritos"); Stoffer, Remco (PhoeniX BV); Jobst, Gerhard (Jobst Technologies GmbH); Nounesis, George (NCSR "Demokritos"); Raptis, Ioannis (NCSR "Demokritos"); Misiakos, Kostas (NCSR "Demokritos"); Bourkoula, Athanasia (NCSR "Demokritos")*

SaB19: 11:15-12:45 Salons AB Marriott
3.5.26 Smart Clothes (Oral Session)
Chair: Ghovanloo, Maysam (*Georgia Inst. of Tech.*)
Co-Chair: Peixoto, Nathalia (*George Mason Univ.*)

11:15-11:30 SaB19.1
Evaluation of a Closed Loop Inductive Power Transmission System on an Awake Behaving Animal Subject 7658-7661
Kiani, Mehdi (Georgia Inst. of Tech.); Kwon, Ki Yong (Michigan State Univ.); Zhang, Fei (Michigan State Univ.); Oweiss, Karim (Michigan State Univ.); Ghovanloo, Maysam (Georgia Inst. of Tech.)*

11:30-11:45	SaB19.2
In-Vivo Signal Transmission Using an Intra-Corporal RF Transmitter	7662-7665
<i>Just, Thomas* (Ilmenau Univ. of Tech.); Laqua, Daniel (Ilmenau Univ. of Tech.); Husar, Peter (Ilmenau Univ. of Tech.)</i>	
11:45-12:00	SaB19.3
A High Bandwidth Fully Implantable Mouse Telemetry System for Chronic ECG Measurement	7666-7669
<i>Russell, David M.* (Univ. of Auckland); McCormick, Daniel (Univ. of Auckland); Taberner, Andrew (The Univ. of Auckland); Malpas, Simon (Univ. of Auckland); Budgett, David (Auckland Univ.)</i>	
12:00-12:15	SaB19.4
Fundamental Sensing Limit of Electrochemical Glucose Sensors	7670-7673
<i>Louchis, Kevin* (Univ. of California at Davis); O'Driscoll, Stephen (Univ. of California, Davis)</i>	
12:15-12:30	SaB19.5
Development of Cost-Effective Biocompatible Packaging for Microelectronic Devices	7674-7677
<i>Qian, Karen (IMEC); Malachowski, Karl (IMEC Belgium); Fiorini, Paolo (imec); Velenis, Dimitrios (Imec); Op de Beeck, Maaike* (IMEC); Van Hoof, Chris (IMEC)</i>	
12:30-12:45	SaB19.6
Optimization of Kinetic Energy Harvesters Design for Fully Implantable Cochlear Implants	7678-7681
<i>Sudano, Angelo (Univ. Campus Bio-Medico di Roma); Accoto, Dino* (Campus Bio-Medico Univ.); Francomano, Maria Teresa (Univ. Campus Bio-Medico di Roma); Salvinelli, Fabrizio (Univ. CAMPUS Bio-Medico); Guglielmelli, Eugenio (Campus Bio-Medico Univ.)</i>	

SaB20: 11:15-12:45	Salons CD Marriott
3.1.28 Biosensors (Oral Session)	
Chair: Behbehani, Khosrow (Univ. of Texas at Arlington)	
Co-Chair: Guldiken, Rasim (Univ. of South Florida)	

11:15-11:30	SaB20.1
Eavesdropping on Echolocation: Recording the Bat's Auditory Experience	7682-7686
<i>Austin, Kevin B.* (Fitchburg State Univ.); Thomas, Howard (Fitchburg State Univ.); Moosman, Paul (Virginia Military Inst.)</i>	
11:30-11:45	SaB20.2
In Vivo Characterization of Ultrasonic Transducers for the Detection of Airway Occlusion in Sleep Disordered Breathing	7687-7690
<i>Al-Abed, Mohammad* (Univ. of Texas at Arlington); Antich, Peter (Univ. of Texas Southwestern Medical Ctr. in Dallas); Watenpaugh, Donald (Sleep Consultants Inc.); Behbehani, Khosrow (Univ. of Texas at Arlington)</i>	
11:45-12:00	SaB20.3
A Label-Free Cell Separation Using Surface Acoustic Waves	7691-7694
<i>Jo, Myeong Chan (Univ. of South Florida); Guldiken, Rasim* (Univ. of South Florida)</i>	
12:00-12:15	SaB20.4
Bioacoustics Response of Small Benign or Malignant Nodules	7695-7698
<i>Gavriloaia, Gheorghe* (Univ. of Pitesti); Gavriloaia, Mariuca-Roxana (Medical & Pharmaceutical Univ. of Bucharest); Novac, Marian (Medical & Pharmaceutical Univ. of Bucharest)</i>	
12:15-12:30	SaB20.5
Design of a Clinically Viable Pneumatic System for the Acquisition of Pressure Compensated Otoacoustic Emissions	7699-7702
<i>Perez, Moises* (Univ. of Miami); Delgado, Rafael E. (Univ. of Miami); Ozdamar, Ozcan (Univ. of Miami)</i>	

SaB21: 11:15-12:45 Salon E Marriott
1.1.4 Recent Advances in Time-Frequency Analysis of Biosignals II (Oral Session)
Chair: Virkkala, Jussi (*Finnish Inst. of Occupational Health*)
Co-Chair: Akay, Metin (*Univ. of Houston*)

11:15-11:30 SaB21.1
Feature Selection Using a Genetic Algorithm in a Motor Imagery-Based Brain Computer Interface 7703-7706
*Corralejo, Rebeca** (*Univ. of Valladolid*); *Hornero, Roberto* (*Univ. of Valladolid*);
Álvarez, Daniel (*Univ. of Valladolid*)

11:30-11:45 SaB21.2
A Quality Parameter for the Detection of the Intentionality of Movement in Patients with Neurological Tremor Performing a Finger-To-Nose Test 7707-7710
*Grimaldi, Giuliana** (*ULB-Erasme*); *Manto, Mario* (*FNRS, Bruxelles, Belgium*);
Jdaoudi, Yassin (*ULB-Erasme, Bruxelles, Belgium*)

11:45-12:00 SaB21.3
Adaptive Control of Deep Brain Stimulator for Essential Tremor: Entropy-Based Tremor Prediction Using Surface-EMG 7711-7714
*Basu, Ishita** (*Univ. of Illinois at Chicago*); *Tuninetti, Daniela* (*Univ. of Illinois at Chicago*);
Graupe, Daniel (*Univ. of Illinois at Chicago*); *Slavin, Konstantin* (*Univ. of Illinois at Chicago*)

12:00-12:15 SaB21.4
Seizure Onset Detection Based on One sEMG Channel 7715-7718
*Conradsen, Isa** (*Technical Univ. of Denmark*); *Beniczky, Sandor* (*Danish Epilepsy Ctr.*);
Hoppe, Karsten (*DELTA*); *Wolf, Peter* (*Danish Epilepsy Ctr.*); *Sams, Thomas* (*Technical Univ. of Denmark*);
Sorensen, Helge B D (*Technical Univ. of Denmark*)

12:15-12:30 SaB21.5
Time-Frequency Characterization of Mismatch Negativity in Nociceptive Responses 7719-7722
*Melià, Umberto Sergio Pio** (*Univ. Politècnica de Catalunya*); *Vallverdu, Montserrat*; *Claria, Francesc* (*Lleida Univ.*); *Casanova, Jordi* (*Dept. of Neurology, Hospital Clinic, IDIBAPS (Institut d'Investigació Augustí Pi i Sunyer)*); *Valls-Solé, Josep* (*Dept. of Neurology, Hospital Clinic, IDIBAPS (Institut d'Investigació Augustí Pi i Sunyer)*); *Caminal, Pere* (*Technical Univ. of Catalonia (UPC)*)

12:30-12:45 SaB21.6
Combined Frequency and Time Domain Sleep Feature Calculation 7723-7726
*Virkkala, Jussi** (*Finnish Inst. of Occupational Health*)

SaB22: 11:15-12:45 Salon F Marriott
1.1.5 Novel Time Series Analysis Approaches to Heart Rate Variability Complex Dynamics (Oral Session)
Chair: Barbieri, Riccardo (*Massachusetts General Hospital-Harvard Medical School-MIT*)
Co-Chair: Marmarelis, Vasilis (*Univ. of Southern California*)

11:15-11:30 SaB22.1
Framework for Adaptive Multiscale Analysis of Nonhomogeneous Point Processes 7727-7730
*Helgason, Hannes** (*KTH (Royal Inst. of Tech.)*); *Bartroff, Jay* (*Univ. of Southern California*);
Abry, Patrice (*ENS Lyon, CNRS*)

11:30-11:45 SaB22.2
Diagnosis of Sleep Apnea by the Analysis of Heart Rate Variation: A Mini Review 7731-7734
*Hayano, Junichiro** (*Nagoya City Univ.*); *Watanabe, Eiichi* (*Fujita Health Univ.*); *Saito, Yuji* (*Fujita Health Univ.*);
Sasaki, Fumihiko (*Takaoka Clinic*); *Kawai, Kiyohiro* (*Suzuken Co*); *Kodama, Itsuo* (*Nagoya Univ.*);
Sakakibara, Hiroki (*Takaoka Clinic*)

11:45-12:00 SaB22.3
Instantaneous Monitoring of Sleep Fragmentation by Point Process Heart Rate Variability and Respiratory Dynamics 7735-7738
Citi, Luca (*MGH/Harvard Medical School*); *Bianchi, Matt T.* (*Dept. of Neurology, Massachusetts General Hospital -Harvard Medical School*); *Klerman, Elizabeth B.* (*Division of Sleep Medicine, Brigham & Women's Hospital -Harvard Medical School*); *Barbieri, Riccardo** (*MGH-Harvard Medical School-MIT*)

12:00-12:15 SaB22.4
HRV Strongly Depends on Breathing. Are We Questioning the Right Suspect? **7739-7742**
Buchner, Teodor (Warsaw Univ. of Tech.)*

12:15-12:30 SaB22.5
Asymmetric Intermittency Observed in Human Heart Rate Dynamics **7743-7746**
Kiyono, Ken (College of Eng., Nihon Univ.); Struzik, Zbigniew R. (The Univ. of Tokyo); Hayano, Junichiro (Nagoya City Univ.)*

12:30-12:45 SaB22.6
Heart Rate Variability Analysis for Newborn Infants Prolonged Pain Assessment **7747-7750**
De Jonckheere, Julien (CHRU de Lille); Logier, Regis (CHRU de Lille); Jeanne, Mathieu (CHRU de Lille); Jounwaz, Reza (Univ. Hospital of Lille, INSERM)*

SaB23: 11:15-12:45 Salon G Marriott
2.3.10 Analysis of Optical Images (Oral Session)
Chair: Brooks, Dana (*Northeastern Univ.*)
Co-Chair: Ding, Lei (*Univ. of Oklahoma*)

11:15-11:30 SaB23.1
3D Segmentation of Keratin Intermediate Filaments in Confocal Laser Scanning Microscopy **7751-7754**
Herberich, Gerlind (Inst. of Imaging & Computer Vision, RWTH Aachen Univ.); Windoffer, Reinhard (Inst. of Molecular & Cellular Anatomy, RWTH Aachen Univ., Germany); Leube, Rudolf (Inst. of Molecular & Cellular Anatomy, RWTH Aachen Univ., Germany); Aach, Til (RWTH Aachen Univ.)*

11:30-11:45 SaB23.2
Motor Neuron Morphology Estimation for Its Classification in the Drosophila Brain **7755-7758**
Tsechpenakis, Gavriil (Indiana Univ.-Purdue Univ. Indianapolis); Egoda Gamage, Ruwan (Indiana Univ.-Purdue Univ. Indianapolis); Kim, Michael D. (Univ. of Miami); Chiba, Akira (Univ. of Miami)*

11:45-12:00 SaB23.3
Fully Automated Detection of the Counting Area in Blood Smears for Computer Aided Hematology **7759-7762**
Rupp, Stephan (Fraunhofer Inst. (IIS)); Schlarb, Timo (Fraunhofer IIS); Haßmeyer, Erik (Fraunhofer Inst. for Integrated Circuits); Zerfaß, Thorsten (Fraunhofer Inst. for Integrated Circuits IIS)*

12:00-12:15 SaB23.4
Automated Detection of Cytokinesis-Blocked Micronuclei Using Fuzzy C-Means Algorithm and Morphological Features **B#**
an, jinggang (Tsinghua Univ.); Zhang, Dandan (Beijing Normal Univ.); Ye, Datian (Tsinghua Univ.)*

12:15-12:30 SaB23.5
Motion Flow Analysis in Cell Videos Using a Multi-Level Clustering Method **7767-7770**
Ataer-Cansizoglu, Esra (Northeastern Univ.); Ghadarghadar, Nastaran (Northeastern Univ.); Zareian, Ramin (Northeastern Univ.); Bas, Erhan (Northeastern Univ.); Ruberti, Jeffrey W. (Northeastern Univ.); Erdogmus, Deniz (Northeastern Univ.)*

12:30-12:45 SaB23.6
Refractive Effects on Optical Measurement of Alveolar Volume: A 2-D Ray-Tracing Approach **7771-7774**
Golabchi, Fatemeh Noushin (Northwestern Univ.); Brooks, Dana (Northeastern Univ.); Gouldstone, Andrew (Northwestern Univ.); DiMarzio, Charles (Northeastern Univ.)*

SaB24: 11:15-12:45 Salon HI Marriott
2.4.12 X-Ray, CT, PET, and SPECT I (Oral Session)
Chair: Laine, Andrew (*Columbia Univ.*)
Co-Chair: Titus, Albert (*Univ. at Buffalo, The State Univ. of New York*)

11:15-11:30 SaB24.1
Breast Skin-Line Detection Using Dynamic Programming **7775-7778**
Silva, Carlos Alberto Batista (Univ. do Minho); Lima, Carlos Manuel Gregorio Santos (Univ. of Minho); Correia, Higinio (Univ. of Minho)*

11:30-11:45 SaB24.2
Segmenting Anatomy in Chest X-Rays for Tuberculosis Screening 7779-7782
Karagyris, Alexandros (Natl. Library of Medicine); Antani, Sameer (Natl. Library of Medicine);
Thoma, George (Natl. Library of Medicine, NIH)*

11:45-12:00 SaB24.3
Automated Patient Couch Removal Algorithm on CT Images 7783-7786
Bandi, Peter (Mediso Medical Imaging Systems Ltd.); Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.);
Seres, Laszlo (Mediso Medical Imaging Systems Ltd.); Toth, Zoltan (ScanoMed Ltd.);
Papp, Laszlo (Mediso Medical Imaging Systems Ltd.)*

12:00-12:15 SaB24.4
EMCCD-Based High Resolution Dynamic X-Ray Detector for Neurovascular Interventions 7787-7790
Sharma, Prateek (Univ. at Buffalo); Setlur Nagesh, Swetadri Vasan (Univ. At Buffalo); Jain, Amit (Toshiba
Stroke Research Ctr., Univ. at Buffalo); Panse, Ashish (Toshiba Stroke Research Ctr., Univ. at Buffalo);
Titus, Albert (Univ. at Buffalo, The State Univ. of New York); Cartwright, Alexander (Elec. Eng., Univ. at Buffalo,
SUNY); Bednarek, Daniel (Univ. at Buffalo); Rudin, Stephen (Univ. at Buffalo)*

12:15-12:30 SaB24.5
**Development of Synchrotron Radiation X-Ray Intravital Microscopy for in Vivo
Imaging of Rat Heart Vascular Function** 7791-7794
Umetani, Keiji (Japan Synchrotron Radiation Research Inst.); Pearson, James (Monash Univ.);
Schwenke, Daryl (Univ. of Otago); Shirai, Mikiyasu (Natl. Cardiovascular Ctr. Research Inst.)*

SaB25: 11:15-12:45 Salon JK Marriott
2.8.31 Brain Image Analysis (Oral Session)
Chair: Baselli, Giuseppe (*Pol. di Milano*)
Co-Chair: Babacan, S. Derin (*Univ. of Illinois at Urbana-Champaign*)

11:15-11:30 SaB25.1
**Two New Stable Anatomical Landmarks on the Central Sulcus: Definition, Automatic
Detection, and Their Relationship with Primary Motor Functions of the Hand** 7795-7798
Coulon, Olivier (Laboratoire des Sciences de l'Information et des Systèmes, UMR CNRS 6168); Pizzagalli,
Fabrizio (INSERM U836 UJF-CEA-CHU (Grenoble Inst. of Neuroscience)); Operto, Grégory (Ctr. Neurospin,
CEA, France); Auzias, Guillaume (UMR CNRS 6168); Delon-Martin, Chantal (INSERM U836 UJF-CEA-CHU
(Grenoble Inst. of Neuroscience)); Dojat, Michel (INSERM U836 UJF-CEA-CHU (Grenoble Inst. of*

11:30-11:45 SaB25.2
Blob-Like Feature Extraction and Matching for Brain MR Images 7799-7802
Razlighi, Qolamreza (Columbia Univ., Taub Inst.); Yaakov, Stern (Columbia Univ.)*

11:45-12:00 SaB25.3
Change Detection and Classification in Brain MR Images Using Change Vector Analysis 7803-7807
Simoes, Rita (Univ. of Twente); Slump, Cornelis (Signals & Systems Group, Faculty of Elec. Eng.,
Mathematics & Computer Science, Univ. of Twente)*

12:00-12:15 SaB25.4
**Comparison between Skeleton-Based and Atlas-Based Approach in the Assessment of Corpus
Callosum Damages in Mild Cognitive Impairment and Alzheimer Disease** 7808-7811
Preti, Maria Giulia (Politecnico di Milano); Lagana, Maria Marcella (IRCCS S.Maria Nascente);
Baglio, Francesca (Fondazione Don Carlo Gnocchi, Milano); Griffanti, Ludovica (Fondazione Don Carlo
Gnocchi, Milano); Nemni, Raffaello (Fondazione Don Carlo Gnocchi Milano); Cecconi, Pietro (Fondazione Don
Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano); Baselli, Giuseppe (Politecnico di Milano)*

12:15-12:30 SaB25.5
Impact of Markov Random Field Optimizer on MRI-Based Tissue Segmentation in the Aging Brain 7812-7815
Schwarz, Christopher G. (Univ. of California, Davis); Tsui, Alex (Univ. of California, Davis);
Fletcher, Evan (Univ. of California, Davis); Singh, Baljeet (Univ. of California, Davis);
DeCarli, Charles (Univ. of California, Davis); Carmichael, Owen (Univ. of California, Davis)*

12:30-12:45 SaB25.6
A Sparse Based Approach for Detecting Activations in Fmri **7816-7819**
*Guillen, Blanca** (Univ. Nacional Experimental del Táchira (UNET), SanCristóbal, Venezuela); *Paredes, José-Luis, Paredesj* (Univ. de los Andes (ULA), Mérida Venezuela); *Medina, Rubén* (Univ. de Los Andes)

SaB26: 10:30-11:45 Provincetown Marriott
4.4.3 Modeling Biomedical Systems II (Minisymposium)
Chair: Tidor, Bruce (*Massachusetts Inst. of Tech.*)
Co-Chair: Dai, Hongyue (*Merck Res. Lab. Boston, Massachusetts*)

10:30-11:00 SaB26.1
HEPAPrint: A Metagene Expression Signature for Individualized Risk Assessment of Hepatocellular Carcinoma after Surgery *
*Luk, John M.** (NUHS)

11:00-11:45 SaB26.2
Systematic Study of HCC Tumors by RNA and DNA Profiling of Matched Tumor and Normal Tissues *
*Dai, Hongyue** (*Merck Research Laboratories, Boston, Massachusetts*)

SaB27: 11:15-12:45 Staffordshire at the Westin
8.10.16 Mechanics of Locomotion and Balance (Oral Session)
Chair: Della Croce, Ugo (*Univ. of Sassari*)
Co-Chair: Iqbal, Kamran (*Univ. of Arkansas at Little Rock*)

11:15-11:30 SaB27.1
Functional Asymmetry in a Five-Link 3D Bipedal Walker **7820-7823**
*Gregg, Robert** (*Northwestern Univ.*); *Dhafer, Yasin* (*Northwestern Univ.*); *Lynch, Kevin* (*Northwestern Univ.*)

11:30-11:45 SaB27.2
Wireless Gyroscope Suit for Gait Stability Estimation **7824-7828**
Gouwanda, Darwin (*Monash Univ. Malaysia*); *Senanayake, S. Mudiyanse* (*Univ. of Brunei*)

11:45-12:00 SaB27.3
A Method to Simulate Motor Control Strategies to Recover from Perturbations: Application to a Stumble Recovery during Gait **7829-7832**
*Forner-Cordero, Arturo** (*Polytechnic School. Univ. of Sao Paulo*); *Ackermann, Marko* (*Centro Univ. da FEI*); *Freitas, Mateus de Lima* (*Biomechatronics Lab. Mechatronics Dept. Polytechnic School. Univ. of Sao Paulo*)

12:00-12:15 SaB27.4
The Effect of Perturbation Onset Timing and Length on Tripping Recovery Strategies **7833-7836**
*Shirota, Camila** (*Northwestern Univ.*); *Simon, Ann* (*Rehabilitation Inst. of Chicago*); *Rouse, Elliott* (*Northwestern Univ.*); *Kuiken, Todd* (*Rehabilitation Inst. of Chicago*)

12:15-12:30 SaB27.5
Mechanisms and Models of Postural Stability and Control **7837-7840**
*Iqbal, Kamran** (*Univ. of Arkansas at Little Rock*)

12:30-12:45 SaB27.6
Modeling the Walking Patterns of Reciprocating Gait Orthosis Users with a Novel Lower Limb Paralysis Simulator **7841-7844**
*Johnson, William Brett** (*Northwestern Univ.*); *Fatone, Stefania* (*Northwestern Univ.*); *Gard, Steven* (*Northwestern Univ.*)

SaP21: 15:30-17:00 America Ballroom Westin
1.2.10 Biomedical Signal Classification III (Poster Session)

15:30-17:00 SaP21.1
A Novel Method of Detection and Classification of Motor Nerve Late-Wave Activity **7845-7848**
*Iyer, Darshan** (*NEUROMetrix, Inc.*); *Zheng, Ling* (*Draeger Medical Systems, Inc., Andover, MA*); *Williams, Michael* (*Neurometrix, Inc.*); *Tracey, Brian* (*Tufts Univ.*); *Gozani, Shai* (*Neurometrix Inc*)

15:30-17:00	SaP21.2
Classifying Features of the Intrinsic Mode Functions Generated by Empirical Mode	
Decomposition of Isometric Force Response Using a Fuzzy Classifier	7849-7852
<i>Stitt, Joseph* (Pennsylvania State Univ.); Newell, Karl (Pennsylvania State Univ.)</i>	
15:30-17:00	SaP21.3
Hierarchical Domain Adaptation for SEMG Signal Classification across Multiple Subjects	
7853-7856	
<i>Chattopadhyay, Rita* (Arizona State Univ.); Krishnan, Narayanan C (Washington State Univ.); Panchanathan, Sethuraman (Arizona State Univ.)</i>	
15:30-17:00	SaP21.4
Improving Parkinson's Disease Identification through Evolutionary-Based Feature Selection	
7857-7860	
<i>Spadotto, Andre Augusto (Univ. of Sao Paulo); Guido, Rodrigo Capobianco (Univ. of São Paulo); Carnevali, Felipe (Federal Univ. of Sao Carlos); Pagnin, Andre (UNESP – Univ. Estadual Paulista); Papa, Joao Paulo* (Univ. of Campinas)</i>	
15:30-17:00	SaP21.5
Programming an Offline-Analyzer of Motor Imagery Signals via Python Language	
7861-7864	
<i>Alonso-Valerdi, Luz Maria* (Univ. of Essex); Sepulveda, Francisco (Univ. of Essex)</i>	
15:30-17:00	SaP21.6
Basic Study on Combined Motion Estimation Using Multichannel Surface EMG Signals	
7865-7868	
<i>Nagata, Kentaro* (Kanagawa Rehabilitation Inst.); Magatani, Kazushige (TOKAI Univ.)</i>	
15:30-17:00	SaP21.7
A System for Activity Recognition Using Multi-Sensor Fusion	
7869-7872	
<i>Gao, Lei (Univ. of Limerick, Ireland); Bourke, Alan* (Univ. of Limerick); Nelson, John (Univ. of Limerick)</i>	
15:30-17:00	SaP21.8
Gabor Filter for Enhanced Recognition of Assisted Turning Events	
7873-7876	
<i>Padhye, Nikhil* (Univ. of Texas Health Science Ctr.); Zhang, Xuan (The Univ. of Texas Health Science Ctr. at Houston); Rapp, Mary (The Univ. of Texas Health Science Ctr. at Houston); Bergstrom, Nancy (The Univ. of Texas Health Science Ctr. at Houston)</i>	
15:30-17:00	SaP21.9
Accelerometer-Based Fetal Movement Detection	
7877-7880	
<i>Mesbah, Mostefa* (Univ. of Queensland); Khlif, Mohamed Salah (Univ. of Queensland); East, Christine (Univ. of Melbourne); Smeathers, James (Queensland Univ. of Tech.); Colditz, Paul (Univ. of Queensland); Boashash, Boualem (Univ. of Queensland)</i>	
15:30-17:00	SaP21.10
A Method for Classification of Movements in Bed	
7881-7884	
<i>Adami, Adriana Miorelli (Univ. of Caxias do Sul); Pavel, Michael (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.); Adami, Andre* (Univ. de Caxias do Sul); Singer, Clifford Milo (Oregon Health & Science Univ.)</i>	
15:30-17:00	SaP21.11
3D Accelerometer Features' Differences between Young and Older Adults, and between Lower Back and Neck Band Sensor Placements	
7885-7887	
<i>Merilähti, Juho Markus* (VTT); Ermes, Miikka (VTT Technical Research Ctr.)</i>	
15:30-17:00	SaP21.12
Adaptive Neuro-Fuzzy Logic Analysis Based on Myoelectric Signals for Multifunction Prosthesis Control	
7888-7891	
<i>Favieiro, Gabriela Winkler (Federal Univ. of Rio Grande do Sul (UFRGS)); Balbinot, Alexandre* (Federal Univ. of Rio Grande do Sul (UFRGS))</i>	
15:30-17:00	SaP21.13
Application of Fractal Dimension on Vestibular Response Signals for Diagnosis of Parkinson's Disease	
7892-7895	
<i>Dastgheib, Zeinab Alsadat* (Univ. of Manitoba); Lithgow, Brian (Monash Univ.); Moussavi, Zahra (Univ. of Manitoba)</i>	

15:30-17:00	SaP21.14
Optimum Gravity Vector and Vertical Acceleration Estimation Using a Tri-Axial Accelerometer for Falls and Normal Activities	7896-7899
<i>Bourke, Alan* (Univ. of Limerick); O'Donovan, Karol (Shimmer Research); Clifford, Amanda (Dept. of Physiotherapy, Faculty of Education & Health Sciences, Univ. of Limerick, Ireland.); ÓLaighin, Gearoid (Natl. Univ. of Ireland Galway); Nelson, John (Univ. of Limerick)</i>	
15:30-17:00	SaP21.15
Gait Feature Extraction in Parkinson's Disease Using Low-Cost Accelerometers	7900-7903
<i>Stamatakis, Julien* (Univ. catholique de Louvain); Crémers, Julien (Univ. of Liège); Maquet, Didier (Univ. of Liège); Macq, Benoit (Univ. catholique de Louvain); Garraux, Gaëtan (Univ. of Liège)</i>	
15:30-17:00	SaP21.16
Wireless Accelerometer iPod Application for Quantifying Gait Characteristics	7904-7907
<i>LeMoyne, Robert* (Sandia Natl. Laboratories); Mastroianni, Timothy (Cognition Eng.)</i>	

SaP22: 15:30-17:00	America Ballroom Westin
1.6.16 Recent Developments in Adaptive and Kalman Filtering (Poster Session)	

15:30-17:00	SaP22.1
Frequency Tracking and Variable Bandwidth for Line Noise Filtering without a Reference	7908-7911
<i>Kelly, John* (Carnegie Mellon Univ.); Collinger, Jennifer (Univ. of Pittsburgh); Degenhart, Alan (Univ. of Pittsburgh); Siewiorek, Daniel (Carnegie Mellon Univ.); Smailagic, Asim (Carnegie Mellon Univ.); Wang, Wei (Univ. of Pittsburgh)</i>	
15:30-17:00	SaP22.2
Adaptive Cancellation of Variable Feedback Path for Hearing Aid Using Misalignment-Dependent Step Size Values	7912-7915
<i>Ardestani Khoubrouy, Soudeh* (Univ. of Texas at Dallas); Panahi, Issa (Univ. of Texas at Dallas)</i>	
15:30-17:00	SaP22.3
Noise Reduction for Binaural Hearing Aids Using Unsupervised Diffuse Noise Estimator	7916-7919
<i>Ji, Youna* (Yonsei Univ.); Park, Young Cheol (Yonsei Univ.); Kim, Dong W (Samsung); Sohn, Junil (Samsung Advanced Inst. of Tech.)</i>	
15:30-17:00	SaP22.4
A New Delayless Subband Filtering Method for Cancelling the Effect of Feedback Path in Hearing Aid Systems	7920-7923
<i>Ardestani Khoubrouy, Soudeh* (Univ. of Texas at Dallas); Panahi, Issa (Univ. of Texas at Dallas); Milani, Ali (Univ. of Texas at Dallas)</i>	
15:30-17:00	SaP22.5
Eye Position Prediction in the Case of Nystagmus and Refixations	7924-7927
<i>Savage, Craig Owen* (Univ. of Melbourne)</i>	
15:30-17:00	SaP22.6
Automatic Continuous ECG Monitoring System for Over-Drug Detection in Brugada Syndrome	7928-7931
<i>Reis Gomes, Pedro Miguel Pinto* (Lusiada Univ.); Lima, Carlos Manuel Gregorio Santos (Univ. of Minho); Soares, Filomena (Univ. of Minho); Correia, Higinio (Univ. of Minho)</i>	
15:30-17:00	SaP22.7
Adaptive Filtering for Suppression of Respiratory Artifact in Impedance Cardiography	7932-7936
<i>Pandey, Vinod K. (Tata Consultancy Services.); Pandey, Prem C.* (IIT Bombay); Burkule, Nitin J. (Jupiter Hospital Thane); Subramanyan, L. R. (IIT Bombay)</i>	
15:30-17:00	SaP22.8
Adaptive Comb Filtering for Motion Artifact Reduction from PPG with a Structure of Adaptive Lattice IIR Notch Filter	7937-7940
<i>Lee, Boreom* (Gwangju Inst. of Science & Tech. (GIST))</i>	

15:30-17:00 SaP22.9
CleanEMG – Power Line Interference Estimation in sEMG Using an Adaptive Least Squares Algorithm 7941-7944
Fraser, Graham D. (Carleton Univ.); Chan, Adrian (Carleton Univ.); Green, James R. (Carleton Univ.);
Abser, Nurul (Univ. of New Brunswick); MacIsaac, Dawn (Univ. of New Brunswick)*

15:30-17:00 SaP22.10
**Predicting Human Subcutaneous Glucose Concentration in Real Time:
A Universal Data-Driven Approach 7945-7948**
*Lu, Yinghui (BioTech. High Performance Software Applications Inst., Telemedicine & Advanced Tech.
Research Ctr., U.S. Army); Rajaraman, Srinivasan* (U.S. Army Medical Research & Materiel Command);
Ward, W. Kenneth (Oregon Health & Sciences Univ. & Legacy Health System); Vigersky, Robert A. (Director,
Diabetes Inst. Walter Reed Health Care System & Professor of Medicine Uniformed Service Univ. of the
Health); Reifman, Jaques (U.S. Army Medical Research)*

SaP23: 15:30-17:00 America Ballroom Westin
1.7.18 Support Vector Machine Applied to Biosignal Analysis (Poster Session)

15:30-17:00 SaP23.1
**Characterization of Subcortical Structures During Deep Brain Stimulation
Utilizing Support Vector Machines 7949-7952**
Guillen, Pablo (The Univ. of Texas at El Paso); Sanchez, Reinaldo (The Univ. of Texas at El Paso);
Argaez, Miguel (The Univ. of Texas at El Paso)*

15:30-17:00 SaP23.2
Parallel Artefact Rejection for Epileptiform Activity Detection in Routine EEG 7953-7956
*Kelleher, Daniel (Univ. College Cork); Temko, Andriy (Univ. College Cork); O' Regan, Simon (Univ. College
Cork); Nash, Derek (Univ. College Cork); McNamara, Brian (Univ. College Cork); Costello, Daniel (Univ.
College Cork); Marnane, Liam* (Univ. College Cork)*

15:30-17:00 SaP23.3
**Machine Learning Classification of MRI Features of Alzheimer's Disease and Mild Cognitive
Impairment Subjects to Reduce the Sample Size in Clinical Trials 7957-7960**
Escudero, Javier (Univ. of Plymouth); Ifeachor, Emmanuel (Univ. of Plymouth)*

15:30-17:00 SaP23.4
Ventricular Repolarization Variability for Hypoglycemia Detection 7961-7964
Nuryani, Nuryani (Univ. of Tech. Sydney); Ling, Steve (Univ. of Tech. Sydney);
Nguyen, Hung T. (Univ. of Tech., Sydney)*

15:30-17:00 SaP23.5
**Classification of Astrocytomas and Oligodendrogliomas from Mass Spectrometry
Data Using Sparse Kernel Machines 7965-7968**
Huang, Jacob (Georgia Inst. of Tech.); Gholami, Behnood (Brigham & Women's Hospital, Harvard Medical
School); Agar, Nathalie (Brigham & Women's Hospital, Harvard Medical School); Norton, Isaiah (Brigham &
Women's Hospital, Harvard Medical School); Haddad, Wassim (Georgia Inst. of Tech.);
Tannenbaum, Allen (Georgia Inst. of Tech.)*

SaP24: 15:30-17:00 America Ballroom Westin
**2.7.30 Image Processing: Filtering, Enhancement, Segmentation, Registration,
Classification, Compression, and Coding (Poster Session)**

15:30-17:00 SaP24.1
**Brain Tissue Segmentation in PET-CT Images Using Probabilistic Atlas and
Variational Bayes Inference 7969-7972**
Xia, Yong (The Univ. of Sydney); Wang, Jiabin (Univ. of Sydney); Eberl, Stefan (Royal Prince Alfred Hospital);
Fulham, Michael (Royal Prince Alfred Hospital); Feng, Dagan (The Univ. of Sydney)*

- 15:30-17:00 SaP24.2
Segmentation of Brain Tumors in MRI Images Using Multi-Scale Gradient Vector Flow 7973-7976
Fathi Kazerooni, Anahita (Dept. of Biomedical Eng. & Biophysics, Medical School, Tehran Univ. of Medical Sciences, Tehran, Iran); Ahmadian, Alireza (Tehran Univ. of Medical Sciences); Dadashi Serej, Nassim (Tehran Univ. of Medical Sciences); Saligheh Rad, Hamidreza (Tehran Univ. of Medical Sciences of Medical Sciences, Tehran, Iran); Saberi, Hooshang (Imam hospital, Research Ctr. for Science & Tech. in Medicine); Yousefi Banaem, Hossein (Tehran Univ. of medical science (TUMS). Dept. of Physics & Medical Eng. Research Ctr. for Science & Tech); Farnia, Parastoo (Univ.)*
- 15:30-17:00 SaP24.3
A Feature Based Approach for Refinement of Model-Based Segmentation of Low Contrast Structures 7977-7980
Qazi, Arish A. (Princess Margaret Hospital); Kim, John (Princess Margaret Hospital); Jaffray, David A. (Univ. Health Network); pekar, Vladimir (Philips Research)*
- 15:30-17:00 SaP24.4
Automatic 3D Graph Cuts for Brain Cortex Segmentation in Patients with Focal Cortical Dysplasia 7981-7984
Despotovic, Ivana (Ghent Univ.)*
- 15:30-17:00 SaP24.5
Temporal Segmentation of Lung Region from MRI Sequences Using Multiple Active Contours 7985-7988
Tavares, Renato Seiji (Escola Politecnica da Univ. de Sao Paulo); Chirinos, Jose Miguel Manzanares (Escola Politecnica da Univ. de Sao Paulo); Abe, Leonardo Ishida (Escola Politecnica da Univ. de Sao Paulo); Gotoh, Toshiyuki (Yokohama Natl. Univ.); Kagei, Seiichiro (Yokohama Natl. Univ.); Iwasawa, Tae (Kannagawa Cardiovascular & Respiratory Ctr.); Tsuzuki, Marcos de Sales Guerra (Escola Politecnica da Univ. de Sao Paulo)*
- 15:30-17:00 SaP24.6
Boundary Delineation for Hepatic Hemangioma in Ultrasound Images 7989-7992
Bahrani, Naeim (Univ. of Tehran); Mahdavi Adeli, Aliyeh (Tehran Univ. of Medical Sciences); Rezaatofghi, Seyed Hamid (Australian Natl. Univ., Canberra, Australia)*
- 15:30-17:00 SaP24.7
Automated Segmentation of Rectus Abdominis Muscle Using Shape Model in X-Ray CT Images 7993-7996
Kamiya, Naoki (Toyota Natl. College of Tech.); Zhou, Xiangrong (Gifu Univ.); Chen, Huayue (Graduate School of Medicine, Gifu Univ.); Muramatsu, Chisako (Gifu Univ.); Hara, Takeshi (Gifu Univ. Graduate Sch of Medicine); Yokoyama, Ryujiro (Gifu Univ.); Kanematsu, Massayuki (Gifu Univ.); Hoshi, Hiroaki (Gifu Univ.); Fujita, Hiroshi (Gifu Univ.)*
- 15:30-17:00 SaP24.8
Unsupervised Malaria Parasite Detection Based on Phase Spectrum 7997-8000
Fang, Yuming (Nanyang Technological Univ.); Xiong, Wei (Inst. for Infocomm Research, A-STAR); Lin, Weisi (Nanyang Technological Univ.); Chen, Zhenzhong (Nanyang Technological Univ.)*
- 15:30-17:00 SaP24.9
Maximal Curvature-Based Segmentation of 3D Vessel Contours 8001-8004
Krissian, Karl (Univ. de Las Palmas de Gran Canaria); Sanatana-Jorge, Francisco Jesus (Univ. de Las Palmas de Gran Canaria); Esclarín-Monreal, Julio (Univ. de Las Palmas de Gran Canaria); Maynar-Moliner, Manuel (Univ. de Las Palmas de Gran Canaria); Carreira-Villamor, José Martín (Univ. de Santiago de Compostela)*
- 15:30-17:00 SaP24.10
A Computer-Aided Method for Automatic Localization and Thickness Measurement of Peritoneum in Ultrasound Images 8005-8008
Chang, Hsuan T. (Natl. Yunlin Univ. of Science & Tech.)*
- 15:30-17:00 SaP24.11
Model-Based Segmentation of Flexor Tendons from Magnetic Resonance Images of Finger Joints 8009-8012
Chen, Hsin-Chen (Natl. Cheng Kung Univ.); Chen, Chih-Kai (Dept. of Computer Science & Information Eng., Natl. Cheng Kung Univ.); Yang, Tai-Hua (Natl. Cheng Kung Univ.); Kuo, Lie-Chieh (Natl. Cheng Kung Univ.); Jou, I-Ming (Natl. Cheng Kung Univ.); Su, Fong-Chin (Natl. Cheng Kung Univ.); Sun, Yung-Nien (Natl. Cheng Kung Univ.)*

- 15:30-17:00 SaP24.12
Digital Staining of Histopathology Multispectral Images by the Combined Application of Spectral Enhancement and Spectral Transformation 8013-8016
Bautista, Pinky (Massachusetts General Hospital, Harvard Medical School); Yagi, Yukako (Massachusetts General Hospital)*
- 15:30-17:00 SaP24.13
Substituting Depth for Intensity and Real-Time Phosphene Rendering: Visual Navigation under Low Vision Conditions 8017-8020
Lieby, Paulette (Natl. ICT Australia); Barnes, Nick (NICTA Canberra Research Ctr.); McCarthy, Chris (NICTA); Liu, Nianjun (Natl. ICT Australia Limited); Dennett, Hugh (Australian Natl. Univ.); Walker, Janine (Australian Natl. Univ.); Botea, Viorica (Natl. ICT Australia); Scott, Adele F. (Natl. ICT Australia)*
- 15:30-17:00 SaP24.14
Automatic Quantification and 3D Visualisation of Edema in Cardiac MRI 8021-8024
Kadir, Kushsairy (Univ. of Strathclyde); Gao, Hao (Univ. of Strathclyde & Univ. of Glasgow); Payne, Alexander (Univ. of Glasgow); Soraghan, John J (Univ. of Strathclyde); Berry, Colin (Univ. of Glasgow)*
- 15:30-17:00 SaP24.15
An Extended Registration Framework for the Triple Registration of IBZM SPECT, DATSCAN SPECT and MRI Brain Images to Support the Evaluation of Brain Dopamine Receptor Scintigraphies 8025-8028
Papp, Laszlo (Mediso Medical Imaging Systems Ltd.); Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.); Bandi, Peter (Mediso Medical Imaging Systems Ltd.); Barna, Sandor (Medical Univ. of Debrecen); Luetzen, Ulf (Medical Univ. of Kiel, Dept. of Nuclear Medicine)*
- 15:30-17:00 SaP24.16
A Fully Automatic Method to Register the Prostate Gland on T2-Weighted and EPI-DWI Images 8029-8032
De Luca, Massimo (IRCC, Candiolo); Giannini, Valentina (Politecnico of Turin); Vignati, Anna (FPRC-IRCC); Mazzetti, Simone (Inst. for Cancer Research & Treatment); Bracco, Christian (Inst for Cancer Research & Treatment); Stasi, Michele (Inst. for Cancer Research & Treatment); Armando, Enrico (Inst. for Cancer Research & Treatment); Russo, Filippo (Inst. for Cancer Research & Treatment); Bollito, Enrico (San Luigi Gonzaga Hospital); Porpiglia, Francesco (San Luigi Gonzaga Hospital); Regge, Daniele (Inst. for Cancer research & Treatment)*
- 15:30-17:00 SaP24.17
Segmentation of Lumbar Vertebrae from Clinical CT Using Active Shape Models and GVF-Snake 8033-8036
Alomari, Raja (Univ. at Buffalo, SUNY); Al-Zoubi, M. B. (The Univ. of Jordan); Al-Helo, Samah (The Univ. of Jordan)*
- 15:30-17:00 SaP24.18
Investigation on the Use of Deformable Registrations in Lymph Node Tracking Over Time 8037-8040
Yu, Peicong (Nanyang Technological Univ.); Sheah, Kenneth (Radlink Diagnostic Imaging Pte Ltd); Poh, Chueh Loo (Nanyang Technological Univ.)*
- 15:30-17:00 SaP24.19
Estimation of Affine Motion from Projection Data Using a Mass Conservation Model 8041-8044
Negahdar, Mohammadreza (Univ. of Louisville); Amini, Amir (Univ. of Louisville)*
- 15:30-17:00 SaP24.20
Simultaneous Segmentation and Inhomogeneity Correction in Magnetic Resonance Images 8045-8048
Li, Yue (Johns Hopkins Univ.); Mori, Susumu (Johns Hopkins Univ. School of Medicine)*
- 15:30-17:00 SaP24.21
Elastic Registration Based on Particle Filter in Radiotherapy Images with Brain Deformations 8049-8052
Mejia-Rodriguez, Aldo Rodrigo (Politecnico di Milano); Arce-Santana, Edgar (Facultad de Ciencias); Scalco, Elisa (Polythecnic Univ. of Milan); Tresoldi, Daniele (Polythecnic Univ. of Milan); Mendez, Martin Oswaldo (Univ. Autonoma de San Luis Potosi); Bianchi, Anna Maria (Politecnico di Milano); Cattaneo, Giovanni Mauro (Scientific Inst. San Raffaele); Rizzo, Giovanna (Natl. Research Council (CNR))*

15:30-17:00	SaP24.22
A Fully Automated Method Using Active Contours for the Evaluation of the Intima-Media Thickness in Carotid US Images	8053-8057
<i>Pétroudi, Styliani* (Univ. of Oxford); Loizou, Christos (Intercollege); Pattichis, Marios (Univ. of New Mexico.); Pattichis, Constantinos (Univ. of Cyprus)</i>	
15:30-17:00	SaP24.23
Motion Estimation in Ultrasound Imaging Applied to the Diagnostic of Pelvic Floor Disorders	8058-8061
<i>Basarab, Adrian* (Univ. de Toulouse); Vidal, Fabien (Univ. Hospital, Toulouse); Abbal, Rémi (Univ. of Toulouse, IRIT UMR CNRS 5505); Delachartre, Philippe (INSA-Lyon); Vayssiere, Christophe (Univ. Hospital, Toulouse); Légevaque, Philippe (Univ. Hospital, Toulouse); Kouamé, Denis (Univ. de Toulouse, IRIT UMR CNRS 5505)</i>	
15:30-17:00	SaP24.24
Medical Image Integrity Control and Forensics Based on Watermarking – Approximating Local Modifications and Identifying Global Image Alterations	8062-8065
<i>Huang, Hui (INSERM, GET ENST Bretagne); Coatrieux, Gouenou* (Institut Telecom – Telecom Bretagne – Inserm); Shu, Huazhong (Southeast Univ.); Luo, Limin (Univ. of Southeast); Roux, Christian (TELECOM Bretagne – INSERM)</i>	
15:30-17:00	SaP24.25
A Joint Watermarking/Encryption Algorithm for Verifying Medical Image Integrity and Authenticity in Both Encrypted and Spatial Domains	8066-8069
<i>Bousslimi, Dalel* (Telecom Bretagne); Coatrieux, Gouenou (Institut Telecom – Telecom Bretagne – Inserm); Roux, Christian (TELECOM Bretagne – INSERM)</i>	
15:30-17:00	SaP24.26
A 2D 3D Registration with Low Dose Radiographic System for in Vivo Kinematic Studies	8070-8073
<i>Jerbi, Taha* (LaTIM, Telecom Bretagne); Burdin, Valérie (Institut Telecom/Telecom Bretagne – INSERM U650); Stindel, Eric (Univ. de Bretagne Occidentale); Roux, Christian (TELECOM Bretagne – INSERM)</i>	
15:30-17:00	SaP24.27
An Efficient Point Based Registration of Intra-Operative Ultrasound Images with MR Images for Computation of Brain Shift; a Phantom Study	8074-8077
<i>Farnia, Parastoo (Univ.); Ahmadian, Alireza (Tehran Univ. of Medical Sciences); Khoshnevisan, Alireza (Tehran Univ. of Medical Science, Iran); Jaberzadeh Ansari, Amir Hossein (Tehran Univ. of Medical Sciences); Dadashi Serej, Nassim (Tehran Univ. of Medical Sciences); Fathi Kazerooni, Anahita* (Dept. of Biomedical Eng. & Biophysics, Medical School, Tehran Univ. of Medical Sciences, Tehran, Iran)</i>	
15:30-17:00	SaP24.28
Towards Segmentation of the Thymus in Fat and Water Parametric MR Images	8078-8081
<i>Makrogiannis, Sokratis* (Natl. Inst. on Aging, NIH); Ramachandran, Ramona (Natl. Inst. on Aging, NIH); Fishbein, Kenneth (Natl. Inst. on Aging, NIH); Kapogiannis, Dimitrios (Natl. Inst. on Aging, NIH); Spencer, Richard (Natl. Inst. on Aging, NIH); Chia, Chee (Natl. Inst. on Aging, NIH)</i>	
15:30-17:00	SaP24.29
Automatic Segmentation of Time-Lapse Microscopy Images Depicting a Live Dharma Embryo	8082-8085
<i>Zacharia, Eleni (Univ. of Houston); Bondesson, Maria (Univ. of Houston); Riu, Anne (Dept. of Biology & Biochemistry, Univ. of Houston); Ducharme, Nicole A. (Dept. of Biology & Biochemistry, Univ. of Houston); Kakadiaris, Ioannis* (Univ. of Houston)</i>	
15:30-17:00	SaP24.30
Lossless 3-D Reconstruction and Registration of Semi-Quantitative Gene Expression Data in the Mouse Brain	8086-8089
<i>Enlow, Matthew (Pacific Northwest Natl. Lab.); Ju, Tao (Washington Univ. in St. Louis); Kakadiaris, Ioannis (Univ. of Houston); Carson, James* (Pacific Northwest Natl. Lab.)</i>	
15:30-17:00	SaP24.31
Simple and Effective Ultrasound Needle Guidance System	8090-8093
<i>Floryan, Caspar (Harvard Univ.); Hauser, Oliver* (Harvard Univ.); Nguyen, Michael (Brigham & Women's Hospital); Yong, Robert Jason (Brigham & Women's Hospital); Kesner, Samuel B. (Harvard Univ.); Corn, Stephan (Harvard Medical School); Walsh, Conor (Massachusetts General Hospital)</i>	

15:30-17:00 SaP24.32
Similarity Enhancement for Automatic Segmentation of Cardiac Structures in Computed Tomography Volumes 8094-8097
*Vera, Miguel** (Univ. de Los Andes – Venezuela)

15:30-17:00 SaP24.33
Speckle Detection in Ultrasonic Images Using Unsupervised Clustering Techniques 8098-8101
*Akbarian Azar, Arezou** (Drexel Univ. & Johns Hopkins Univ. School of Medicine);
Boctor, Emad M. (Johns Hopkins Univ. School of Medicine); *Rivaz, Hasan* (McGill Univ.)

SaP25: 15:30-17:00 America Ballroom Westin
6.12.58 Advances in Brain Functional Imaging (Poster Session)

15:30-17:00 SaP25.1
Independent Component Analysis of Resting Brain Activity Reveals Transient Modulation of Local Cortical Processing by Transcranial Direct Current Stimulation 8102-8105
*Venkatakrishnan, Anusha** (Univ. of Maryland, NINDS/NIH); *Contreras-Vidal, José* (Univ. of Maryland);
Sandrini, Marco (NINDS, NIH); *Cohen, Leonardo G.* (NINDS, NIH)

15:30-17:00 SaP25.2
Relationship between Pulse Number of Rtms and Inter Reversal Time of Perceptual Reversal 8106-8109
*Nojima, Kazuhisa** (Kyushu University); *Ge, Sheng* (Kyushu Univ.); *Katayama, Yoshinori* (Kyushu Univ.);
Iramina, Keiji (Kyushu Univ., Japan)

15:30-17:00 SaP25.3
Investigation on the Pleasantness of Music Perception in Monolateral and Bilateral Cochlear Implant Users by Using Neuroelectrical Source Imaging: A Pilot Study 8110-8113
Vecchiato, Giovanni (Univ. of Rome Sapienza); *Mattia, Donatella* (Fondazione Santa Lucia IRCCS);
Astolfi, Laura (Univ. of Rome); *Scorpecci, Alessandro* (Ospedale Pediatrico "Bambino Gesù" – IRCCS);
*Babiloni, Fabio** (Univ. of Rome)

15:30-17:00 SaP25.4
Functional Connectivity in Vergence and Saccade Eye Movement Tasks Assessed Using Granger Causality Analysis 8114-8117
*Alkan, Yelda** (New Jersey Inst. of Tech.); *Alvarez, Tara* (New Jersey Inst. of Tech.); *Gohel, Suril* (Univ. of Medicine & Dentistry of New Jersey); *Taylor, Paul* (Univ. of Medicine & Dentistry of New Jersey);
Biswal, Bharat (Univ. of Medicine & Dentistry of New Jersey)

15:30-17:00 SaP25.5
Mechanisms of Neural Reorganization in Chronic Stroke Subjects after Virtual Reality Training 8118-8121
Saleh, Soha (NJIT); *Bagce, Hamid* (UMDNJ); *Qiu, Qinyin** (NJIT); *Fluet, Gerard* (UMDNJ); *Merians, Alma* (UMDNJ); *Adamovich, Sergei* (NJIT); *Tunik, Eugene* (Univ. of Medicine & Dentistry of New Jersey (UMDNJ))

15:30-17:00 SaP25.6
Estimation of Neuronal Responses from fMRI Data 8122-8125
Havlicek, Martin (Brno Univ. of Tech.); *Jan, Jiri** (Brno Univ. of Tech.); *Brazdil, Milan* (Masaryk Univ. Brno);
Calhoun, Vince (The Mind Research Network/Univ. of New Mexico)

SaP26: 15:30-17:00 America Ballroom Westin
8.3.7 Wearable Robotic Orthoses (Poster Session)

15:30-17:00 SaP26.1
A Pneumatically-Actuated Lower-Limb Orthosis 8126-8129
Wu, Sai-Kit (Univ. of Alabama); *Jordan, Matthew* (Univ. of Alabama); *Shen, Xiangrong** (Univ. of Alabama)

15:30-17:00 SaP26.2
Design Considerations for an Active Soft Orthotic System for Shoulder Rehabilitation 8130-8134
*Kesner, Samuel B.** (Harvard Univ.); *Jentoft, Leif* (Harvard Univ.); *Hammond, Frank L.* (Harvard Univ.);
Howe, Robert (Harvard Univ.); *Popovic, Marko* (Worcester Polytechnic Inst.)

15:30-17:00 SaP26.3
On the Mechanics of the Ankle in the Stance Phase of the Gait 8135-8140
Shamaei, Kamran (Yale Univ.); Cenciarini, Massimo (Yale Univ.); Dollar, Aaron (Yale Univ.)*

SaP27: 15:30-17:00 America Ballroom Westin
8.10.22 Modeling and Simulation in Musculoskeletal Biomechanics II (Poster Session)

15:30-17:00 SaP27.1
A Detailed 3D Ankle-Foot Model for Simulate Dynamics of Lower Limb Orthosis 8141-8145
Inoue, Jun (Waseda Univ.); Yu, Wenwei (Univ. of Chiba); Kawamura, Kazuya (Waseda Univ.); Fujie, Masakatsu G. (Waseda Univ.)*

15:30-17:00 SaP27.2
Control of Human Spine in Repetitive Sagittal Plane Flexion and Extension Motion Using a CPG Based ANN Approach 8146-8149
Sedighi, Alireza (Sharif Univ. of Tech.); Sadati, Nasser (The Univ. of British Columbia); Nasseroleslami, Bahman (Univ. of Strathclyde); Khorsand Vakilzadeh, Majid (Sharif Univ. of Tech.); Narimani, Roya (Sharif Univ. of Tech.); Parnianpour, Mohammad (Sharif Univ. of Tech.)*

15:30-17:00 SaP27.3
Experimental Validation of a Reach-And Grasp Optimization Algorithm Inspired to Human Arm-Hand Control 8150-8153
Cordella, Francesca (Univ. of Naples Federico II); Zollo, Loredana (Campus Bio-Medico Univ.); Salerno, Antonino (Univ. Campus Bio-Medico di Roma); Guglielmelli, Eugenio (Campus Bio-Medico Univ.); Siciliano, Bruno (Univ. Napoli Federico II)*

15:30-17:00 SaP27.4
Redundancy and Joint Limits of a Seven Degree of Freedom Upper Limb Exoskeleton 8154-8157
Miller, Levi Makaio (Univ. of Washington); Kim, Hyunchul (Univ. of California Santa Cruz); Rosen, Jacob (Univ. of California – Santa Cruz)*

15:30-17:00 SaP27.5
Upper Extremity Wheelchair Kinematics in Children with Spinal Cord Injury 8158-8161
Slavens, Brooke (Univ. of Wisconsin-Milwaukee); Graf, Adam (Shriners Hospital for Children); Krzak, Joe (Shriners Hospital of Chicago); Vogel, Lawrence (Shriners Hospital for Children-Chicago); Harris, Gerald (Marquette Univ.)*

15:30-17:00 SaP27.6
Towards Using Musculoskeletal Models for Intelligent Control of Physically Assistive Robots 8162-8165
Carmichael, Marc Garry (Univ. of Tech., Sydney); Liu, Dikai (Univ. of Tech., Sydney)*

SaP28: 15:30-17:00 America Ballroom Westin
8.10.30 Joint Biomechanics (Poster Session)

15:30-17:00 SaP28.1
Contributions of Non-Spherical Hip Joint Cartilage Surface to Hip Joint Contact Stress 8166-8169
Gu, Dong-Yun (Shanghai Ninth People's Hospital); Hu, Fei (Shanghai Jiaotong Univ.); Wei, Jian-He (Shanghai Jiaotong Univ.); Dai, Kerong (Shanghai Second Medical Univ.); Chen, Yazhu (Shanghai jiaotong Univ.)*

15:30-17:00 SaP28.2
Preliminary Design of a Novel System for Estimating End-Point Stiffness 8170-8174
Masia, Lorenzo (Istituto Italiano Di Tecnologia); Sandini, Giulio (Univ. of Genoa); Morasso, Pietro (Univ. of Genova)*

15:30-17:00 SaP28.3
A Novel Energy-Efficient Rotational Variable Stiffness Actuator 8175-8178
Rao, Shodhan (Univ. of Groningen); Carloni, Raffaella (Univ. of Twente); Stramigioli, Stefano (Univ. of Twente)*

15:30-17:00 SaP28.4
Design and Validation of a Platform Robot for Determination of Ankle Impedance During Ambulation ... 8179-8182
Rouse, Elliott (Northwestern Univ.); Hargrove, Levi (Rehabilitation Inst. of Chicago); Peshkin, Michael (Northwestern Univ.); Kuiken, Todd (Rehabilitation Inst. of Chicago)*

15:30-17:00 SaP28.5
An Analysis of Leg Joint Synergy During Bipedal Walking in Japanese Macaques 8183-8186
Kaichida, Shoko (Yamaguchi Univ.); Hashizume, Yoshimitsu (Yamaguchi Univ.);
Ogihara, Naomichi (Keio Univ.); Nishii, Jun (Yamaguchi Univ.)*

15:30-17:00 SaP28.6
Influence of Muscular Fatigue on Skiing Performance During Parallel Turns 8187-8190
Kiryu, Tohru (Niigata Univ.); Murayama, Toshio (Niigata Univ.); Ushiyama, Yukihiko (Niigata Univ.)*

SaP29: 15:30-17:00 America Ballroom Westin
10.6.15 Recent Developments in Health Information Management and Electronic Health Records (Poster Session)

15:30-17:00 SaP29.1
SERVANDO: An Extensible Platform for Home-Care Services Providing 8191-8194
Teijeiro, Tomás (Centro de Investigación en TecnoloXías da Información(CITUS),
Univ. de Santiago de Compostela)*

15:30-17:00 SaP29.2
Lossless Watermarking of Categorical Attributes for Verifying Medical Data Base Integrity 8195-8198
Coatrieux, Gouenou (Institut Telecom – Telecom Bretagne – Inserm); Chazard, Emmanuel (Lille Univ.
Hospital); Beuscart, Régis (Univ. hospital of Lille); Roux, Christian (TELECOM Bretagne – INSERM)*

15:30-17:00 SaP29.3
**MiRTE: Mixed Reality Triage and Evacuation Game for Mass Casualty
Information Systems Design, Testing and Training** 8199-8202
Yu, Xunyi (Univ. of Massachusetts); Ganz, Aura (Univ. of Massachusetts, Amherst)*

15:30-17:00 SaP29.4
Design of an X-Ray / Ventilator Synchronization System in an Integrated Clinical Environment 8203-8206
Arney, David (CIMIT, Univ. of Pennsylvania); Bhatia, Kunal (Boston Univ.); Bhatia, Sanchit (Boston Univ.);
Sutton, Michael (Boston Univ.); Rausch, Tracy L. (DocBox Inc); Karlinsky, Joel (VA);
Goldman, Julian (Massachusetts General Hospital, CIMIT)*

15:30-17:00 SaP29.5
**Portable and Cost-Effective Pixel Super-Resolution On-Chip
Microscope for Telemedicine Applications** 8207-8210
Bishara, Waheb (Univ. of California, Los Angeles); Sikora, Uzair (UCLA); Yaglidere, Oguzhan (UCLA);
Mudanyali, Onur (UCLA); Su, Ting-Wei (Univ. of California, Los Angeles); Luckhart, Shirley (UC Davis);
Ozcan, Aydogan (UCLA)*

15:30-17:00 SaP29.6
**Development of a Ubiquitous Healthcare Monitoring System Combined with Non-Conscious and
Ambulatory Physiological Measurements and Its Application to Medical Care** 8211-8214
Motoi, Kosuke (Kanazawa Univ.); Taniguchi, Sayaka (Fujimoto Hayasuzu Hospital); Yuji, Tadahiko (Fujimoto
Hayasuzu Hospital); Ogawa, Mitsuhiro (Kanazawa Univ.); Tanaka, Naoto (Kanazawa Univ.); Hata, Kazuhiro
(Kanazawa Univ.); Baek, Mina (Kanazawa Univ.); Ueno, Hiroshi (Imizu City Hospital); Wakugawa, Morikuni
(Fujimoto Hayasuzu Hospital); Sonoda, Takumi (Fujimoto Hayasuzu Hospital); Fukunaga, Seiji (Fujimoto
Hayasuzu Hospital); Higashi, Yuji (Fujimoto Hayasuzu Hospital); Matsumura, Kenta (Kanazawa Univ.);
Yamakoshi, Takehiro (Kanazawa Univ.); Tanaka, Shinobu (Kanazawa Univ.); Fujimoto, Toshiro (Fujimoto
Hayasuzu Hospital); Asanoi, Hidetsugu (Imizu City Hospital); Yamakoshi, Ken-ichi (Kanazawa Univ.)*

15:30-17:00 SaP29.7
Investigating the Efficiency of IEEE 802.15.4 for Medical Monitoring Applications 8215-8218
Pelegris, Panagiotis (Brunel Univ.); Banitsas, Konstantinos (Brunel Univ.)*

15:30-17:00 SaP29.8
Secure Communications for PACS in a Cloud Environment 8219-8222
Teng, Chia-Chi (Brigham Young Univ.)*

SaD01: 17:15-18:45

St. George AB Westin

6.11.44 Stroke (Oral Session)

Chair: Dewald, Julius P.A. (Northwestern Univ.)

Co-Chair: Knaflitz, Marco (Pol. di Torino)

17:15-17:30

SaD01.1

The Effects of Voluntary, Involuntary, and Forced Exercises on Motor Recovery in a Stroke Rat Model 8223-8226

Ke, Zheng (The Hong Kong Polytechnic Univ.); Yip, Shea Ping (The Hong Kong Polytechnic Univ.); Li, Le (The First Affiliated Hospital, Sun Yat-sen Univ.); Zheng, Xiaoxiang (Zhejiang Univ.); Tam, Wing Kin (the Hong Kong Polytechnic Univ.); Tong, Kai Yu, Raymond* (The Hong Kong Polytechnic Univ.)

17:30-17:45

SaD01.2

A Quantitative and Standardized Robotic Method for the Evaluation of Arm Proprioception after Stroke 8227-8230

Simo, Lucia (Northwestern Univ.); Ghez, Claude (Columbia Univ. Medical Ctr.); Botzer, Lior (Marquette Univ.); Scheidt, Robert A.* (Marquette Univ.)

17:45-18:00

SaD01.3

Quantifying Loss of Independent Joint Control in Acute Stroke with a Robotic Evaluation of Reaching Workspace 8231-8234

Ellis, Michael* (Northwestern Univ.); Kottink, Anke (Roessingh Research & Development); Prange, G.B. (Roessingh Research & Development); Rietman, Johan S (Roessingh Research & Development, Univ. of Twente, The Netherlands); Buurke, Jacob Hilbert (Roessingh Research & Development); Dewald, Julius P. A. (Northwestern Univ.)

18:00-18:15

SaD01.4

Dynamic Time Warping As a Spatial Assessment of Sensorimotor Impairment Resulting from Stroke 8235-8238

Chalmers, Nathan* (Queen's Univ.)

18:15-18:30

SaD01.5

Influence of Visual Feedback in the Regulation of Arm Stiffness Following Stroke 8239-8242

Piovesan, Davide* (Rehabilitation Inst. of Chicago); Casadio, Maura (Northwestern Univ.); Morasso, Pietro (Univ. of Genova); Giannoni, Psiche (ART Education & Rehabilitation Dept. srl)

18:30-18:45

SaD01.6

Examination of Motor Unit Control Properties in Stroke Survivors Using Surface EMG Decomposition: A Preliminary Report 8243-8246

Suresh, Nina* (Rehabilitation Inst. of Chicago); Li, Xiaoyan (Rehabilitation Inst. of Chicago); Zhou, Ping (Northwestern Univ. & Rehab Inst of Chicago); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)

SaD02: 17:15-18:45

St. George CD Westin

8.9.19 Optimization and Machine Learning in Biomechanics (Oral Session)

Chair: O'Malley, Marcia K. (Rice Univ.)

Co-Chair: Popovic, Marko (Worcester Pol. Inst.)

17:15-17:30

SaD02.1

Towards a Complete Description of Grasping Kinematics: A Framework for Quantifying Human Grasping and Manipulation 8247-8250

Fu, Qiushi* (Arizona State Univ.); Santello, Marco (Arizona State Univ.)

17:30-17:45

SaD02.2

Cortical Network Modeling for Inverse Kinematic Computation of an Anthropomorphic Finger 8251-8254

Gentili, Rodolphe* (Univ. of Maryland; School of Public Health); Oh, Hyuk (Univ. of Maryland, College Park); Molina-Vilaplana, Javier (Dept. of Systems Eng. & Automation. Technical Univ. of Cartagena); Contreras-Vidal, José (Univ. of Maryland)

17:45-18:00

SaD02.3

Comparing a Passive-Elastic and a Powered Prosthesis in Transtibial Amputees 8255-8258

Mancinelli, Chiara* (Harvard Medical School); Patrìtti, Ben (Harvard Medical School); Tropea, Peppino (Scuola Superiore Sant'Anna); Greenwald, Richard (Simbex); Casler, Rick (iWalk); Herr, Hugh (MIT); Bonato, Paolo (Harvard Medical School)

18:00-18:15 SaD02.4
Knee-Extension-Assist for Knee-Ankle-Foot Orthoses 8259-8262
*Spring, Alexander** (Univ. of Waterloo); *Kofman, Jonathan* (Univ. of Waterloo);
Lemaire, Edward (The Ottawa Hospital Rehab Ctr.)

18:15-18:30 SaD02.5
**Cost Function Tuning Improves Muscle Force Estimation Computed by
Static Optimization During Walking** 8263-8266
Monaco, Vito (Scuola Superiore Sant'Anna, Pisa); *Coscia, Martina* (Scuola Superiore Sant'Anna);
*Micera, Silvestro** (École Polytechnique Fédérale de Lausanne)

18:30-18:45 SaD02.6
A Neuromuscular Elbow Model for Analysis of Force and Movement Variability in Slow Movements 8267-8270
*Celik, Ozkan** (San Francisco State Univ.); *O'Malley, Marcia K.* (Rice Univ.)

SaD03: 17:15-18:45 Essex Ballroom South Westin
6.2.5 Neural Decoding in Brain-Machine Interfaces (Minisymposium)
Chair: *Malik, Wasim Q.* (Massachusetts Inst. of Tech.)
Co-Chair: *Brown, Emery N.* (Massachusetts General Hospital-Harvard Medical School-MIT)

17:15-17:30 SaD03.1
Neural Decoding in BCIs: So Many Questions, so Little Time *
*Hochberg, Leigh** (VA/Brown U./MGH/Harvard Med. School)

17:30-17:45 SaD03.2
A Challenge for Closed-Loop Control: Dissociating Motor Cortex from the Motor *
*Schieber, Marc** (Univ. of Rochester)

17:45-18:00 SaD03.3
Using Naturalistic Kinesthetic Feedback for Brain Machine Control *
*Hatsopoulos, Nicholas** (Univ. of Chicago); *Suminski, Aaron* (Univ. of Chicago);
Fagg, Andrew (Univ. of Oklahoma)

18:00-18:15 SaD03.4
**Real-Time Brain-Machine Interface Control by Combining Target Intent and
Kinematic Movement Information from Neural Spiking Activity** *
*Brown, Emery N** (MGH-Harvard Medical School-MIT)

SaD05: 17:15-18:45 Essex Ballroom North Westin
6.1.1 Wireless Miniature Neurostimulation Devices (Minisymposium)
Chair: *Pikov, Victor* (HMRI & Univ. of Southern California)
Co-Chair: *Unlu, Selim* (Boston Univ.)

17:15-17:30 SaD05.1
A Light-Activated Wireless Micro-Stimulator *
*Sahin, Mesut** (New Jersey Inst. of Tech.); *Abdo, Ammar* (NJIT); *Freedman, David* (Boston Univ.);
Spuhler, Philipp (Boston Univ.); *Unlu, Selim* (Boston Univ.)

17:30-17:45 SaD05.2
The Design of an Independently Addressable Wireless Light-Activated Micro-Stimulator *
*Freedman, David** (Boston Univ.); *Spuhler, Philipp* (Boston Univ.); *Cevik, Elif* (Boston Univ.);
Unlu, Selim (Boston Univ.); *Sahin, Mesut* (New Jersey Inst. of Tech.)

17:45-18:00 SaD05.3
MEMS-Based Implantable RF Wireless Neurostimulators *
*Lee, Jeong-Bong** (Univ. of Texas at Dallas)

SaD08: 17:15-18:45 Tremont Marriott
6.1.2 Optogenetics: Novel Tools for Probing and Manipulating Neural Circuits (Minisymposium)
Chair: Oweiss, Karim (*Michigan State Univ.*)
Co-Chair: Boyden, Edward (*MIT*)

17:15-17:30 SaD08.1
Optogenetics, Neural Ensemble Recordings and Graphical Models: Characterizing Neuroplasticity in Vivo *
Oweiss, Karim (Michigan State Univ.)*

17:30-17:45 SaD08.2
Optogenetics *
Boyden, Edward (MIT)*

17:45-18:00 SaD08.3
Optogenetics and Brain-Machine Interfaces *
Diester, Ilka (Stanford Univ.); Kaufman, Matthew (Stanford Univ.); Goo, Werapong (Stanford Univ.); O'Shea, Dan (Stanford Univ.); Kalanithi, Paul (Stanford Univ.); Deisseroth, Karl (Stanford Univ.); Shenoy, Krishna V. (Stanford Univ.)*

SaD09: 17:15-18:45 Regis Marriott
6.11.43 Epilepsy – II (Oral Session)
Chair: Dumont, Guy (*Univ. of British Columbia*)
Co-Chair: Worrell, Gregory A. (*Mayo Clinic*)

17:15-17:30 SaD09.1
Dynamic Imaging of Ictal Rhythmic Activity Using Dense-Array EEG **8271-8274**
Yang, Lin (Univ. of Minnesota); Wilke, Christopher (Univ. of Minnesota); Brinkmann, Benjamin (Mayo Foundation); Worrell, Gregory A. (Mayo Clinic); He, Bin (Univ. of Minnesota)*

17:30-17:45 SaD09.2
Markerless Video Analysis for Movement Quantification in Pediatric Epilepsy Monitoring **8275-8278**
Lu, Haiping (Inst. for Infocomm Research); Eng, How-Lung (Inst. for Infocomm Research); Mandal, Bappaditya (Inst. for Infocomm Research); Chan, Derrick W. S. (KK Women's & Children's Hospital); Ng, Yen-Ling (KK Women's & Children's Hospital)*

17:45-18:00 SaD09.3
Multivariate Analysis of SEEG Signals During Seizure **8279-8282**
Kerr, Matthew (Johns Hopkins Univ.); Burns, Samuel (Johns Hopkins Univ.); Gale, John (Cleveland Clinic); Sarma, Sridevi V. (Johns Hopkins Univ.)*

18:00-18:15 SaD09.4
Algorithm for Automatic Detection of Pentylentetrazole-Induced Seizures in Rats **8283-8286**
Besio, W. G. (Univ. of Rhode Island); Liu, Xiang (Univ. of Rhode Island); Liu, Yuhong (Univ. of Rhode Island); Sun, Yan (Univ. of Rhode Island); Medvedev, Andrei (Georgetown Univ.); Koka, Kanthaiiah (Otologics LLC)*

18:15-18:30 SaD09.5
Noise-Assisted Intrinsic Mode Function Coherence in Seizure Anticipation **8287-8290**
Moller, Daniel William (Louisiana Tech Univ.); Chiu, Alan Wing Lun (Louisiana Tech Univ.)*

SaD10: 17:15-18:45 Simmons Marriott
10.7.13 Data Mining, Information Processing and Decision Support Systems (Oral Session)
Chair: Kahya, Yasemin P. (*Bogazici Univ.*)
Co-Chair: Pepper, Noah (*Qmedtrix*)

17:15-17:30 SaD10.1
Using Support Vector Machines to Detect Medical Fraud and Abuse **8291-8294**
Francis, Charles (Qmedtrix); Pepper, Noah (Qmedtrix); Strong, Homer (Qmedtrix)*

17:30-17:45	SaD10.2
An Intelligent Decision Support System for the Treatment of Patients Receiving Ventricular Assist Device (VAD) Support	8295-8298
<i>Karvounis, Evaggelos (Univ. of Ioannina); Katertsidis, Nikolaos (FORTH-BRI); Exarchos, Themis P. (Unit of Medical Tech & Intelligent Info); Fotiadis, Dimitrios I.* (Univ. of Ioannina)</i>	
17:45-18:00	SaD10.3
A Personalized Approach for Predicting the Effect of Aerobic Exercise on Blood Pressure Using a Fuzzy Inference System	8299-8302
<i>Honka, Anita* (VTT Technical Research Ctr. of Finland); van Gils, Mark (VTT Tech Research Ctr. of Finland); Pärkkä, Juha (VTT)</i>	
18:00-18:15	SaD10.4
Heterogeneous Data Fusion and Intelligent Techniques Embedded in a Mobile Application for Real-Time Chronic Disease Management	8303-8306
<i>Bellos, Christos (FORTH BRI Foundation for Research & Tech. – Hellas, Biomedical Research); Papadopoulos, Athanasios (Foundation for Research & Tech.); Rosso, Roberto (Tesan S.p.A.); Fotiadis, Dimitrios I.* (Univ. of Ioannina)</i>	
18:15-18:30	SaD10.5
Gene Expression Profiling towards the Prediction of Oral Cancer Reoccurrence	8307-8310
<i>Exarchos, Konstantinos* (Univ. of Ioannina); Goletsis, Yorgos (Univ. of Ioannina); Poli, Tito (Azienda Ospedaliero Univ. of Parma); Fotiadis, Dimitrios I. (Univ. of Ioannina)</i>	
18:30-18:45	SaD10.6
Mining Data from CFD Simulation for Aneurysm and Carotid Bifurcation Models	8311-8314
<i>Filipovic, Nenad* (Univ. of Kragujevac); Radovic, Milos (Univ. of Kragujevac); Petrovic, Dejan (BiolIRC, Univ. of Kragujevac)</i>	

SaD12: 17:15-18:45	Suffolk Marriott
5.10.20 Development of Sleep and Respiratory Analysis Systems using Reference Data Sets from Databases of Physiological Signals; Physionet (US) and Siesta (EU) as Examples (Oral Session)	
Chair: Leder, Ron (Univ. Nacional Autonoma de Mexico)	
Co-Chair: Verma, Naveen (Princeton Univ.)	

17:15-17:30	SaD12.1
Open-Access MIMIC-II Database for Intensive Care Research	8315-8318
<i>Lee, Joon* (MIT); Scott, Daniel (Massachusetts Inst. of Tech.); Villarroel, Mauricio (Univ. of Oxford); Clifford, Gari (Massachusetts Inst. of Tech.); Saeed, Mohammed (MIT); Mark, Roger (Massachusetts Inst. of Tech.)</i>	
17:30-17:45	SaD12.2
Developing Quantitative Physiological Phenotypes of Sleep Apnea for Epidemiological Studies	8319-8322
<i>Kirkness, Jason Paul* (Johns Hopkins Univ.); McGinley, Brian (Johns Hopkins Univ.); Sgambati, Francis (Johns Hopkins Univ.); Patil, Susheel (Johns Hopkins Univ.); Smith, Philip L. (Johns Hopkins Univ.); Schwartz, Alan R. (Johns Hopkins Univ.); Schneider, Hartmut (Johns Hopkins Univ.)</i>	
17:45-18:00	SaD12.3
The SIESTA Database and the SIESTA Sleep Analyzer	8323-8326
<i>Penzel, Thomas* (Charite Univ. Hospital); Glos, Martin (Charite-Univ.smedizin Berlin); Garcia, Carmen (Charité Univ. Hospital Berlin, Sleep Medicine Ctr.); Schoebel, Christoph (Charite Univ.smedizin Berlin); Fietze, Ingo (Charite-Univ.smedizin Berlin)</i>	
18:00-18:15	SaD12.4
PhysioNet: Physiologic Signals, Time Series and Related Open Source Software for Basic, Clinical, and Applied Research	8327-8330
<i>Moody, George* (Massachusetts Inst. of Tech.); Mark, Roger (Massachusetts Inst. of Tech.)</i>	
18:15-18:30	SaD12.5
Snoring Analysis for the Screening of Sleep Apnea Hypopnea Syndrome with a Single-Channel Device Developed Using Polysomnographic and Snoring Databases	8331-8333
<i>Jané, Raimon* (Univ. Politècnica de Catalunya)</i>	

SaD15: 17:15-18:45 Clarendon Marriott
7.6.1 Gene and Drug Delivery (Oral Session)
Chair: Wang, Chun (*Univ. of Minnesota*)
Co-Chair: Xu, Qiaobing (*Tufts Univ.*)

17:15-17:30 SaD15.1
Delivery of Mrna Using a Combinatorial Library of Lipidoids *
Xu, Qiaobing (Tufts Univ.)*

17:30-17:45 SaD15.2
Chimeric Nanoparticles with Viral Core and Stimuli-Degradable Shell for Synergistic Gene Therapy *
Kwon, Young Jik (Univ. of California, Irvine)*

17:45-18:00 SaD15.3
Non-Viral Engineered Stem Cells As Drug Delivery Vehicles for Therapeutic Angiogenesis *
Yang, Fan (Stanford Univ.)*

18:00-18:15 SaD15.4
Facilitated Self-Assembly of Novel Dendron-Based Copolymers **8334-8336**
Pearson, Ryan (Univ. of Illinois at Chicago); Bae, Jin Woo (Univ. of Illinois at Chicago); Sunogrot, Suhair (Univ. of Illinois at Chicago); Uddin, Sayam (Univ. of Illinois at Chicago); Hong, Seungpyo (Univ. of Illinois at Chicago)*

18:15-18:30 SaD15.5
Drug-Polyester Conjugated Nanoparticles for Cancer Drug Delivery **8337-8339**
Tong, Rong (MIT); Tang, Li (Univ. of Illinois at Urbana Champaign); Yin, Qian (Univ. of Illinois at Urbana Champaign); Cheng, Jianjun (Univ. of Illinois at Urbana-Champaign)*

SaD16: 17:15-18:45 Darthmouth Marriott
9.6.2 Hardware Design for Medical Applications (Oral Session)
Chair: Yana, Kazuo (*Hosei Univ.*)
Co-Chair: Tunay, Ilker (*Stereotaxis, Inc.*)

17:15-17:30 SaD16.1
Sensor Architecture for a Two-Actuator Robotic Endoscope Tip **8340-8343**
Chen, Yi (MIT); Oliveira, Jillian M. (MIT); Hunter, Ian (Massachusetts Inst. of Tech.)*

17:30-17:45 SaD16.2
Distributed Parameter Statics of Magnetic Catheters **8344-8347**
Tunay, Ilker (Stereotaxis, Inc.)*

17:45-18:00 SaD16.3
Neuroscience Robotics to Investigate Multisensory Integration and Bodily Awareness **8348-8352**
Duenas, Julio (ETH Zurich); Chapuis, Dominique (Eidgenössische Technische Hochschule Zürich); Pfeiffer, Christian (LNCO, EPFL); Martuzzi, Roberto (LNCO, EPFL); Ionta, Silvio (LNCO, EPFL); Blanke, Olaf (LNCO, EPFL); Gassert, Roger (ETH Zurich)*

18:00-18:15 SaD16.4
Structural Design of a Newly Developed Pediatric Circulatory Assist Device for Fontan Circulation by Using Shape Memory Alloy Fiber **8353-8355**
Shiraishi, Yasuyuki (Tohoku Univ.); Sugai, Telma Keiko (Tohoku Univ.); Tanaka, Akira (Fukushima Univ.); Yambe, Tomoyuki (Tohoku Univ.); Yoshizawa, Makoto (Tohoku Univ.)*

18:15-18:30 SaD16.5
Wireless Power Delivery for Retinal Prostheses **8356-8360**
Ng, David, C (NICTA); Allen, Penelope J (Royal Victorian Eye & Ear Hospital); Bai, Shun (Univ. of Melbourne); Meffin, Hamish (Natl. ICT Australia); Halpern, Mark E (NICTA Victoria Res. Lab.); Skafidas, Stan (NICTA Victoria Research Lab)*

18:30-18:45 SaD16.6
A Programmable and Configurable Multi-Port System-On-Chip for Stimulating Electrokinetically-Driven Microfluidic Devices 8361-8364
Lopez, Martha Salome (Univ. Tech Inst. of Monterrey, Mexico); Gerstlauer, Andreas (The Univ. of Texas at Austin); Avila, Alfonso (Tecnologico de Monterrey); Martinez-Chapa, Sergio O. (Tecnologico de Monterrey)*

SaD17: 17:15-18:45 Exeter Marriott
3.7.2 Smart Textile and Wearable Systems (Oral Session)
Chair: Lymberis, Andreas (*European Commission*)
Co-Chair: De Rossi, Danilo (*Univ. of Pisa*)

17:15-17:30 SaD17.1
Biosensing and Environmental Sensing for Emergency and Protection E-Textiles 8365-8368
Magenes, Giovanni (Univ. of Pavia); Curone, Davide (Univ. degli Studi di Pavia); Secco, Emanuele Lindo (Eucentre); Bonfiglio, Annalisa (Univ. of Cagliari)*

17:30-17:45 SaD17.2
Electroactive Polymer Patches for Wearable Haptic Interfaces 8369-8372
De Rossi, Danilo (Univ. of Pisa); Carpi, Federico (Univ. of Pisa); Carbonaro, Nicola (Univ. of Pisa); Tognetti, Alessandro (Univ. of Pisa); Scilingo, Enzo Pasquale (Univ. of Pisa)*

17:45-18:00 SaD17.3
Elastic Components for Prosthetic Skin 8373-8376
Lacour, Stéphanie (EPFL); Graz, Ingrid (Johannes Kepler Univ.); Cotton, Darryl (Univ. of Cambridge); Bauer, Siegfried (Johannes Kepler Univ.); Wagner, Sigurd (Princeton Univ.)*

18:00-18:15 SaD17.4
Fabric Opto-Electronics Enabling Healthcare Applications; a Case Study 8377-8379
van Pieteron, Liesbeth (Philips Research); van Abeelen, Frank (Philips Research); van Os, Koen (Philips Research); Hornix, Eefje (Philips Research); Zhou, Guofu (Philips Research); Oversluizen, Gerrit (Philips Research)*

SaD19: 17:15-18:45 Salons AB Marriott
3.8.10 Microfluidic Techniques, Methods and Systems (Oral Session)
Chair: Demirci, Utkan (*Harvard-MIT/HST*)
Co-Chair: Mabuchi, Kunihiko (*The Univ. of Tokyo*)

17:15-17:30 SaD19.1
Miniaturized Osmotic Pump for Oromucosal Drug Delivery with External Readout Station 8380-8383
Herrlich, Simon (HSG-IMIT); Lorenz, Thomas (HSG-IMIT); Marker, Michael (HSG-IMIT); Spieth, Sven (HSG-IMIT); Messner, Stephan (Hahn-Schickard-Institut für Mikro- und Informationstechnik – HSG-IMIT); Zengerle, Roland (Hahn-Schickard-Institut für Mikro- und Informationstechnik – HSG-IMIT)*

17:30-17:45 SaD19.2
A Low Cost Solution for the Fabrication of Dielectrophoretic Microfluidic Devices and Embedded Electrodes 8384-8387
Sano, Michael B. (Virginia Tech); Caldwell, John L. (Virginia Tech); Davalos, Rafael (Virginia Tech)*

17:45-18:00 SaD19.3
An Integrated Open-Cavity System for Magnetic Bead Separation and Manipulation 8388-8391
Abu-Nimeh, Faisal (Michigan State Univ.); Salem, Fathi (Michigan State Univ.)*

18:00-18:15 SaD19.4
PCR-Free, Microfluidic Single Molecule Analysis of Circulating Nucleic Acids in Lung Cancer Patient Serum 8392-8395
Liu, Kelvin J (Johns Hopkins Univ.); Wang, Tza-Huei (Johns Hopkins Univ.)*

18:15-18:30 SaD19.5
Capillary Fractionation of HPLC Substrates by a Microfluidic Droplet Generator for High Throughput Analysis 8396-8399
Hamed, Shereef (Wayne State Univ.); Shay, Brian (Univ. of Michigan); Basu, Amar (Wayne State Univ.)*

18:30-18:45 SaD19.6
Green Microfluidics Made of Corn Proteins **8400-8403**
*Hsiao, Austin** (Univ. of Illinois Urbana Champaign); *Luecha, Jarupat* (Univ. of Illinois Urbana Champaign);
Kokini, Jozef (Univ. of Illinois Urbana Champaign); *Liu, Logan* (Univ. of Illinois at Urbana-Champaign)

SaD20: 17:15-18:45 Salons CD Marriott
3.8.29 Implantable Systems II (Oral Session)
Chair: Maglaveras, Nikolaos (Aristotle Univ. of Thessaloniki)
Co-Chair: de Jongh Curry, Amy (The Univ. of Memphis)

17:15-17:30 SaD20.1
On-Chip Incubation System for Long-Term Microfluidic Cell Culture **8404-8407**
*Takano, Atsushi** (Frontier R&D Ctr., Tokyo Denki Univ.); *Ogawa, Tomohisa* (Tokyo Denki Univ.);
Tanaka, Masato (Tokyo Denki Univ.); *Futai, Nobuyuki* (Tokyo Denki Univ.)

17:30-17:45 SaD20.2
Towards a Cellular Multi-Parameter Analysis Platform: Fluorescence in Situ Hybridization (FISH) on Microhole-Array Chips **8408-8411**
*Kurz, Christian** (Fraunhofer Inst. for Biomedical Eng.); *v.d. Moosdijk, Stefan* (Fraunhofer Institute for Biomedical Eng.); *Thielecke, Hagen* (Fraunhofer Inst. for Biomedical Eng.); *Velten, Thomas* (Fraunhofer Inst.)

17:45-18:00 SaD20.3
A Robust Microfluidic *in Vitro* Cell Perifusion System **8412-8415**
Morris, Christina (Imperial College London); *Banks, Dylan James** (Imperial College London);
Gaweda, Lukasz Gaweda (Imperial College London); *Scott, Steve* (Imperial College London);
Zhu, XiXi (Imperial College London); *Panico, Maria* (Imperial College London);
Georgiou, Pantelis (Imperial College London); *Toumazou, Christofer* (Imperial College London)

18:00-18:15 SaD20.4
Optimization for Enhancement of Signal Effectiveness in Three-Dimensional (3D) Cell Based Electrochemical Biosensor **8416-8419**
*Jeong, Se Hoon** (Samsung Electro-Mechanics); *Ku, Bosung* (Samsung Electro-Mechanics);
Yi, Sang Hyun (Samsung Electro-Mechanics); *Lee, Dong Woo* (Samsung Electro-Mechanics);
Lee, Hye Seon (Samsung Medical Ctr.); *Kim, Jhingook* (Samsung Medical Ctr.)

18:15-18:30 SaD20.5
A Planar Structure Sensitive to Out-Of-Plane Forces for the Force-Controlled Injection of Suspended and Adherent Cells **8420-8423**
*Desmaële, Denis** (CEA, LIST); *Boukallel, Mehdi* (Univ. Pierre et Marie Curie-Paris 6, CNRS-FRE 2507);
Regnier, Stéphane (Univ. Paris 6 – CNRS)

18:30-18:45 SaD20.6
An Inexpensive Alternative Bath System for Electrophysiological Characterization of Isolated Cardiac Tissue **8424-8427**
*Villa, Emanuel** (Univ. of Memphis); *White, Alayne Stewart* (Univ. of Memphis); *Liao, Jun* (Mississippi State Univ.); *de Jongh Curry, Amy* (The Univ. of Memphis)

SaD21: 17:15-18:45 Salon E Marriott
1.4.3 Cardiovascular Signal Processing and Modeling: Intraoperative Haemodynamic Monitoring (Oral Session)
Chair: Cerutti, Sergio (Politecnico di Milano)
Co-Chair: Toschi, Nicola (Univ. Tor Vergata, Rome, Italy)

17:15-17:30 SaD21.1
Arterial Blood Pressure Regulation Following Aorta Clamping and Declamping During Surgery **8428-8431**
*Ferrario, Manuela** (Politecnico di Milano); *Aletti, Federico* (Politecnico di Milano); *Toschi, Nicola* (Univ. Tor Vergata, Rome, Italy); *Canichella, Antonio* (Univ. of Rome "Tor Vergata"); *Coniglione, Filadelfo* (Univ. of Rome "Tor Vergata"); *Sabato, Elisabetta* (Univ. of Rome "Tor Vergata"); *Della Badia Giussi, Florencia* (Univ. of Rome "Tor Vergata"); *Dauri, Mario* (Univ. of Rome "Tor Vergata"); *Sabato, Alessandro Fabrizio* (Univ. of Rome "Tor Vergata"); *Guerrisi, Maria* (Univ. of Rome "Tor Vergata"); *Cerutti, Sergio* (Politecnico di Milano)

17:30-17:45 SaD21.2
Cold Intermittent Cardioplegia Reduces the Acidosis During Prolonged Cardiac Surgery with Cardiopulmonary Bypass 8432-8435
Nollo, Giandomenico (Univ. of Trento); Ferrari, Paolo (CIMEC Ctr. for Mind-Brain Sciences, Univ. of Trento); Graffigna, Angelo (Division of Cardiac Surgery, S.Chiera Hospital, Trento)*

17:45-18:00 SaD21.3
Challenges in Intraoperative Monitoring 8436-8439
Subramaniam, Balachundhar (Beth Israel Deaconess Medical Ctr.)*

18:00-18:15 SaD21.4
Intra and Inter-Beat Modeling of Cardiovascular Dynamics and Control: Assessing Haemodynamic Stability and Responsiveness 8440-8443
Toschi, Nicola (Univ. Tor Vergata, Rome, Italy); Duggento, Andrea (Univ. of Rome "Tor Vergata"); Canichella, Antonio (Univ. of Rome "Tor Vergata"); Coniglione, Filadelfo (Univ. of Rome "Tor Vergata"); Dauri, Mario (Univ. of Rome "Tor Vergata"); Sabato, Alessandro Fabrizio (Univ. of Rome "Tor Vergata"); Guerrisi, Maria (Univ. of Rome "Tor Vergata")*

18:15-18:30 SaD21.5
Instantaneous Assessment of Autonomic Cardiovascular Control During General Anesthesia 8444-8447
Chen, Zhe (Harvard Medical School/MIT); Citi, Luca (MGH/Harvard Medical School); Purdon, Patrick L (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)*

SaD22: 17:15-18:45	Salon F Marriott
1.4.2 Modeling and Analysis of Human Dynamics (Minisymposium)	
Chair: Yamamoto, Yoshiharu (<i>The Univ. of Tokyo</i>)	
Co-Chair: Patel, Shyamal (<i>Harvard Medical School</i>)	

17:15-17:30 SaD22.1
Locomotor Activity Disturbances As BioBehavioral Markers for Attention Deficit Hyperactivity Disorder and Bipolar Disorder *
Teicher, Martin (Harvard Medical School/McLean Hospital); Ohashi, Kyoko (Harvard Medical School/McLean Hospital); Baroni, Argelinda (New York Univ. Child Study Ctr.); Polcari, Ann (McLean Hospital & Northeastern Univ.); Vitaliano, Gordana (Harvard Medical School/McLean Hospital); Faedda, Gianni (Lucio Bini' Mood Disorders Ctr.)*

17:30-17:45 SaD22.2
Depressed Human Dynamics: Behavioral Organization of Locomotor Activity and Its Modeling *
Nakamura, Toru (The Univ. of Tokyo); Yamamoto, Yoshiharu (The Univ. of Tokyo)*

17:45-18:00 SaD22.3
Human Dynamics: From Mobility to Predictability *
Barabasi, Albert-Laszlo (Northeastern Univ.)*

SaD23: 17:15-18:45	Salon G Marriott
2.3.8 Optical Image Reconstruction Algorithms (Oral Session)	
Chair: Vinegoni, Claudio (<i>Vinegoni Claudio</i>)	
Co-Chair: Markey, Mia (<i>The Univ. of Texas at Austin</i>)	

17:15-17:30 SaD23.1
Voxel-Based, Parallel Simulation of Light in Skin Tissue for the Reconstruction of Subsurface Skin Lesion Volumes 8448-8451
D'Alessandro, Brian (New Jersey Inst. of Tech.); Dhawan, Atam (New Jersey Inst. of Tech.)*

17:30-17:45 SaD23.2
3-D Image-Guided Diffuse Optical Tomography Using Boundary Element Method and MPI Implementation 8452-8454
Srinivasan, Subhadra (Dartmouth College); Ghadyani, Hamid (Dartmouth College)*

17:45-18:00 SaD23.3
Automated Spatial Alignment of 3D Torso Images 8455-8458
Bose, Arijit (Univ. of Houston); Shah, Shishir (Univ. of Houston); Reece, Gregory (The Univ. of Texas MD Anderson Cancer Ctr.); Crosby, Melissa (The Univ. of Texas MD Anderson Cancer Ctr.); Beahm, Elisabeth (The Univ. of Texas MD Anderson Cancer Ctr.); Fingeret, Michelle (The Univ. of Texas MD Anderson Cancer Ctr.); Markey, Mia (The Univ. of Texas at Austin); Merchant, Fatima (Univ. of Houston)*

18:00-18:15 SaD23.4
A Photogrammetry-Based System for 3D Surface Reconstruction of Prosthetics and Orthotics 8459-8462
Li, Guangkun (BioCax LLC); Gao, Fan (UT Southwestern Medical Ctr. at Dallas); Wang, Zhigang (BioCAX LLC)*

18:15-18:30 SaD23.5
Optofluidic On-Chip Tomography 8463-8466
Isikman, Serhan (UCLA); Bishara, Waheb (Univ. of California, Los Angeles); Zhu, Hongying (UCLA); Ozcan, Aydogan (UCLA)*

18:30-18:45 SaD23.6
Tractographic Reconstruction Protocol Optimization in the Rat Brain In-Vivo: Towards a Normal Atlas 8467-8470
Preti, Maria Giulia (Politecnico di Milano); Di Marzio, Alessandro (Dept. of BioEng., Politecnico di Milano); Mastropietro, Alfonso (Dept. of BioEng., Politecnico di Milano); Aquino, Domenico (Fondazione IRCCS Istituto Neurologico Carlo Besta); Baselli, Giuseppe (Politecnico di Milano); Lagana, Maria Marcella (IRCCS S.Maria Nascente); Zucca, Ileana (Fondazione IRCCS Istituto Neurologico Carlo Besta); Frassoni, Carolina (Fondazione IRCCS Istituto Neurologico Carlo Besta); Spreafico, Roberto (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy)*

SaD24: 17:15-18:45	Salon HI Marriott
2.4.13 X-Ray, CT, PET, and SPECT II (Oral Session)	
Chair: Akay, Metin (<i>Univ. of Houston</i>)	
Co-Chair: Adhami, Reza (<i>The Univ. of Alabama in Huntsville</i>)	

17:15-17:30 SaD24.1
A Correlation and LS-SVM Based Approach to Mitigate Motion Artifacts in FDK Based 3D Cone-Beam Tomography 8471-8474
Bhowmik, Ujjal (The Univ. of Alabama in Huntsville, USA)*

17:30-17:45 SaD24.2
Segmentation of Brain Blood Vessels Using Projections in 3-D CT Angiography Images 8475-8478
Babin, Danilo (Ghent Univ.)*

17:45-18:00 SaD24.3
A Graph-Theoretic Approach for Segmentation of PET Images 8479-8482
Bagci, Ulas (Natl. Inst. of Health); Yao, Jianhua (Natl. Inst. of Health); Caban, Jesus (Natl. Inst. of Health); Turkbey, Evrim (NIH); Aras, Omer (Univ. of Maryland); Mollura, Daniel J. (Natl. Inst. of Health)*

18:00-18:15 SaD24.4
The Impact of Reconstruction Algorithms on Semi-Automatic Small Lesion Segmentation for PET: A Phantom Study 8483-8486
Ballangan, Cherry Galatia (The Univ. of Sydney); Chan, Chung (Univ. of Sydney); Wang, Xiu Ying (The Univ. of Sydney); Feng, Dagan (The Univ. of Sydney)*

18:15-18:30 SaD24.5
Constrained Bayesian Streak Artifact Reduction Approach for Contrast Enhanced Computed Tomography Imaging of the Intervertebral Disc 8487-8490
Wong, Alexander (Univ. of Waterloo)*

18:30-18:45 SaD24.6
Image Enhancement by Spectral-Error Correction for Dual-Energy Computed Tomography 8491-8494
Park, Kyung-Kook (Korea Univ.); Oh, Chang-Hyun (Korea Univ.); Akay, Metin (Univ. of Houston)*

SaD25: 17:15-18:45 Salon JK Marriott
2.2.6 High Frequency Ultrasound and Elastography (Oral Session)
Chair: Molinari, Filippo (*Pol. di Torino*)
Co-Chair: Gao, Yingxin (*Cornell Univ.*)

17:15-17:30 SaD25.1
Using Ultrasound Imaging to Identify Landmarks in Vertebra Models to Assess Spinal Deformity 8495-8498
*Chen, Wei** (*Univ. of Alberta*); *Lou, Edmond H.* (*Univ. of Alberta*); *Le, Lawrence H* (*Univ. of Alberta*)

17:30-17:45 SaD25.2
Ultrasound Tissue Characterization of Prostate Biopsy Tissues by Ultrasound Speed Microscope 8499-8502
Tanoue, Hideki (*Tohoku Univ.*); *Hagiwara, Yoshihiro* (*Tohoku Univ. Graduate School of Medicine*);
Kobayashi, Kazuto (*Honda Elec.Co., Ltd.*); *Saijo, Yoshifumi** (*Tohoku Univ.*)

17:45-18:00 SaD25.3
Three-Dimensional Mapping of Strain in Ex Vivo Porcine Cornea with an Ultrasound Elasticity Microscope 8503-8506
*Hollman, Kyle** (*Sound Sight Research*); *Tripathy, Sakya* (*Simulia*); *Kim, Kang* (*Univ. of Michigan*)

18:00-18:15 SaD25.4
Simulating Ultrasound Fields for 2D Phased-Array Probes Design Optimization 8507-8510
Matrone, Giulia (*Univ. of Pavia*); *Quaglia, Fabio* (*STMicroelectronics*); *Magenes, Giovanni** (*Univ. of Pavia*)

18:15-18:30 SaD25.5
Integrating Active Shape Models into Ultrasound Elastography to Diagnose Musculoskeletal Injuries: A 2D Simulation Study 8511-8514
*Cochran, Amy** (*Cornell Univ.*); *Gao, Yingxin* (*Cornell Univ.*)

18:30-18:45 SaD25.6
Stiffness Mapping Prostate Biopsy Samples Using a Tactile Sensor 8515-8518
*Peng, Qiyu** (*Lawrence Berkeley Natl. Lab.*); *Omata, Sadao* (*Nihon Univ.*); *Peehl, Donna M.* (*Stanford Univ. School of Medicine*); *Constantinou, Chris* (*Stanford Univ. School of Medicine*)

SaD27: 17:15-18:45 Staffordshire at the Westin
8.3.9 Biomechanics and Robotics: Clinical Evaluation in Rehabilitation and Orthopedics (Oral Session)
Chair: Zequera Diaz, Martha Lucia (*Pontificia Univ. Javeriana*)
Co-Chair: Della Croce, Ugo (*Univ. of Sassari*)

17:15-17:30 SaD27.1
Antagonistic Active Knee Prosthesis. A Metabolic Cost of Walking Comparison with a Variable-Damping Prosthetic Knee. 8519-8522
*Martinez-Villalpando, Ernesto Carlos** (*Massachusetts Inst. of Tech.*); *Mooney, Luke* (*MIT Massachusetts Inst. of Tech.*); *Elliott, Grant* (*MIT*); *Herr, Hugh* (*MIT*)

17:30-17:45 SaD27.2
Static Ankle Impedance in Stroke and Multiple Sclerosis: A Feasibility Study 8523-8526
*Lee, Hyunglae** (*Massachusetts Inst. of Tech.*); *Patterson, Tara* (*Providence VA Medical Ctr.; Brown Univ.*);
Ahn, Joeeun (*MIT*); *Klenk, Daniel* (*MIT*); *Lo, Albert* (*Brown Univ.; Dept. of Veteran Affairs*);
Krebs, Hermano Igo (*MIT*); *Hogan, Neville* (*Massachusetts Inst. of Tech.*)

17:45-18:00 SaD27.3
Accuracy and Reliability of Haptic Spasticity Assessment Using HESS (Haptic Elbow Spasticity Simulator) 8527-8530
*Kim, Jonghyun** (*Natl. Inst. of Health*); *Damiano, Diane* (*Natl. Inst. of Health*);
Park, Hyung-Soon (*Natl. Inst. of Health*)

18:00-18:15 SaD27.4
Assessment of the Effect of Time in the Repeatability of the Stabilometric Parameters in Diabetic and Non-Diabetic Subjects During Bipodal Standing Using the LorAn Pressure Distribution Measurement System 8531-8534
*Zequera Diaz, Martha Lucia** (*Pontificia Univ. Javeriana*)

18:15-18:30

SaD27.5

Comparison of Tone Compensation and Spring Assistance for Hand Rehabilitation in HEXORR 8535-8538

Godfrey, Sasha Blue (Catholic Univ. of America); Holley, Rahsaan (Natl. Rehabilitation Hospital); Lum, Peter (Natl. Rehabilitation Hospital, Catholic Univ. of America, Veteran Affairs)*

18:30-18:45

SaD27.6

A Novel Cable-Driven Robotic Training Improves Locomotor Function in Individuals Post-Stroke 8539-8542

Wu, Ming (Rehabilitation Inst. of Chicago); Landry, Jill (Rehabilitation Inst. of Chicago); Yen, Sheng-che (Rehabilitation Inst. of Chicago); Schmit, Brian (Marquette Univ.); Hornby, George (Rehabilitation Inst. of Chicago); Rafferty, Miriam (Rehabilitation Inst. of Chicago)*