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Index



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Program in Chronological Order

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Wednesday, 18 July 2018

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**Signal Processing and Classification for Wearable Systems and Smartphones –
Poster Session (Theme 1) (Poster Session)**

17:15-19:00

WePoS-08.1

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Ganguly, Anshuman* (*University of Texas at Dallas*); Kucuk, Abdullah (*University of Texas at Dallas*);
Panahi, Issa (*University of Texas at Dallas*)

17:15-19:00

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Mohammadzadeh, Farrokh* (*North Carolina State University*); Nam, Chang S. (*North Carolina State University*);
Lobaton, Edgar (*North Carolina State University*)

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Wang, Sikai (*Institute of Semiconductors, Chinese Academy of Sciences; University of Chinese Academy of
Sciences*); Liu, Ming* (*Institute of Semiconductors, Chinese Academy of Sciences*); Pang, Bo (*Institute of
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Sciences*); Yao, Zhaolin (*Institute of Semiconductors, Chinese Academy of Sciences*); Zhang, Xu (*Tsinghu
University*); Chen, Hongda (*Institute of Semiconductors, CAS*)

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Azam, Muhammad Awais (*University of Engineering and Technology, Taxila*); Shahzadi, Aeman (*University of
Engineering & Technology Taxila*); Khalid, Asra (*COMSATS Institute of Information Technology, Wah Cantt*);
Anwar, Syed* (*University of Engineering and Technology*); Naeem, Usman (*East London University, London*)

Signal Processing and Classification in Sleep Studies – Poster Session (Theme 1) (Poster Session)

17:15-19:00

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Van Steenkiste, Tom* (*Ghent Univ. - imec*); Groenendaal, Willemijn (*imec Netherlands*); Ruyssinck, Joeri (*Ghent
Univ. - imec*); Dreesen, Pauline (*Future Health, Ziekenhuis Oost-Limburg*); Klerkx, Susie (*Dept. of Pneumology,
Ziekenhuis Oost-Limburg*); Smeets, Christophe (*Ziekenhuis Oost-Limburg*); de Francisco, Ruben (*imec*);
Deschrijver, Dirk (*Ghent Univ. - imec*); Dhaene, Tom (*Ghent Univ., Dept. of Information Technology (INTEC)*)

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Automatic Sleep Stage Classification** 453-456

Phan, Huy* (*Univ. of Oxford*); Andreotti, Fernando (*Univ. of Oxford*); Cooray, Navin (*Institute of BioMedical
Engineering, Univ. of Oxford*); Chén, Oliver (*Univ. of Oxford*); De Vos, Maarten (*Univ. of Oxford*)

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Pinto Bonnesen, Mathias* (*Technical University of Denmark (DTU)*); Sorensen, Helge B D (*Technical University
of Denmark*); Jennum, Poul (*University of Copenhagen, Demnar*)

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WePoS-09.4

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Missouri*); Popescu, Mihail (*University of Missouri*); Zanjirani Farahani, Nasibeh (*University of Missouri*)

17:15-19:00

WePoS-09.5

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Shahin, Mostafa* (*Texas A&M University at Qatar*); Mulafter, Lamana (*Texas A&M University at Qatar*);
Penzel, Thomas (*Charite Universitätsmedizin Berlin*); Ahmed, Beena (*University of New South Wales*)

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 Bandyopadhyay, Soma* (*Tata Consultancy Services*); Ukil, Arijit (*Tata Consultancy Services*); Puri, Chetanya (*Research and Innovation, Tata Consultancy Services, India*); Singh, Rituraj (*Tata Consultancy Services*); Pal, Arpan (*Tata Consultancy Services*); Murthy, C. A. (*Indian Statistical Institute*)

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 Doessel, Olaf* (*Karlsruhe Institute of Technology (KIT)*); Oesterlein, Tobias (*Institute of BioMedical Engineering, Karlsruhe Institute of Technology*); Unger, Laura Anna (*Institute of BioMedical Engineering, Karlsruhe Institute of Technology*); Loewe, Axel (*Karlsruhe Institute of Technology (KIT)*); Schmitt, Claus (*Staedtisches Klinikum Karlsruhe*); Luik, Armin (*Staedtisches Klinikum Karlsruhe*)

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 Nardelli, Mimma (*University of Pisa*); Lanata, Antonio (*University of Pisa*); Valenza, Gaetano (*University of Pisa*); Sgorbini, Micaela (*Dept. of Veterinary Sciences, University of Pisa*); Baragli, Paolo (*Dept. of Veterinary Sciences, University of Pisa*); Scilingo, Enzo Pasquale* (*University of Pisa*)

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 Suliman, Ahmad* (*Kansas State University*); Carlson, Charles (*Kansas State University*); Warren, Steve (*Kansas State University*); Thompson, David (*Kansas State University*)

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 Liu, Na (*Beijing University of Posts and Telecommunications*); Xing, Ying (*Beijing University of Posts and Telecommunications*); Zhou, Xiaoguang* (*Beijing University of Posts and Telecommunications*)
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 Leite, Argentina Maria* (*Universidade de Trás os Montes e Alto Douro*); Silva, Maria Eduarda (*Universidade do Porto*); Rocha, Ana Paula (*Universidade do Porto, Faculdade de Ciencias*)
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 Li, Xin (*Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Key Lab for Health Informatics of Chinese Academy of Sciences*); Liu, Jikui (*Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Key Lab for Health Informatics of Chinese Academy of Sciences*); Li, Ye* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*)
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 Yang, Xiaofeng* (*The University of Electro-Communications*); Ishibashi, Koichiro (*The University of Electro-Communications*); Hoi, Le (*National Hospital for Tropical Diseases*); Vu, Trung Nguyen (*National Hospital for Tropical Diseases*); Van, Kinh Nguyen (*National Hospital for Tropical Diseases*); Sun, Guanghao (*The University of Electro-Communications*)

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 Anwar, Syed* (*University of Engineering and Technology*); Yousaf, Sobia (*UET Taxila*); Majid, Muhammad (*University of Engineering and Technology, Taxila*)

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 Chung, Moo K.* (*University of Wisconsin-Madison*); Luo, Zhan (*University of Wisconsin - Madison*); Adluru, Nagesh (*University of Wisconsin-Madison*); Alexander, Andrew (*University of Wisconsin*); Davidson, Richard J. (*University of Wisconsin-Madison*); Goldsmith, H. Hill (*University of Wisconsin-Madison*)

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 Zhi, Dongmei (*Institute of Automation, Chinese Academy of Sciences, Beijing*); Ma, Xiaohong (*Psychiatric Lab and Mental Health Center, State Key Lab of Biotherapy, West China Hospital of Sichuan University*); Lv, Luxian (*Dept. of Psychiatry, Henan Mental Hospital, The Second Affiliated Hospital of Xinxiang Medical University*); Ke, Qing (*Dept. of Neurology, The First Affiliated Hospital, Zhejiang University School of Medicine*); Yang, Yongfeng (*Dept. of Psychiatry, Henan Mental Hospital, The Second Affiliated Hospital of Xinxiang Medical University*); Yang, Xiao (*Psychiatric Lab and Mental Health Center, State Key Lab of Biotherapy, West China Hospital of Sichuan University*); Pan, Miao (*Dept. of Psychiatry, Henan Mental Hospital, The Second Affiliated Hospital of Xinxiang Medical University, Xinxiang*); Qi, Shile (*Brainnetome center & National Lab of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences*); Jiang, Rongtao (*Institute of Automation, Chinese Academy of Sciences*); Du, Yuhui (*The Mind Research Network*); Yu, Qingbao (*The Mind Research Network*); Calhoun, Vince (*The Mind Research Network/University of New Mexico*); Jiang, Tianzi (*Institute of Automation*); Sui, Jing* (*Institute of Automation, Chinese Academy of Sciences*)

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 Nazib, Abdullah* (*Queensland Univ. of Technology*); Galloway, James (*Queensland Univ. of Technology*); Fookes, Clinton (*Queensland Univ. of Technology*); Perrin, Dimitri (*Queensland Univ. of Technology*)

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 Nowak, Michael* (*Texas A&M University*); Choe, Yoonsuck (*Texas A&M University*)

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 Xue, Zeyu (*Shanghai University*); Shi, Jun (*Shanghai University*); Dai, Yakang (*University of Minnesota*); Dong, Yun (*Shanghai East Hospital of Tongji University*); Zhang, Qi* (*Shanghai University*); Zhang, Yingchun (*The Second Affiliated Hospital of Soochow University*)

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Jarrahi, Behnaz* (<i>Stanford University School of Medicine</i>); Martucci, Katherine (<i>Stanford School of Medicine</i>); Nilakantan, Aneesha (<i>Stanford School of Medicine</i>); Mackey, Sean (<i>Stanford University School of Medicine</i>)	
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Indovina, Iole (<i>Lab of Neuromotor Physiology, IRCCS Santa Lucia Foundation</i>); Riccelli, Roberta (<i>Lab of Neuromotor Physiology, IRCCS Santa Lucia Foundation</i>); Passamonti, Luca (<i>University of Cambridge</i>); Maffei, Vincenzo (<i>IRCCS Santa Lucia Foundation</i>); Bosco, Gianfranco (<i>Dept. of Systems Medicine, University of Rome "Tor Vergata", Rome, Italy</i>); Lacquaniti, Francesco (<i>Dept. of Neuromotor Physiology Fondazione Santa Lucia IRCCS</i>); Toschi, Nicola* (<i>University of Rome "Tor Vergata", Faculty of Medicine</i>)	
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Thomas, Emily (<i>King's College London</i>); Toth, Daniel* (<i>King's College London</i>); Kurzendorfer, Tanja (<i>Friedrich-Alexander Univ. Erlangen-Nuremberg</i>); Rhode, Kawal (<i>King's College London</i>); Mountney, Peter (<i>Siemens</i>)	
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Cao, Yihui* (<i>Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences</i>); Yao, Linlin (<i>State Key Lab of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences</i>); Jin, Qinhua (<i>Chinese PLA General Hospital</i>); Jing, Jing (<i>Dept. of Cardiology, Chinese PLA General Hospital, Beijing, P. R. China</i>); Chen, Yundai (<i>Dept. of Cardiology, Chinese PLA General Hospital, Beijing, P. R. China</i>); Qin, Xianjing (<i>Fourth Military Medical University</i>); Li, Jianan (<i>Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences</i>); Zhu, Rui (<i>Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences</i>)	
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Huang, Weimin* (<i>Institute for Infocomm Research, Agency for Science Technology and Research</i>); Huang, Lu (<i>Nanyang Technological University</i>); Lin, Zhiping (<i>Nanyang Technological University</i>); Huang, Su (<i>Institute for Infocomm Research, A*STAR, Singapore</i>); Chi, Yanling (<i>Institute for Infocomm Research</i>); Zhou, Jiayin (<i>Institute for Infocomm Research</i>); Zhang, Jun-Mei (<i>National Heart Center</i>); Tan, Ru San (<i>National Heart Center</i>); Zhong, Liang (<i>National Heart Centre Singapore</i>)	

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Heredia Juesas, Juan (<i>Northeastern University</i>); Graham, Katherine (<i>Northeastern University</i>); Thatcher, Jeffrey (<i>Spectral MD</i>); Wensheng, Fan (<i>Spectral MD</i>); DiMaio, J. Michael (<i>UT Southwestern Medical Center of Dallas</i>); Martinez Lorenzo, Jose A.* (<i>Northeastern University</i>)	
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Govindaiah, Arun* (<i>iHealthScreen Inc.</i>); Bhuiyan, Alauddin (<i>iHealthScreen Inc.</i>); Smith, Roland Theodore (<i>Professor</i>)	
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Sandeep Jaipurkar, Shobhit* (<i>National Univ. of Singapore</i>); Wang, Jie (<i>National Univ. of Singapore, Agency for Science Technology and Research (A*STAR)</i>); Zeng, Zeng (<i>I2R, A*STAR</i>); Teo, Sin Gee (<i>Institute for Infocomm Research</i>); Veeravalli, Bharadwaj (<i>National Univ. of Singapore</i>); Chua, Matthew (<i>National Univ. of Singapore</i>)	
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Khosravan, Naji* (<i>Center for Research in Computer Vision-University of Central Florida</i>); Bagci, Ulas (<i>University of Central Florida</i>)	
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Sinclair, Matthew* (<i>Imperial College London</i>); Baumgartner, Christian Frederik (<i>ETH Zürich</i>); Matthew, Jacqueline (<i>King's College London</i>); Bai, Wenjia (<i>Imperial College London</i>); Cerrolaza, Juan J. (<i>Imperial College London</i>); Li, Yuanwei (<i>Imperial College London</i>); Smith, Sandra (<i>King's College London</i>); Knight, Caroline (<i>King's College London</i>); Kainz, Bernhard (<i>Imperial College London</i>); Hajnal, Joseph V. (<i>King's College London</i>); King, Andrew Peter (<i>King's College London</i>); Rueckert, Daniel (<i>Imperial College London</i>)	
17:15-19:00	WePoS-17.3
A Novel Stacked Generalization of Models for Improved TB Detection in Chest Radiographs 718-721	
Rajaraman, Sivaramakrishnan* (<i>National Library of Medicine</i>); Candemir, Sema (<i>National Library of Medicine</i>); Xue, Zhiyun (<i>National Library of Medicine</i>); Alderson, Philip (<i>St. Louis University</i>); Kohli, Marc (<i>Dept. of Radiology and BioMedical Imaging, University of California San Francisco</i>); Abuya, Joseph (<i>Dept. of Radiology and Imaging, School of Medicine, Moi University</i>); Thoma, George (<i>National Library of Medicine, NIH</i>); Antani, Sameer (<i>National Library of Medicine</i>)	

17:15-19:00	WePoS-17.4
Ischemic Stroke Clinical Outcome Prediction based on Image Signature Selection from Multimodality Data 722-725	
Cui, Hui (<i>University of Sydney</i>); Wang, Xiu Ying* (<i>University of Sydney</i>); Bian, Yu (<i>University of Sydney</i>); Song, Shaoli (<i>Shanghai Jiao Tong University</i>); Feng, Dagan (<i>University of Sydney</i>)	
17:15-19:00	WePoS-17.5
Merging of Classifiers for Enhancing Viable vs Non-Viable Tissue Discrimination on Human Injuries 726-729	
Heredia Juesas, Juan (<i>Northeastern University</i>); Graham, Katherine (<i>Northeastern University</i>); Thatcher, Jeffrey (<i>Spectral MD</i>); Wensheng, Fan (<i>Spectral MD</i>); DiMaio, J. Michael (<i>UT Southwestern Medical Center of Dallas</i>); Martinez Lorenzo, Jose A.* (<i>Northeastern University</i>)	
17:15-19:00	WePoS-17.6
Automated Assessment of Loss of Consciousness using Whisker and Paw Movements during Anesthetic Dosing in Head-Fixed Rodents 730-733	
An, Jingzhi* (<i>MIT</i>); Flores, Francisco Javier (<i>Massachusetts General Hospital</i>); Kodandaramaiah, Suhasa (<i>University of Minnesota - Twin Cities</i>); Betta, Isabella Dalla (<i>Wellesley College</i>); Nikolaeva, Ksenia (<i>Massachusetts Institute of Technology</i>); Boyden, Edward (<i>MIT</i>); Forest, Craig R. (<i>University of Minnesota-Twin Cities</i>); Brown, Emery N. (<i>MGH-Harvard Medical School-MIT</i>)	
WePoS-18: 17:15-19:00	Exhibit Hall 2
Magnetic Resonance Imaging – Poster (Theme 2) (Poster Session)	
17:15-19:00	WePoS-18.1
Robotic Path Planning using A* Algorithm for Automatic Navigation in Magnetic Resonance Angiography 734-737	
Chang, Yuchou (<i>University of Houston – Downtown</i>); Wang, Xiaoyan* (<i>Yuxi Normal University</i>); An, Zhenzhou (<i>Yuxi Normal University</i>); Wang, Haifeng (<i>Chinese Academy of Sciences</i>)	
17:15-19:00	WePoS-18.2
Decision Supporting Model for One-Year Conversion Probability from MCI to AD using CNN and SVM 738-741	
Shen, Ting (<i>Shanghai University</i>); Jiang, Jiehui* (<i>Shanghai University</i>); Li, Yupeng (<i>Shanghai University</i>); Ping, Wu (<i>PET Center, Huashan Hospital, Fudan University</i>); Zuo, Chuantao (<i>PET Center, Huashan Hospital</i>); Yan, Zhuangzhi (<i>Shanghai University</i>)	
17:15-19:00	WePoS-18.3
Symmetry Determined Superpixels for Efficient Lesion Segmentation of Ischemic Stroke from MRI 742-745	
Vupputuri, Anusha* (<i>Indian Institute of Technology Kharagpur</i>); Dighade, Susheelkumar (<i>Indian Institute of Technology, Kharagpur</i>); Peddakota, Sandhya Prasanth (<i>Indian Institute of Technology, Kharagpur</i>); Ghosh, Nirmalya (<i>Indian Institute of Technology (IIT), Kharagpur</i>)	
17:15-19:00	WePoS-18.4
A Stringent Fiber Distance Measure for dMRI Tractography Clustering and Segmentation 746-749	
Pinto, Daniela (<i>University of Concepcion</i>); Román, Claudio (<i>Universidad de Concepcion</i>); Guevara, Miguel (<i>University of Concepcion</i>); Poupon, Cyril (<i>CEA I2BM NeuroSpin</i>); Mangin, Jean-François (<i>CEA I2BM NeuroSpin</i>); Guevara, Pamela* (<i>University of Concepción</i>)	
17:15-19:00	WePoS-18.5
Breast Region Segmentation using Convolutional Neural Network in Dynamic Contrast Enhanced MRI 750-753	
Xu, Xiaowei (<i>Shanghai Jiao Tong University</i>); Fu, Ling (<i>Shanghai Jiao Tong University</i>); Chen, Yizhi (<i>Shanghai Jiao Tong University</i>); Larsson, Rasmus (<i>Shanghai Jiao Tong University</i>); Suo, Shiteng (<i>Renji Hospital, School of Medicine, Shanghai Jiao Tong University</i>); Hua, Jia (<i>Renji Hospital, School of Medicine, Shanghai Jiao Tong University</i>); Zhang, Dandan (<i>Dept. of Radiology, Renji Hospital, Shanghai Jiao Tong University School of Medicine</i>); Zhao, Jun* (<i>Shanghai Jiao Tong University</i>)	
17:15-19:00	WePoS-18.6
A Novel Multimodal MRI Analysis for Alzheimer's Disease based on Convolutional Neural Network 754-757	
Wang, Yan (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Yang, Yanwu (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Guo, Xin (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Ye, Chenfei (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Gao, Na (<i>Harbin Institute of Technology</i>); Fang, Yuan (<i>Harbin Institute of Technology (Shenzhen)</i>); Ma, Heather Ting* (<i>Harbin Institute of Technology Shenzhen Graduate School</i>)	

17:15-19:00	WePoS-18.7
A Coupled Modified Reaction Diffusion and Biomechanical Models for Cerebral Tumor Growth Modeling in Presence of Treatment 758-761	
Elazab, Ahmed (<i>Shenzhen University</i>); Le, Minh Hung (<i>School of BioMedical Engineering, Health Science Center, Shenzhen University</i>); Wang, Tianfu (<i>Shenzhen University</i>); Lei, Baiying* (<i>Shenzhen University</i>); Hu, Qingmao (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Bai, Hongmin (<i>Dept. of Neurosurgery, Guangzhou General Hospital of Guangzhou Military Command, Guangzhou, China</i>); Yang, Mengya (<i>Shenzhen University</i>)	
17:15-19:00	WePoS-18.8
Effects of Non-Linear Correlation Measures on Brain Functional Connectivity in Parkinson's Disease 762-765	
Akbari, Shirin (<i>Shahid Beheshti Univ. of Medical Sciences</i>); Fatemizadeh, Emad* (<i>Sharif Univ. of Technology</i>)	
WePoS-19: 17:15-19:00	Exhibit Hall 2
New Imaging Methods and Applications (II) – Poster (Theme 2) (Poster Session)	
17:15-19:00	WePoS-19.1
Spread Spectrum Steganographic Capacity Improvement for Medical Image Security in Teleradiology 766-769	
Eze, Peter* (<i>University of Melbourne</i>); Udaya, Parampalli (<i>University of Melbourne</i>); Evans, Robin John (<i>University of Melbourne</i>); Liu, Dongxi (<i>CSIRO Data61</i>)	
17:15-19:00	WePoS-19.2
Exudates Segmentation using Fully Convolutional Neural Network and Auxiliary Codebook 770-773	
Chudzik, Piotr* (<i>University of Lincoln</i>); Al-Diri, Bashir (<i>The University of Lincoln</i>); Caliva', Francesco (<i>University of Lincoln</i>); Ometto, Giovanni (<i>Aarhus University Hospital</i>); Hunter, Andrew (<i>University of Lincoln</i>)	
17:15-19:00	WePoS-19.3
Automatic Vessel Detection Technique in Laparoscopic Surgical Imaging Including Surgical Instruments 774-777	
Jo, Kyungmin (<i>Asan Institute for Life Sciences, Asan Medical Center</i>); Choi, Jaesoon* (<i>Asan Institute for Life Sciences, Asan Medical Center</i>)	
17:15-19:00	WePoS-19.4
Pose-Invariant Face Detection by Replacing Deep Neurons with Capsules for Thermal Imagery in Telemedicine 778-781	
Kwasniewska, Alicja* (<i>Gdansk University of Technology</i>); Ruminski, Jacek (<i>Gdansk University of Technology</i>); Szankin, Maciej (<i>Intel Corp.</i>); Czuszyński, Krzysztof (<i>Gdansk University of Technology</i>)	
17:15-19:00	WePoS-19.5
Use of Apparent Diffusion Coefficient Images to Predict Response to Induction Chemotherapy in Head and Neck Cancer 782-785	
Bologna, Marco* (<i>Politecnico di Milano</i>); Montin, Eros (<i>Politecnico di Milano</i>); Corino, Valentina (<i>Politecnico di Milano</i>); Bossi, Paolo (<i>Istituto Nazionale dei Tumori</i>); Calareso, Giuseppina (<i>Istituto Nazionale dei Tumori</i>); Licitra, Lisa (<i>Fondazione IRCCS Istituto Nazionale dei Tumori</i>); Mainardi, Luca (<i>Politecnico di Milano</i>)	
17:15-19:00	WePoS-19.6
Development of Software for Obtaining Image Attributes for Evaluation of the Wound Cicatricial Process 786-789	
Costa, Alexandre (<i>Universidade Tecnológica Federal do Paraná</i>); Mehl, Adriano (<i>Federal University of Technology of Parana</i>); Schneider, Jr., Bertoldo (<i>Federal University of Technology of Parana - Brazil</i>); Abatti, Paulo J. (<i>Federal University of Technology of Parana</i>); Stadnik, Adriana Maria Wan (<i>UTFPR - Federal Technological University of Paraná</i>); De Faria, Rubens Alexandre* (<i>Federal University of Technology of Parana</i>)	
17:15-19:00	WePoS-19.7
Mathematical Model for Body Fat Percentage in Military using Thermal Imaging and Circumferences 790-793	
Neves, Eduardo Borba (<i>Federal Technological University of Paraná (UTFPR)</i>); Salamunes, Ana Carla Chierighini (<i>Universidade Tecnológica Federal do Parana</i>); Stadnik, Adriana Maria Wan* (<i>UTFPR - Federal Technological University of Paraná</i>)	

17:15-19:00	WePoS-19.8
Co-Sparse Analysis Model based Image Registration to Compensate Brain Shift by using Intra-Operative Ultrasound Imaging 794-797	
Farnia, Parastoo (<i>Tehran University of Medical Sciences</i>); Najafzadeh, Ebrahim (<i>Tehran University of Medical Sciences</i>); Ahmadian, Alireza (<i>Tehran University of Medical Sciences</i>); Makki Abadi, Bahador (<i>Tehran University of Medical Sciences</i>); Maysam, Alimohamadi (<i>Tehran University of Medical Sciences</i>); Alirezaie, Javad* (<i>Ryerson University, University of Waterloo</i>)	
17:15-19:00	WePoS-19.9
Reversible Image Watermarking for Health Informatics Systems using Distortion Compensation in Wavelet Domain 798-801	
Zarrabi, Hamidreza (<i>Isfahan Univ. of Technology</i>); Hajabdollahi, Mohsen (<i>Isfahan Univ. of Technology</i>); Soroushmehr, S.M.Reza* (<i>Univ. of Michigan, Ann Arbor</i>); Karimi, Nader (<i>Isfahan Univ. of Technology</i>); Samavi, Shadrokh (<i>McMaster Univ.</i>); Najarian, Kayvan (<i>Univ. of Michigan - Ann Arbor</i>)	
17:15-19:00	WePoS-19.10
MRI based Brain-Specific 3D-Printed Model Aligned to Stereotactic Space for Registering Histology to MRI 802-805	
Boopathy Jegathambal, Sethu Kovendhan (<i>McGill Univ.</i>); Mok, Kelvin (<i>McGill Univ.</i>); Rudko, David A. (<i>McGill Univ., Dept. of BioMedical Engineering, Dept. of Neurology and Neurosurgery</i>); Shmuel, Amir* (<i>McGill Univ.</i>)	
WePoS-20: 17:15-19:00	Exhibit Hall 2
Optical Imaging and Microscopy – Poster (Theme 2) (Poster Session)	
17:15-19:00	WePoS-20.1
Background Modeling Method to Identify Interactions between Circulating Tumor Cells and Dendritic Cells 806-809	
Zeng, Xuejiao (<i>Shanghai Jiao Tong University</i>); Wei, Dan (<i>School of BioMedical Engineering, Shanghai Jiao Tong University</i>); Wei, Xunbin* (<i>Shanghai Jiao Tong University</i>)	
17:15-19:00	WePoS-20.2
Segmentation of Overlapped Steatosis in Whole-Slide Liver Histopathology Microscopy Images 810-813	
Roy, Mousumi* (<i>Stony Brook University</i>); Wang, Fusheng (<i>Stony Brook University</i>); Teodoro, George (<i>University of Brasilia</i>); Miriam, Vos (<i>Emory University</i>); Farris, Alton (<i>Emory University</i>); Kong, Jun (<i>Emory University</i>)	
17:15-19:00	WePoS-20.3
Multiple Neutrophils Tracking in Vitro Array using High-Order Temporal Information 814-817	
Yang, Fan* (<i>Temple Univ.</i>); Soroush, Fariborz (<i>Temple Univ.</i>); Yu, Sijia (<i>Temple Univ.</i>); Deng, Ge (<i>Temple Univ.</i>); Kiani, Mohammad (<i>Temple Univ.</i>); Ling, Haibin (<i>Temple Univ.</i>); Chu, Peng (<i>Temple Univ.</i>)	
17:15-19:00	WePoS-20.4
Tracking Gene Expression via Light Sheet Microscopy and Computer Vision in Living Organisms 818-821	
Buckner, Eli* (<i>North Carolina State University</i>); Melvin, Charles (<i>North Carolina State University</i>); Ottley, Chanae (<i>North Carolina State University</i>); Balaguer, Angels de Luis (<i>North Carolina State University</i>); Sozzani, Rosangela (<i>North Carolina State University</i>); Williams, Cranos (<i>North Carolina State University</i>)	
17:15-19:00	WePoS-20.5
Confocal Imaging of Cytosolic Ca²⁺ and Fuzzy Clustering Reveal the Circuit Topology Details Underlying Synchronization in Hippocampal Neurons 822-825	
Swain, Sarpras (<i>Indian Institute of Technology, Hyderabad</i>); Pantula, Priyanka (<i>Indian Institute of Technology, Hyderabad</i>); Mitra, Kishalay (<i>Indian Institute of Technology Hyderabad</i>); Giri, Lopamudra* (<i>Indian Institute of Technology, Hyderabad</i>)	
17:15-19:00	WePoS-20.6
Enhanced Image Sensor Module for Head-Mounted Microscopes 826-829	
Juneau, Jill* (<i>Rice University</i>); Duret, Guillaume (<i>Rice University</i>); Robinson, Jacob T. (<i>Rice University</i>); Kemere, Caleb (<i>Rice University</i>)	

Optical Imaging (II) – Poster (Theme 2) (Poster Session)

- 17:15-19:00 WePoS-21.1
Detecting Ulcerative Colitis using Optical Coherence Elastography 830-833
 Larin, Kirill* (*University of Houston*); Mohan, Chandra (*UH*); Liu, Chih-Hao (*University of Houston*); Du, Yong (*University of Houston*); Soomro, Sanam (*University of Houston*); Ho, ThienKim (*University of California, Berkeley*); Nair, Achuth (*University of Houston*)
- 17:15-19:00 WePoS-21.2
Vulnerable Plaque Recognition based on Attention Model with Deep Convolutional Neural Network 834-837
 Shi, Peiwen* (*Xi'an Jiao Tong University*); Xin, Jingmin (*Xi'an Jiao Tong University*); Liu, Sijie (*Xi'an Jiao Tong University*); Deng, Yang-Yang (*Xi'an Jiao Tong University*); Zheng, Nanning (*Xi'an Jiao Tong University*)
- 17:15-19:00 WePoS-21.3
Comparing Immunofluorescent versus H&E Glandular Architecture Features in Prognostic Models from Prostate Biopsies 838-841
 Khan, Faisal* (*Rutgers, The State University of New Jersey*); Scott, Richard (*Icahn School of Medicine at Mount Sinai*); Donovan, Michael (*Icahn School of Medicine at Mount Sinai*); Fernandez, Gerardo (*Icahn School of Medicine at Mount Sinai*)
- 17:15-19:00 WePoS-21.4
Cell Counting and Segmentation of Immunohistochemical Images in the Spinal Cord: Comparing Deep Learning and Traditional Approaches 842-845
 Pham, Bau* (*UCLA*); Gaonkar, Bilwaj (*University of California Los Angeles*); Whitehead, William (*University of California Los Angeles*); Moran, Steven (*University of California Los Angeles*); Dai, Qing (*UCLA*); Macyszyn, Luke (*University of California Los Angeles*); Edgerton, V Reggie (*University of California Los Angeles*)
- 17:15-19:00 WePoS-21.5
Non-Contact Remote Measurement of Heart Rate Variability using Near-Infrared Photoplethysmography Imaging 846-849
 Yu, Xinchu* (*RWTH Aachen University*); Paul, Michael (*RWTH Aachen University*); Hoog Antink, Christoph (*RWTH Aachen University, Aachen, Germany*); Venema, Boudewijn (*Philips Chair for Medical Information Technology, RWTH Aachen University*); Blazek, Vladimir (*Philips Chair for Medical Information Technology, RWTH Aachen University*); Bollheimer, Cornelius (*RWTH Aachen University Hospital*); Leonhardt, Steffen (*RWTH Aachen University*); Teichmann, Daniel (*RWTH Aachen University*)
- 17:15-19:00 WePoS-21.6
Super-Resolution in Optical Coherence Tomography 850-853
 Wang, Qifan (*University of Bristol*); Zheng, Rencheng (*University of Bristol*); Achim, Alin* (*University of Bristol*)
- 17:15-19:00 WePoS-21.7
Dynamic Analysis of Mental Sweating of the Sweat Glands and Peripheral Vessels by Optical Coherence Tomography 854-857
 Ohmi, Masato* (*Osaka University*); Wada, Yuki (*Osaka University*)
- 17:15-19:00 WePoS-21.8
Diffuse Speckle Contrast Analysis Assisted Intraoperative Blood Flow Monitoring in the Rat Model of Femoral Arterial Occlusion 858-861
 Yeo, Chaebeom (*DGIST*); Kim, Heejaung (*DGMIF*); Jo, Woori (*DGMIF*); Song, Cheol* (*DGIST*)
- 17:15-19:00 WePoS-21.9
Optic Disc and Cup Segmentation with Blood Vessel Removal from Fundus Images for Glaucoma Detection 862-865
 Jiang, Yuming* (*University of Electronic Science and Technology of China*); Xia, Hu (*University of Electronic Science and Technology of China*); Xu, Yanwu (*Guangzhou Shiyuan Ltd. Co*); Cheng, Jun (*Institute of BioMedical Engineering, Chinese Academy of Sciences*); Fu, Huazhu (*Institute for Infocomm Research, A*STAR*); Duan, Lixin (*University of Electronic Science and Technology of China*); Meng, Zhigang (*Changsha University*); Liu, Jiang (*Ningbo Institute of Materials Technology and Engineering, CAS*)

17:15-19:00	WePoS-21.10
High Resolution Volumetric Imaging of Primary and Secondary Tumor Spheroids using Multi-Angle Light Sheet Fluorescence Microscopy (LSFM) 866-869	
Psycharakis, Stylianos (<i>FORTH-IESL</i>); Liapis, Evangelos (<i>Institute of Electronic Structure and Laser, Foundation for Research and Technology - Hellas</i>); Zacharopoulos, Athanasios (<i>FORTH</i>); Papamatheakis, Joseph (<i>FORTH-IMBB</i>); Oraiopoulou, Mariam-Eleni (<i>ICS-FORTH</i>); Sakkalis, Vangelis* (<i>ICS-FORTH</i>); Zacharakis, Giannis (<i>FORTH</i>)	
17:15-19:00	WePoS-21.11
Retinal Artery and Vein Classification for Automatic Vessel Caliber Grading 870-873	
Bhuiyan, Alauddin* (<i>iHealthScreen Inc.</i>); Wong, Tien Yin (<i>National University of Singapore</i>); Klein, Ronald (<i>University of Wisconsin</i>); Hussain, Md Akter (<i>iHealthScreen Inc.</i>)	
WePoS-22: 17:15-19:00	Exhibit Hall 2
Ultrasound Imaging (II) – Poster (Theme 2) (Poster Session)	
17:15-19:00	WePoS-22.1
Speckle Suppression of Ultrasonography using Maximum Likelihood Estimation and Weighted Nuclear Norm Minimization 874-877	
Xu, Haohao (<i>Shanghai University</i>); Zhang, Qi* (<i>Shanghai University</i>); Dong, Huaipeng (<i>Shanghai University</i>); Jiang, Xiyuan (<i>Shanghai University</i>); Shi, Jun (<i>Shanghai University</i>)	
17:15-19:00	WePoS-22.2
Fast and Simple Automatic 3D Ultrasound Probe Calibration based on 3D Printed Phantom and an Untracked Marker 878-882	
Shen, Jun* (<i>LIRMM & LTSI-University of Rennes 1</i>); Zemiti, Nabil (<i>Université Montpellier</i>); Dillenseger, Jean-Louis (<i>Université de Rennes 1</i>); Poignet, Philippe (<i>LIRMM, UMR CNRS 5506, University of Montpellier II</i>)	
17:15-19:00	WePoS-22.3
A Visual Probe Positioning Tool for 4D Ultrasound-Guided Radiotherapy 883-886	
Ipsen, Svenja* (<i>University of Luebeck</i>); Bruder, Ralf (<i>University of Luebeck</i>); Kuhlemann, Ivo (<i>University of Luebeck</i>); Jauer, Philipp (<i>University of Luebeck</i>); Motisi, Laura (<i>University Clinic Schleswig Holstein, Campus Luebeck</i>); Cremers, Florian (<i>University Clinic Schleswig Holstein, Campus Luebeck</i>); Ernst, Floris (<i>University of Luebeck</i>); Schweikard, Achim (<i>University of Luebeck, Germany</i>)	
17:15-19:00	WePoS-22.4
Fetal Skull Reconstruction via Deep Convolutional Autoencoders 887-890	
Cerrolaza, Juan J.* (<i>Imperial College London</i>); Li, Yuanwei (<i>Imperial College London</i>); Biffi, Carlo (<i>Imperial College London</i>); Gomez, Alberto (<i>King's College London</i>); Matthew, Jacqueline (<i>King's College London</i>); Sinclair, Matthew (<i>Imperial College London</i>); Gupta, Chandni (<i>King's College London</i>); Knight, Caroline (<i>King's College London</i>); Rueckert, Daniel (<i>Imperial College London</i>)	
17:15-19:00	WePoS-22.5
Improved Real-Time Capability for Nonlinear Separable Harmonic Filtering of Ultrasound Images using a Damped Regularization Method with In-Vivo Results 891-894	
Cunningham, James (<i>Penn State University</i>); Zheng, Yi (<i>Penn State University</i>); Subramanian, Thyagarajan (<i>Penn State University</i>); Almekkawy, Mohamed* (<i>Penn State University</i>)	
17:15-19:00	WePoS-22.6
Using Filter Factors for Regularization in Ultrasound Tomography 895-898	
Carevic, Anita (<i>University of Split</i>); Abdou, Ali E. (<i>Penn State University</i>); Barlow, Jesse (<i>Penn State University</i>); Almekkawy, Mohamed* (<i>Penn State University</i>)	
17:15-19:00	WePoS-22.7
Comparison of 3D Reconstruction Methods based on Different Cardiovascular Imaging: A Study of Multimodality Reconstruction Method 899-902	
Tsonmpou, Panagiota (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Material Science, University of Ioannina</i>); Siogkas, Panagiotis (<i>FORTH-IMBB</i>); Andrikos, Ioannis (<i>University of Ioannina</i>); Kigka, Vassiliki (<i>University of Ioannina</i>); Lemos, Pedro (<i>Dept. of Interventional Cardiology at the Heart Institute (InCor) University of Sao Paulo Medical School</i>); Michalis, Lampros (<i>University of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	

17:15-19:00	WePoS-22.8
Multiview Three-Dimensional Echocardiography Image Fusion using a Passive Measurement Arm 903-906	
Punithakumar, Kumaradevan* (<i>University of Alberta</i>); Whittle, Andrew Brian (<i>University of Alberta</i>); Choy, Marina (<i>University of Alberta Hospital</i>); Rakkunedeth Hareendranathan, Abhilash (<i>University of Alberta</i>); Noga, Michelle (<i>University of Alberta</i>); Boulanger, Pierre (<i>University of Alberta</i>); Becher, Harald (<i>Mazankowski Alberta Heart Institute, University of Alberta, Edmonton</i>)	
17:15-19:00	WePoS-22.9
Coherence Plane-Wave Compounding with Angle Coherence Factor for Ultrafast Ultrasound Imaging 907-910	
Du, Bin (<i>Shenzhen University</i>); Wu, Xiang (<i>Shenzhen University</i>); Zheng, Haoteng (<i>Shenzhen University</i>); Siyuan Fang, Tony (<i>Shenzhen University</i>); Lu, Minhua* (<i>Shenzhen University</i>); Mao, Rui (<i>Shenzhen University</i>)	
17:15-19:00	WePoS-22.10
Phase-Shift Depth Migration for Plane-Wave Ultrasound Imaging 911-916	
Albulayli, Mohammed (<i>University of Victoria</i>); Rakhmatov, Daler* (<i>University of Victoria</i>)	
17:15-19:00	WePoS-22.11
Automatic Recognition of Complete Atrioventricular Activity in Fetal Pulsed-Wave Doppler Signals 917-920	
Sulas, Eleonora* (<i>University of Cagliari</i>); Ortu, Emanuele (<i>University of Cagliari</i>); Raffo, Luigi (<i>University of Cagliari</i>); Urru, Monica (<i>Division of Pediatric Cardiology, S. Michele Hospital</i>); Tumbarello, Roberto (<i>Division of Pediatric Cardiology, S. Michele Hospital</i>); Pani, Danilo (<i>University of Cagliari</i>)	
17:15-19:00	WePoS-22.12
Compact and Programmable Ultrasound Front-End Processing Module for Research Activities 921-924	
Ramkrishna, Bharath* (<i>Indian Institute of Technology Hyderabad</i>); Kumar, Punit (<i>IIT Hyderabad</i>); Dhendi, Santhosh Reddy (<i>IIT-Hyderabad</i>); P, Rajalakshmi (<i>Indian Institute of Technology Hyderabad</i>)	
WePoS-23: 17:15-19:00	
Point of Care Technologies and Translation (III) – Poster (Theme 12) (Poster Session)	
17:15-19:00	WePoS-23.1
Fall Risk Estimation for Inpatients on Beds using 3D Vision Sensor 925-928	
Isomoto, Keisuke (<i>Tottori University</i>); Kushida, Daisuke* (<i>Tottori University</i>)	
17:15-19:00	WePoS-23.2
Development of a Load-Cell based Palpation Sensor Suitable for Ophthalmic Anesthesia Training 929-932	
Jagadeesh Kumar, Nimal* (<i>Indian Institute of Technology Madras, Chennai</i>); George, Boby (<i>Indian Institute of Technology Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	
17:15-19:00	WePoS-23.3
Instrumentation of Surgical Tools to Measure Load and Position during Incision, Tissue Retraction, and Suturing 933-936	
Schimmoeller, Tyler* (<i>Cleveland Clinic</i>); Cho, Ki-Hyun (1980); Colbrunn, Robb (<i>Cleveland Clinic</i>); Nagle, Tara (<i>Cleveland Clinic</i>); Neumann, Erica (<i>Cleveland Clinic</i>); Erdemir, Ahmet (<i>Cleveland Clinic</i>)	
17:15-19:00	WePoS-23.4
Preliminary Assessment of a Microwave System to Detect Contrast Enhancing Agents 937-940	
Rahman, Mohammed* (<i>King's College London</i>); Ahsan, Syed (<i>King's College London</i>); Lahri, Rachita (<i>King's College London</i>); Thanou, Maya (<i>King's College London</i>); Kosmas, Panagiotis (<i>Kings College London</i>)	
17:15-19:00	WePoS-23.5
Innovation in Medical Technology Driven by Advances in Aerospace 941-944	
Cinelli, Ilaria* (<i>NUI of Galway</i>); Brown, Lisa (<i>University of Auckland</i>)	
17:15-19:00	WePoS-23.6
Enhanced Control to Improve Navigation and Manipulation of Power Wheelchairs 945-948	
Carey, Stephanie* (<i>University of South Florida</i>); Aguirrezabal, Andoni (<i>University of South Florida</i>); Alqasemi, Redwan (<i>University of South Florida</i>); Dubey, Rajiv (<i>University of South Florida</i>)	

17:15-19:00	WePoS-23.7
The Development of a Benchtop Breast Reconstruction Surgical Simulator	949-952
Viezel-Mathieu, Alex* (<i>McGill University Health Centre</i>); Kazan, Roy (<i>McGill University Health Centre</i>); Cyr, Shantale (<i>Dept. of Anesthesia and Experimental Surgery, McGill University</i>); Gilardino, Mirko (<i>McGill University Health Centre</i>); Hemmerling, Thomas (<i>McGill University</i>)	
17:15-19:00	WePoS-23.8
Determination of Saccade Latency Distributions using Video Recordings from Consumer-Grade Devices	953-956
Saavedra Pena, Gladynel (<i>Massachusetts Institute of Technology</i>); Lai, Hsin-Yu (<i>MIT</i>); Sze, Vivienne (<i>Massachusetts Institute of Technology</i>); Heldt, Thomas* (<i>Massachusetts Institute of Technology</i>)	
17:15-19:00	WePoS-23.9
Lung Consolidation Detection through Analysis of Vocal Resonance Signals	957-960
Thomas, Dennis C.* (<i>Indian Institute of Technology</i>); K, Prakash (<i>Indian Institute of Technology</i>); Harigovind, Gautam (<i>Indian Institute of Technology</i>); Sen, Debashis (<i>Indian Institute of Technology</i>)	
17:15-19:00	WePoS-23.10
Design and Evaluation of Haptic Constraints for Laparoscopic Instrument Handling	961-964
Ulhaq, Nawal (<i>Univ. of Texas at Dallas</i>); Wadi, Husam (<i>Univ. of Texas at Dallas</i>); Amlee, Thomas (<i>Univ. of Texas at Dallas</i>); Diesen, Diana (<i>UT Southwestern Medical Center</i>); Majewicz, Ann* (<i>Univ. of Texas Dallas</i>)	
17:15-19:00	WePoS-23.11
Feasibility Study of a Syringe Angulation Measurement System Suitable for Ophthalmic Regional Anesthesia Training	965-968
Jagadeesh Kumar, Nimal* (<i>Indian Institute of Technology Madras, Chennai</i>); George, Boby (<i>Indian Institute of Technology Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	
17:15-19:00	WePoS-23.12
Volume Manipulation based on 3D Reconstructed Surfaces for Joint Function Evaluation and Surgery Simulation	969-972
Tsai, Ming-Dar* (<i>Chung-Yuan Christian University</i>); Hsieh, Ming-Shium (<i>Dept. of Orthopaedic Surgery, En Chu Kong Hospital, Taiwan</i>); Yokota, Hideo (<i>RIKEN Center for Advanced Photonics</i>)	
17:15-19:00	WePoS-23.13
Space Medicine Requirements Open to Innovation in BioMedical Engineering	973-976
Cinelli, Ilaria* (<i>NUI of Galway</i>)	

Thursday, 19 July 2018

ThAT1: 08:00-09:30	Meeting Room 311
Neural Signal Processing (I) (Theme 6) (Oral Session)	
Chair: Al-Jumaily, Adel (<i>University of Technology Sydney</i>)	

08:00-08:15	ThAT1.1
Single-Trial Detection of Semantic Anomalies from EEG during Listening to Spoken Sentences	977-980
Tanaka, Hiroki* (<i>Nara Institute of Science and Technology</i>); Watanabe, Hiroki (<i>Nara Institute of Science and Technology</i>); Maki, Hayato (<i>Nara Institute of Science and Technology</i>); Sakriani, Sakti (<i>Nara Institute of Science and Technology</i>); Satoshi, Nakamura (<i>Nara Institute of Science and Technology</i>)	
08:15-08:30	ThAT1.2
Single Neuron Firing Rate Statistics in Motor Cortex during Execution and Observation of Movement	981-986
Jiang, Xiyuan (<i>University of California Los Angeles</i>); Ryu, Stephen (<i>Stanford University</i>); Shenoy, Krishna V. (<i>Stanford University</i>); Kao, Jonathan* (<i>Stanford University</i>)	
08:30-08:45	ThAT1.3
Individual Classification of Single Trial EEG Traces to Discriminate Brain Responses to Speech with Different Signal-to-Noise Ratios	987-990
Fuentes Cabrera, Alvaro Rodrigo* (<i>UNEEG Medical</i>); Petersen, Eline Borch (<i>Technical University of Denmark</i>); Graversen, Carina (<i>Eriksholm Research Centre</i>); Theil Sørensen, Allan (<i>UNEEG Medical</i>); Lunner, Thomas (<i>Eriksholm Research Centre - Part of Oticon</i>); Rank, Mike Lind (<i>Widex A/S</i>)	

08:45-09:00 ThAT1.4
Effect of Vigilance Changes on the Incidence of High Frequency Oscillations in the Epileptic Brain 991-994
 Al-Bakri, Amir (*University of Kentucky*); Yaghoubi, Farid (*FDA*); Besio, W. G. (*University of Rhode Island*); Ding, Lei (*University of Oklahoma*); Modur, Pradeep (*University of Texas Southwestern Medical Center*); Sunderam, Sridhar* (*University of Kentucky*)

09:00-09:15 ThAT1.5
Investigation of Propagating Cortical Waves and Spirals Recorded by High Density Porous Graphene Arrays 995-998
 Liu, Xin (*University of California San Diego*); Lu, Yichen (*University of California, San Diego*); Kuzum, Duygu* (*University of California San Diego*)

09:15-09:30 ThAT1.6
A Deep Learning Approach for the Classification of Neuronal Cell Types 999-1002
 Buccino, Alessio Paolo* (*University of Oslo*); Ness, Torbjørn V (*Norwegian University of Life Sciences*); Einevoll, Gaute (*Norwegian University of Life Sciences*); Cauwenberghs, Gert (*University of California San Diego*); Häfliger, Philipp (*University of Oslo, Dept. of Informatics*)

ThAT2: 08:00-09:30 Meeting Room 312
Connectivity and Causality (Theme 1) (Oral Session)
Chair: Mitsis, Georgios D. (*McGill University*)
Co-Chair: Valenza, Gaetano (*University of Pisa*)

08:00-08:15 ThAT2.1
Tracking of Dynamic Functional Connectivity from MEG Data with Kalman Filtering 1003-1006
 Tronarp, Filip* (*Aalto University*); Puthanmadam Subramaniam, Narayan (*Aalto University*); Särkkä, Simo (*Aalto University*); Parkkonen, Lauri (*Aalto University*)

08:15-08:30 ThAT2.2
Does Independent Component Analysis Influence EEG Connectivity Analyses? 1007-1010
 Pester, Britta* (*Jena University Hospital; Friedrich Schiller University Jena*); Ligges, Carolin (*Dept. of Child and Adolescent Psychiatry, Psychosomatic Medicine and Psychotherapy, Jena University Hospital*)

08:30-08:45 ThAT2.3
Increased Randomness of Functional Network Connectivity in Nicotine and Alcohol Consumers 1011-1014
 Vergara, Victor Manuel* (*The Mind Research Network*); Hutchison, Kent (*University of Colorado Boulder*); Calhoun, Vince (*The Mind Research Network/University of New Mexico*)

08:45-09:00 ThAT2.4
EEG Hyperconnectivity Study on Saxophone Quartet Playing in Ensemble 1015-1018
 Greco, Alberto* (*University of Pisa*); Spada, Danilo (*University of Pavia, and Le2i, Université de Bourgogne Franche-Comte*); Rossi, Simone (*Azienda Ospedaliera Universitaria of Siena*); Perani, Daniela (*Scientific Institute San Raffaele, Milan*); Valenza, Gaetano (*University of Pisa*); Scilingo, Enzo Pasquale (*University of Pisa*)

09:00-09:15 ThAT2.5
Investigation of Interaction between Physiological Signals and fMRI Dynamic Functional Connectivity using Independent Component Analysis 1019-1023
 Nikolaou, Foivia (*University of Cyprus*); Orphanidou, Christina (*University of Cyprus*); Murphy, Kevin (*Cardiff University*); Wise, Richard G. (*Cardiff University Brain Research Imaging Center (CUBRIC), School of Psychology, Cardiff University, Cardiff*); Mitsis, Georgios D.* (*McGill University*)

09:15-09:30 ThAT2.6
Identification of Time-Varying Cortico-Cortical and Cortico-Muscular Coherence during Motor Tasks with Multivariate Autoregressive Models 1024-1027
 Xifra-Porxas, Alba (*McGill University*); Kostoglou, Kyriaki (*McGill University*); Larivière, Sara (*McGill University*); Niso, Guiomar (*McGill University*); Kassinosopoulos, Michalis (*McGill University*); Boudrias, Marie-Helene (*McGill University*); Mitsis, Georgios D.* (*McGill University*)

ThAT3: 08:00-09:30	Meeting Room 314
Brain Imaging: Connectivity and Networks (Theme 2) (Oral Session)	
Chair: Ji, Jim Xiuquan (<i>Texas A&M University</i>)	
Co-Chair: Jarrahi, Behnaz (<i>Stanford University School of Medicine</i>)	

08:00-08:15	ThAT3.1
Test-Retest Reliability of Functional Connectivity and Graph Metrics in the Resting Brain Network	1028-1031
Jin, Dan (<i>University of Chinese Academy of Sciences, Institute of Automation, Chinese Academy of Sciences</i>); Xu, Kaibin (<i>National Lab of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences</i>); Liu, Bing (<i>Institute of Automation, Chinese Academy of Sciences</i>); Jiang, Tianzi (<i>Institute of Automation</i>); Liu, Yong* (<i>Chinese Academy of Sciences</i>)	
08:15-08:30	ThAT3.2
Implementation of High-Performance Correlation and Mapping Engine for Rapid Generation of Brain Connectivity Networks from Big fMRI Data	1032-1036
Lusher, John* (<i>Texas A&M University</i>); Ji, Jim Xiuquan (<i>Texas A&M University</i>)	
08:30-08:45	ThAT3.3
Dynamic Influence of Ongoing Brain Stimulation on Resting State fMRI Connectivity: A Concurrent tDCS-fMRI Study	1037-1040
Wang, Xin* (<i>Chinese University of Hong Kong</i>); Wong, Wan-wa (<i>Chinese University of Hong Kong</i>); Fang, Yuqi (<i>Chinese University of Hong Kong</i>); Chu, Winnie Chiu-wing (<i>Chinese University of Hong Kong</i>); Tong, Kai Yu, Raymond (<i>Chinese University of Hong Kong</i>)	
08:45-09:00	ThAT3.4
Characterizing the Effects of MR Image Quality Metrics on Intrinsic Connectivity Brain Networks: A Multivariate Approach	1041-1045
Jarrahi, Behnaz* (<i>Stanford University School of Medicine</i>); Mackey, Sean (<i>Stanford University School of Medicine</i>)	
09:00-09:15	ThAT3.5
Measuring the Influence of Physiological Noise Corrections on ICA Derived Intrinsic Connectivity Brain Networks in Rest and Task fMRI	1046-1049
Jarrahi, Behnaz* (<i>Stanford University School of Medicine</i>); Mackey, Sean (<i>Stanford University School of Medicine</i>)	
09:15-09:30	ThAT3.6
Differential Amplitude of Low-Frequency Fluctuations in Brain Networks after BCI Training with and without tDCS in Stroke	1050-1053
Hu, Mengjiao* (<i>Nanyang Technological University</i>)	

ThAT8: 08:00-09:30	Meeting Room 318A
Invited Session: Imaging Photoplethysmography and Remote Physiological Sensing (3cg25) (Invited Session)	
Chair: Blackford, Ethan Brian (<i>Ball Aerospace</i>)	
Co-Chair: McDuff, Daniel Jonathan (<i>Microsoft</i>)	

08:00-08:15	ThAT8.1
Spectral Estimation Methods for Evaluating iPPG Pulse Rate Variability	1054-1057
McDuff, Daniel Jonathan* (<i>Microsoft</i>); Blackford, Ethan Brian (<i>Ball Aerospace</i>); Estepp, Justin Ronald (<i>Air Force Research Lab</i>)	

ThBT1: 10:00-11:30	Meeting Room 311
Brain-Computer Interface (II) (Theme 6) (Oral Session)	
Chair: Micera, Silvestro (<i>Scuola Superiore Sant'Anna</i>)	

10:00-10:15	ThBT1.1
Electroencephalography Classification in Brain-Computer Interface with Manifold Constraints Transfer	1058-1061
Tan, Chuanqi (<i>Tsinghua University</i>); Sun, Fuchun* (<i>Tsinghua University</i>); Zhang, Wenchang (<i>Tsinghua University</i>); Kong, Tao (<i>Tsinghua University</i>)	
10:15-10:30	ThBT1.2
Development of a Cognitive Brain-Machine Interface based on a Visual Imagery Method	1062-1065
Koizumi, Koji (<i>University of Tokyo</i>); Ueda, Kazutaka* (<i>University of Tokyo</i>); Nakao, Masayuki (<i>University of Tokyo</i>)	

10:30-10:45	ThBT1.3
Spatiotemporal Characteristics of Cortical Activities Associated with Articulation of Speech Perception 1066-1069	
Saga, Naoki* (<i>Kobe Univ.</i>); Yano, Hajime (<i>Kobe Univ.</i>); Takiguchi, Tetsuya (<i>Kobe Univ.</i>); Soeta, Yoshiharu (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>); Nakagawa, Seiji (<i>Chiba Univ.</i>)	
10:45-11:00	ThBT1.4
FPGA Implementation of Deep-Learning Recurrent Neural Networks with Sub-Millisecond Real-Time Latency for BCI-Decoding of Large-Scale Neural Sensors (104 Nodes) 1070-1073	
Heelan, Christopher* (<i>Brown University</i>); Nurmikko, Arto (<i>Brown University</i>); Truccolo, Wilson (<i>Brown University</i>)	
11:00-11:15	ThBT1.5
Effect of Implant Duration, Anatomical Location and Electrode Orientation on Bandwidth Recorded with a Chronically Implanted Stent-Electrode Array 1074-1077	
Opie, Nicholas* (<i>University of Melbourne</i>); John, Sam (<i>Vascular Bionics Lab, Dept. of Medicine, University of Melbourne</i>); Rind, Gil (<i>Vascular Bionics Lab, Dept. of Medicine, University of Melbourne</i>); Ronayne, Stephen (<i>Vascular Bionics Lab, Dept. of Medicine, University of Melbourne</i>); May, Clive (<i>Florey Institute of Neuroscience and Mental Health</i>); Grayden, David B. (<i>University of Melbourne</i>); Oxley, Thomas (<i>University of Melbourne</i>)	
11:15-11:30	ThBT1.6
Increased Theta Oscillations during Motor Imagery in a Subject with Late-Stage ALS 1078-1081	
So, Rosa* (<i>Institute for Infocomm Research</i>); Yang, Tao (<i>Institute of Infocomm Research</i>); Phua, Kok Soon (<i>Institute for Infocomm Research</i>); Yu, Juanhong (<i>Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR)</i>); Toh, Valerie (<i>National Neuroscience Institute</i>); Ng, Wai Hoe (<i>National Neuroscience Institute</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>)	
ThBT2: 10:00-11:30 Meeting Room 312	
Data Mining for Biosignals (Theme 1) (Oral Session)	
Chair: Nguyen, Hung T. (<i>Swinburne University of Technology</i>)	
10:00-10:15	ThBT2.1
SSVEP Transient Feature Extraction and Rapid Recognition Method based on Bistable Stochastic Resonance 1082-1085	
Yao, Pulin (<i>Xi'an Jiao Tong University</i>); Xu, Guanghua* (<i>Xi'an Jiao Tong University</i>); Han, Chengcheng (<i>Xi'an Jiao Tong University</i>); Zhang, Sicong (<i>Xi'an Jiao Tong University</i>); Luo, Ailing (<i>Xi'an Jiao Tong University</i>); Zhang, Qing (<i>Xi'an Jiao Tong University</i>)	
10:15-10:30	ThBT2.2
A Multi-Feature Fuzzy Index to Assess Stress Level from Bio-Signals 1086-1089	
Charbonnier, Sylvie* (<i>Gipsa-Lab</i>); Vila, Gael (<i>CEA/LETI</i>); Godin, Christelle (<i>CEA/LETI</i>); Labyt, Etienne (<i>CEA/LETI/CLINATEC</i>); Sakri, Oumayma (<i>CEA/LETI</i>); Campagne, Aurélie (<i>Laboratoire de Psychologie et Neurocognition, Grenoble</i>)	
10:30-10:45	ThBT2.3
Automatic Detection of Hot Flash Occurrence and Timing from Skin Conductance Activity 1090-1093	
Forouzanfar, Mohamad* (<i>Stanford University</i>); de Zambotti, Massimiliano (<i>SRI International</i>); Goldstone, Aimée (<i>SRI International</i>); Baker, Fiona (<i>SRI International</i>)	
10:45-11:00	ThBT2.4
Gated Recurrent Neural Networks for EMG-Based Hand Gesture Classification: A Comparative Study 1094-1097	
Samadani, Ali* (<i>Philips Research North America</i>)	
11:00-11:15	ThBT2.5
Quantitative Assessment of Cerebellar Ataxia with Kinematic Sensing during Rhythmic Tapping 1098-1101	
Nguyen, Khoa D.* (<i>Deakin University</i>); Pathirana, Pubudu N. (<i>Deakin University</i>); Horne, Malcolm (<i>Florey Institute of Neuroscience and Mental Health</i>); Power, Laura (<i>Royal Victorian Eye and Ear Hospital</i>); Szmulewicz, David (<i>Victorian Eye and Ear Hospital</i>)	
11:15-11:30	ThBT2.6
Study of Compressed Sensing and Predictor Techniques for the Compression of Neural Signals under the Influence of Noise 1102-1105	
Pagin, Matteo* (<i>University of Ulm</i>); Ortmanns, Maurits (<i>University of Ulm</i>)	

10:00-10:15 ThBT3.1
Motion Tracking for Beating Heart based on Sparse Statistic Pose Modeling 1106-1110

Yang, Bo* (*University of Electronic Science and Technology of China*); Cao, Tingting (*University of Electronic Science and Technology of China*); Zheng, Wenfeng (*University of Electronic Science and Technology of China*); Liu, Shan (*University of Electronic Science and Technology of China*)

10:15-10:30 ThBT3.2
Image Data Analysis for Quantifying Scar Transmurality in MRI Phantoms for Cardiac Resynchronisation Therapy 1111-1114

Karim, Rashed (*King's College London*); Panayiotou, Maria (*King's College London*); Chowdhury, Onik (*School of BioMedical Engineering & Imaging Sciences, King's College London*); Housden, Richard James (*King's College London*); Hummady, Sana (*Siemens Healthineers*); Toth, Daniel* (*King's College London, UK*); Kurzendorfer, Tanja (*Friedrich-Alexander University Erlangen-Nuremberg*); Mountney, Peter (*Siemens*); Rhode, Kawal (*King's College London*)

10:30-10:45 ThBT3.3
Comparison of Image Acquisition Techniques in Four-Dimensional Flow Cardiovascular MR on 3 Tesla in Volunteers and Tetralogy of Fallot Patients 1115-1118

Zhang, Jun-Mei (*National Heart Center*); Tan, Ru San (*National Heart Center*); Zhang, Shuo (*Philips*); van der Geest, Rob (*Leiden University Medical Center*); Garg, Pankaj (*University of Leeds*); Leong, Bao Ru (*National Heart Centre Singapore*); Bryant, Jennifer (*National Heart Centre Singapore*); Tangcharoen, Tarinee (*Ramathibodi Hospital, Mahidol University*); Zhao, Xiaodan (*National Heart Centre Singapore*); Tan, Ju Le (*National Heart Centre Singapore*); Westenberg, Jos (*Leiden University Medical Center*); Zhong, Liang* (*National Heart Centre Singapore*)

10:45-11:00 ThBT3.4
A Novel 4D Semi-Automated Algorithm for Volumetric Segmentation in Echocardiography 1119-1122

Krishnaswamy, Deepa* (*University of Alberta*); Rakkunedeth Hareendranathan, Abhilash (*University of Alberta*); Suwatanaviroj, Tan (*Mazankowski Alberta Heart Institute, University of Alberta, Edmonton*); Boulanger, Pierre (*University of Alberta*); Becher, Harald (*Mazankowski Alberta Heart Institute, University of Alberta, Edmonton*); Noga, Michelle (*University of Alberta*); Punithakumar, Kumaradevan (*University of Alberta*)

11:00-11:15 ThBT3.5
Multiview Sequential Learning and Dilated Residual Learning for a Fully Automatic Delineation of the Left Atrium and Pulmonary Veins from Late Gadolinium-Enhanced Cardiac MRI Images 1123-1127

Yang, Guang* (*Imperial College London*); Chen, Jun (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Gao, Zhifan (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Zhang, Heye (*Hong Kong Univ. of Science & Tech*); Ni, Hao (*Univ. College London*); Angelini, Elsa (*Imperial NIHR BRC, Imperial College London*); Mohiaddin, Raad (*Imperial College London*); Wong, Tom (*Imperial College London*); Keegan, Jennifer (*Imperial College London*); Firmin, David (*Imperial College London*)

11:15-11:30 ThBT3.6
Improving Visual Detection of Wall Motion Abnormality with Echocardiographic Image Enhancing Methods ... 1128-1131

Omar, Hasmila* (*Oxford University*); Domingos, Joao (*University of Oxford*); Patra, Arijit (*Oxford University*); Leeson, Paul (*John Radcliffe Hospital*); Noble, J Alison (*University of Oxford*)

10:00-10:15 ThBT13.1
The Correlation Analysis between DTI Network Parameters and AVLT Scale Scores of Alzheimer's Disease 1132-1135

Guo, Xin (*Harbin Institute of Technology Shenzhen Graduate School*); Gao, Na (*Harbin Institute of Technology*); Wang, Yan (*Harbin Institute of Technology Shenzhen Graduate School*); Yang, Yanwu (*Harbin Institute of Technology Shenzhen Graduate School*); Ma, Heather Ting* (*Harbin Institute of Technology Shenzhen Graduate School*)

10:15-10:30	ThBT13.2
Left Fimbria Atrophy is Associated with Hippocampal Metabolism in Female Major Depressive Disorder Patients	1136-1139
Xu, Jiale (Shanghai Jiao Tong University, School of BioMedical Engineering and Institute for Medical Imaging Technology); Tang, Yingying (Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine); Baro, Cecilio (Shanghai Jiao Tong University, School of BioMedical Engineering); Zhang, Xiaoliu (Shanghai Jiao Tong University, School of BioMedical Engineering); Meng, Ziyu (Shanghai Jiao Tong University); Li, Yao* (Shanghai Jiao Tong University)	
10:30-10:45	ThBT13.3
Multivariate Analysis of White Matter Structural Networks of Alzheimer's Disease	1140-1143
Ye, Chenfei (Harbin Institute of Technology Shenzhen Graduate School); Wang, Xiaoni (XuanWu Hospital of Capital Medical University); Han, Ying (XuanWu Hospital of Capital Medical University); Ma, Heather Ting* (Harbin Institute of Technology Shenzhen Graduate School); Yang, Yanwu (Harbin Institute of Technology Shenzhen Graduate School)	
10:45-11:00	ThBT13.4
Altered Fractional Amplitude of Low Frequency Fluctuations in Unmedicated Female Patients with Obsessive-Compulsive Disorder	1144-1147
Meng, Ziyu (Shanghai Jiao Tong University); Zhang, Zongfeng (Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine); Fan, Qing (Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine); Li, Yao* (Shanghai Jiao Tong University)	
11:00-11:15	ThBT13.5
Diagnostic Classification of Autism using Resting-State fMRI Data and Conditional Random Forest	N/A
A.R., Jac Fredo* (San Diego State University); Jahedi, Afroz (San Diego State University); Reiter, Maya (San Diego State University); Müller, Ralph-Axel (San Diego State University)	
11:15-11:30	ThBT13.6
Biomarkers for Adolescent MDD from Anatomical Connectivity and Network Topology using Diffusion MRI	1152-1155
Chu, Shu-Hsien* (University of Minnesota); Lenglet, Christophe (University of Minnesota); Westlund Schreiner, Melinda (University of Minnesota); Klimes-Dougan, Bonnie (University of Minnesota); Cullen, Kathryn R. (University of Minnesota); Parhi, Keshab (University of Minnesota)	
ThBT17: 10:00-11:30 Meeting Room 323C	
Physiological Modeling and Analysis (Theme 7) (Oral Session)	
10:00-10:15	ThBT17.1
Investigation of Key Variables Impacting ICM Sensing using Computer Simulations	1156-1159
Sun, Stephanie* (Abbott); Min, Xiaoyi (St. Jude Medical, Inc.); Healey, Glenn (University of California, Irvine)	
10:15-10:30	ThBT17.2
Monitoring Lung Mechanics during Mechanical Ventilation using Machine Learning Algorithms	1160-1163
Hezarjaribi, Niloofar* (Washington State University); Dutta, Rabijit (University of Idaho); Tao, Xing (University of Idaho); Gordon, Murdoch (University of Idaho); Mazrouee, Sepideh (University of California San Diego); Mortazavi, Bobak (Texas A&M University); Ghasemzadeh, Hassan (Washington State University)	
10:30-10:45	ThBT17.3
Synthetic Sensor Data Generation for Health Applications: A Supervised Deep Learning Approach	1164-1167
Norgaard, Skyler (Kalamazoo College); Saeedi, Ramyar (Washington State University); Sasani, Keyvan (Washington State University); Gebremedhin, Assefaw* (Washington State University)	
10:45-11:00	ThBT17.4
Comparisons of Oscillometric Blood Pressure Measurements at Different Sites of the Upper Limb	1168-1171
Liu, Jing* (Chinese University of Hong Kong); Ou, Yanghui (Hong Kong University of Science and Technology); Yan, Bryan P. (Prince of Wales Hospital, Chinese University of Hong Kong); Sodini, Charles (Massachusetts Institute of Technology); Zhao, Ni (Chinese University of Hong Kong)	

11:00-11:15 ThBT17.5
Vomit Comet Physiology: Autonomic Changes in Novice Flyers 1172-1176
 Johnson, Kristina* (*Massachusetts Institute of Technology*); Taylor, Sara (*Massachusetts Institute of Technology*); Fedor, Szymon (*Massachusetts Institute of Technology*); Jaques, Natasha (*Massachusetts Institute of Technology*); Chen, Weixuan (*Massachusetts Institute of Technology*); Picard, Rosalind (*Massachusetts Institute of Technology*)

11:15-11:30 ThBT17.6
A Novel Synthetic Simulation Platform for Validation of Breathing Rate Measurement 1177-1180
 Selvaraj, Nandakumar* (*VitalConnect, Inc.*); Nallathambi, Gabriel (*VitalConnect, Inc.*); Kettle, Paul (*PKettle Consulting*)

ThBT18: 10:00-11:30 Meeting Room 324
Wearable Systems (Theme 7) (Oral Session)
Chair: Samadani, Ali (*Philips Research North America*)

10:00-10:15 ThBT18.1
Efficient Design of Real Time Bio-Signal Preprocessing for Wearable Devices 1181-1184
 Yoon, Seung Keun* (*Samsung Advanced Institute of Technology*); Lee, Jongwook (*Samsung Electronics*); Kwon, Uikun (*Samsung Electronics*); Ko, Byung-Hoon (*Samsung Advanced Institute of Technology*); Kim, Youn Ho (*Samsung Advanced Institute of Technology*)

10:15-10:30 ThBT18.2
Optimizing Energy Harvesting for Foot based Wearable Sensors 1185-1188
 Beach, Christopher* (*University of Manchester*); Green, Peter R (*University of Manchester*); Casson, Alexander James (*University of Manchester*)

10:30-10:45 ThBT18.3
A Spinal Motion Measurement Protocol Utilizing Inertial Sensors without Magnetometers 1189-1192
 Samadani, Ali* (*Philips Research North America*); Lee, Alex (*Motion Signature Analysis*); Kulic, Dana (*University of Waterloo*)

10:45-11:00 ThBT18.4
Personalized Human Activity Recognition using Wearables:
A Manifold Learning-Based Knowledge Transfer 1193-1196
 Saeedi, Ramyar* (*Washington State University*); Sasani, Keyvan (*Washington State University*); Norgaard, Skyler (*Kalamazoo College*); Gebremedhin, Assefaw (*Washington State University*)

11:00-11:15 ThBT18.5
Tracking Kinematic and Kinetic Measures of Sit to Stand using an Instrumented Spine Orthosis 1197-1201
 Matthew, Robert Peter* (*UC Berkeley*); Seko, Sarah (*UC Berkeley*); Bailey, Jeannie (*University of California at San Francisco*); Bajcsy, Ruzena (*UC Berkeley, CITRIS*); Lotz, Jeffrey (*Orthopaedic Surgery, University of California at Berkeley*)

11:15-11:30 ThBT18.6
A Machine Learning Approach to Targeted Balance Rehabilitation in People with Parkinson's Disease using a Sparse Sensor Set 1202-1205
 Pickle, Nathaniel (*University of Texas at Dallas*); Shearin, Staci (*The University of Texas Southwestern Medical Center*); Fey, Nicholas* (*University of Texas at Dallas*)

ThCT1: 13:30-15:00 Meeting Room 311
Sensory Neuroprostheses (Theme 6) (Oral Session)
Chair: Suaning, Gregg (*University of Sydney*)
Co-Chair: Weiland, James (*University of Michigan*)

13:30-13:45 ThCT1.1
An Investigation of the Effect of AGC Gain on the Output Signal to Noise Ratio in Cochlear Implant Sound Processing 1206-1209
 Watkins, Gregory Douglas* (*Sydney University*); Swanson, Brett Anthony (*Cochlear Ltd.*); Suaning, Gregg (*University of Sydney*)

13:45-14:00 ThCT1.2
Noise-Induced Hearing Loss in Mice: Effects of High and Low Levels of Noise Trauma in CBA Mice 1210-1213
 Amanipour, Reza* (*University of South Florida*); Zhu, Xiao Xia (*University of South Florida*); Duvey, Guillaume (*Pragma Therapeutics*); Celanire, Sylvain (*Pragma Therapeutics*); Walton, Joseph (*University of South Florida*); Frisina, Robert (*University of South Florida*)

14:00-14:15 ThCT1.3
Recovery of the Response of Sensory Fibers to the Second of a Pair of Peripheral Nerve Stimuli 1214-1217
 Brunton, Emma Kate* (*Newcastle University*); Silveira, Carolina (*Newcastle University*); Ridell, John (*University of Glasgow*); Nazarpour, Kianoush (*Newcastle University*)

14:15-14:30 ThCT1.4
Normalized Transfer Entropy as a Tool to Identify Multisource Functional Epileptic Networks 1218-1221
 Kale, Poojitha (*Penn State University*); Acharya, Vinita (*Penn State University*); Acharya, Jayant (*Penn State University*); Subramanian, Thyagarajan (*Penn State University*); Almekkawy, Mohamed* (*Penn State University*)

14:30-14:45 ThCT1.5
Electrical Field Shaping Techniques in a Feline Model of Retinal Degeneration 1222-1225
 Spencer, Thomas (*Bionics Institute*); Fallon, James (*Bionics Institute*); Abbott, Carla (*Centre for Eye Research Australia*); Allen, Penelope J (*Royal Victorian Eye and Ear Hospital*); Brandli, Alice (*Centre for Eye Research Australia*); Luu, Chi (*Centre for Eye Research Australia*); Epp, Stephanie (*Bionics Institute*); Shivdasani, Mohit N.* (*University of New South Wales*)

14:45-15:00 ThCT1.6
Optic Nerve and Retinal Electrostimulation in Rats: Direct Activation of the Retinal Ganglion Cells 1226-1229
 Barriga-Rivera, Alejandro* (*University Pablo de Olavide*); Suaning, Gregg (*University of Sydney*); Delgado-Garcia, Jose Maria (*University Pablo de Olavide*); Gruart, Agnes (*University Pablo de Olavide*)

ThCT2: 13:30-15:00 Independent and Principal Component Analysis (Theme 1) (Oral Session) Chair: Boric-Lubecke, Olga (<i>University of Hawaii at Manoa</i>)	Meeting Room 312
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13:30-13:45 ThCT2.1
Supervised Bayesian Source Separation of Nonlinear Mixtures for Quantitative Analysis of Gas Mixtures ... 1230-1233
 Madrolle, Stéphanie* (*University Grenoble Alpes, CEA, LETI, Minatec Campus*); Duarte, Leonardo (*University of Campinas*); Grangeat, Pierre (*University Grenoble, Alpes, CEA, LETI, Minatec Campus*); Jutten, Christian (*University of Grenoble*)

13:45-14:00 ThCT2.2
Separation of Respiratory Signatures for Multiple Subjects using Independent Component Analysis with the JADE Algorithm 1234-1237
 Islam, Shekh Md Mahmudul* (*University of Hawaii at Manoa*); Yavari, Ehsan (*University of Hawaii at Manoa*); Rahman, Ashikur (*University of Hawaii at Manoa*); Lubecke, Victor (*University of Hawaii at Manoa*); Boric-Lubecke, Olga (*University of Hawaii at Manoa*)

14:00-14:15 ThCT2.3
Removal of Electrocardiogram Interference from Diaphragmatic Electromyogram Signals using Sliding Singular Spectrum Analysis 1238-1241
 Saeed, Muzammil (*London South Bank University*); Alty, Steve* (*Royal Holloway, University of London*)

14:15-14:30 ThCT2.4
Evaluation of Artifact Subspace Reconstruction for Automatic EEG Artifact Removal 1242-1245
 Chang, Chi-Yuan* (*University of California, San Diego*); Hsu, Sheng-Hsiou (*University of California, San Diego*); Pion-Tonachini, Luca (*University of California, San Diego*); Jung, Tzzy-Ping (*University of California San Diego*)

14:30-14:45 ThCT2.5
Dimensionality Reduction based Transfer Learning Applied to Pharmacogenomics Databases 1246-1249
 Dhruva, Saugato Rahman (*Texas Tech University*); Rahman, Raziur (*Texas Tech University*); Matlock, Kevin (*Texas Tech University*); Ghosh, Souparno (*Texas Tech University*); Pal, Ranadip* (*Texas Tech University*)

14:45-15:00 ThCT2.6
Introducing a Combination of ICA-EMD to Suppress Muscle and Ocular Artifacts in EEG Signals 1250-1253
 Santillan Guzman, Alina* (*Benemérita Universidad Autónoma de Puebla*); Oliveros Oliveros, José Jacobo (*Benemérita Universidad Autónoma de Puebla*); Morín Castillo, María Monserrat (*Benemérita Universidad Autónoma de Puebla*)

ThCT3: 13:30-15:00 Meeting Room 314
Deep Learning Imaging (I) (Theme 2) (Oral Session)
Chair: Toschi, Nicola (*University of Rome "Tor Vergata", Faculty of Medicine*)
Co-Chair: Du, Yiping (*Shanghai Jiao Tong University*)

13:30-13:45 ThCT3.1
Joint and Deep Ensemble Regression of Clinical Scores for Alzheimer's Disease using Longitudinal and Incomplete Data 1254-1257
 Lei, Baiying* (*Shenzhen University*); Yang, Mengya (*Shenzhen University*); Hou, Wen (*Shenzhen University*); Yang, Peng (*Shenzhen University*); Li, Xia (*Shenzhen University*); Wang, Tianfu (*Shenzhen University*); Zou, Wenbin (*Shenzhen University*); Elazab, Ahmed (*Shenzhen University*)

13:45-14:00 ThCT3.2
Filter-Pruned 3D Convolutional Neural Network for Drowsiness Detection 1258-1262
 Yao, Heming* (*Univ. of Michigan*); Zhang, Wei (*DENSO International America*); Malhan, Rajesh (*DENSO international America*); Gryak, Jonathan (*Univ. of Michigan*); Najarian, Kayvan (*Univ. of Michigan - Ann Arbor*)

14:00-14:15 ThCT3.3
Skin Lesion Analysis by Multi-Target Deep Neural Networks 1263-1266
 Yang, Xulei* (*Institute for Infocomm Research, A*STAT*); Li, Hangxing (*National University of Singapore*); Wang, Li (*Institute for Infocomm Research, Agency for Science, Technology and Research*); Yeo, Si Yong (*Inst of High Performance Computing*); Su, Yi (*Institute of High Performance Computing*); Zeng, Zeng (*I2R, A*STAR*)

14:15-14:30 ThCT3.4
A Deep Unsupervised Learning Approach Toward MTBI Identification using Diffusion MRI 1267-1270
 Minaee, Shervin* (*New York University*); Wang, Yao (*Polytechnic Institute of New York University*); Choromanska, Anna (*NYU Tandon*); Chung, Sohae (*NYU School of Medicine*); Wang, Xiuyuan (*NYU School of Medicine*); Fieremans, Els (*New York University School of Medicine*); Flanagan, Steven (*New York University School of Medicine*); Rath, Joseph (*New York University School of Medicine*); Lui, Yvonne (*NYU School of Medicine*)

14:30-14:45 ThCT3.5
A Multi-Modal Convolutional Neural Network Framework for the Prediction of Alzheimer's Disease 1271-1274
 Spasov, Simeon (*University of Cambridge*); Passamonti, Luca (*University of Cambridge*); Duggento, Andrea (*University of Rome "Tor Vergata"*); Liò, Pietro (*University of Cambridge*); Toschi, Nicola* (*University of Rome "Tor Vergata", Faculty of Medicine*)

14:45-15:00 ThCT3.6
Left Ventricle Segmentation in Cardiac MR Images using Fully Convolutional Network 1275-1278
 Nasr-Esfahani, Mina (*Isfahan University of Technology*); Mohrekesh, Majid (*Isfahan University of Technology*); Akbari, Mojtaba (*Isfahan University of Technology*); Soroushmehr, S.M.Reza* (*University of Michigan, Ann Arbor*); NasrEsfahani, Ebrahim (*Isfahan University of Technology*); Karimi, Nader (*Isfahan University of Technology*); Samavi, Shadrokh (*McMaster University*); Najarian, Kayvan (*University of Michigan - Ann Arbor*)

ThCT4: 13:30-15:00 Meeting Room 315
Bio-Electric Sensors (Theme 7) (Oral Session)
Chair: Pei, Weihua (*Institute of Semiconductors, CAS*)

13:30-13:45 ThCT4.1
Simple, Fast and Highly Sensitive Detection of Gram-Negative Bacteria by a Novel Electrical Biosensor 1279-1282
 Wu, Jie* (*University of Tennessee*); Cheng, Cheng (*University of Tennessee*); Yuan, Quan (*University of Tennessee*); Oueslati, Rania (*University of Tennessee*); Zhang, Jian (*Hefei University of Technology*); Chen, Jiangang (*University of Tennessee*); Almeida, Raul (*University of Tennessee*)

13:45-14:00	ThCT4.2
An Exploration of Behind-the-Ear ECG Signals from a Single Ear using Inkjet Printed Conformal Tattoo Electrodes	1283-1286
Jacob, Nikhil Kurian (<i>University of Manchester</i>); Balaban, Ertan (<i>University of Manchester</i>); Saunders, Rachel Elizabeth (<i>University of Manchester</i>); Batchelor, John (<i>University of Kent</i>); Yeates, Stephen (<i>University of Manchester</i>); Casson, Alexander James* (<i>University of Manchester</i>)	
14:00-14:15	ThCT4.3
Low-Cost Carbon Fiber-Based Conductive Silicone Sponge EEG Electrodes	1287-1290
Krishnan, Ashwati* (<i>Carnegie Mellon Univ.</i>); Kumar, Ritesh (<i>Carnegie Mellon Univ.</i>); Venkatesh, Praveen (<i>Carnegie Mellon Univ.</i>); Kelly, Shawn (<i>Carnegie Mellon Univ.</i>); Grover, Pulkit (<i>Carnegie Mellon Univ.</i>)	
14:15-14:30	ThCT4.4
Increased Conductivity and Reduced Settling Time of Carbon-Based Electrodes by Addition of Sea Salt for Wearable Application	1291-1294
Noh, Yeon Sik* (<i>University of Massachusetts Amherst</i>); Ye, Xiang (<i>University of Connecticut</i>); Murphy, Laura (<i>University of Connecticut</i>); Eaton-Robb, Caitlin (<i>University of Connecticut</i>); Dimitrov, Tanya (<i>University of Connecticut</i>); Choi, Woo Jung (<i>Boston University</i>); Chon, Ki (<i>University of Connecticut</i>)	
14:30-14:45	ThCT4.5
Design of High-Density Electrodes for EEG Acquisition	1295-1298
Xing, Xiao (<i>Institute of Semiconductors, CAS</i>); Pei, Weihua* (<i>Institute of Semiconductors, CAS</i>); Wang, Yijun (<i>Institute of Semiconductors, Chinese Academy of Sciences</i>); Liu, Zhiduo (<i>Institute of Semiconductors, Chinese Academy of Sciences</i>); Chen, Hongda (<i>Institute of Semiconductors, CAS</i>)	
14:45-15:00	ThCT4.6
A Multichannel EEG Acquisition System with Novel Ag NWs/PDMS Flexible Dry Electrodes	1299-1302
Wang, Zeyu* (<i>Fudan University</i>); Chen, Chen (<i>Pierre and Marie Curie University</i>); Li, Wei (<i>Fudan University</i>); Yuan, Wei (<i>Printable Electronics Research Centre, Suzhou Institute of Nanotech and Nano-bionics, Chinese Academy of Sciences</i>); Han, Tongmeng (<i>Fudan University</i>); Sun, Chenglu (<i>Fudan University</i>); Tao, Linkai (<i>Eindhoven University of Technology</i>); Zhao, Yuting (<i>Fudan University</i>); Chen, Wei (<i>Fudan University</i>)	
ThCT5: 13:30-15:00 Meeting Room 316A	
Bioinformatics – High Throughput: Omic (Genomics, Proteomics, Metabolomics, Lipidomics, and Metagenomics) Data Analytics for Precision Health (Theme 10) (Oral Session)	
13:30-13:45	ThCT5.1
Datalog Extensions for Bioinformatic Data Analysis	1303-1306
Seo, Jiwon* (<i>UNIST</i>)	
13:45-14:00	ThCT5.2
Assessing the Predictive Value of Regulatory Molecules for Patient Outcome in Pancreatic Cancer: A Computational Approach	1307-1310
Kourou, Konstantina (<i>Unit of Biological Applications and Technology, University of Ioannina</i>); Papaloukas, Costas (<i>University of Ioannina</i>); Mitsis, Michael (<i>Dept. of Medicine, School of Health Sciences, University of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
14:00-14:15	ThCT5.3
Structural Variant Prediction in Extended Pedigrees through Sparse Negative Binomial Genome Signal Recovery	1311-1314
Banuelos, Mario (<i>University of California, Merced</i>); Sindi, Suzanne (<i>University of California, Merced</i>); Marcia, Roummel* (<i>University of California, Merced</i>)	
14:15-14:30	ThCT5.4
Unsupervised Fuzzy Binning of Metagenomic Sequence Fragments on Three-Dimensional Barnes-Hut t-Stochastic Neighbor Embeddings	1315-1318
Ariza-Jiménez, Leandro (<i>Universidad EAFIT</i>); Quintero Montoya, Olga Lucia* (<i>Universidad EAFIT</i>); Pinel, Nicolás (<i>Universidad EAFIT</i>)	

14:30-14:45 ThCT5.5
Identification of Primary and Metastatic Melanoma based on Copy Number Variation 1319-1322
 Seo, Hyein (*Korea Advanced Institute of Science and Technology (KAIST)*); Cho, Dong-Ho* (*Korea Advanced Institute of Science and Technology (KAIST)*)

14:45-15:00 ThCT5.6
Micro-Inversions in Human Cancer Genomes 1323-1326
 Qu, Li* (*Peking University/GaTech/Emory University*); Zhu, Huaiqiu (*Peking University*); Wang, May D. (*Georgia Tech and Emory University*)

ThCT6: 13:30-15:00 Aneurysma (Theme 5) (Oral Session) Chair: Heldt, Thomas (<i>Massachusetts Institute of Technology</i>)	Meeting Room 316B
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13:30-13:45 ThCT6.1
3DRA Reconstruction of Intracranial Aneurysms – How Does Voxel Size Influences Morphologic and Hemodynamic Parameters 1327-1330
 Berg, Philipp* (*Univ. of Magdeburg*); Radtke, Livia (*Univ. of Magdeburg*); Voß, Samuel (*Univ. of Magdeburg*); Serowy, Steffen (*Univ. Hospital Magdeburg*); Janiga, Gabor (*Univ. of Magdeburg*); Preim, Bernhard (*Univ. of Magdeburg*); Beuing, Oliver (*Univ. Hospital Magdeburg*); Saalfeld, Sylvia (*Univ. of Magdeburg*)

13:45-14:00 ThCT6.2
Blood Flow Analysis in Coil Embolized Aneurysms: Difference between Porous Media and Real Coil Geometry Model 1331-1334
 Fujimura, Soichiro* (*Tokyo Univ. of Science*); Takao, Hiroyuki (*Jikei Univ. School of Medicine*); Suzuki, Takashi (*Tokyo Univ. of Science*); Uchiyama, Yuya (*Tokyo Univ. of Science*); Tanaka, Kazutoshi (*Tokyo Univ. of Science*); Otani, Katharina (*Siemens Healthcare K.K.*); Ishibashi, Toshihiro (*Jikei Univ. School of Medicine, Dept. of Neurosurgery*); Fukudome, Koji (*Tokyo Univ. of Science*); Mamori, Hiroya (*Tokyo Univ. of Science*); Yamamoto, Makoto (*Tokyo Univ. of Science*); Murayama, Yuichi (*Jikei Univ. School of Medicine*)

14:00-14:15 ThCT6.3
Comparison of Hemodynamic Parameters that can Predict an Aneurysmal Rupture: 20 Patient-Specific Models Experiment 1335-1338
 Fujita, Ryosuke (*Tokyo University of Science*); Kawakami, Takumi (*Tokyo University of Science*); Ichikawa, Chihiro (*Tokyo University of Science*); Yamamoto, Ken (*Tokyo University of Science*); Takao, Hiroyuki (*Jikei University School of Medicine*); Murayama, Yuichi (*Jikei University School of Medicine*); Motosuke, Masahiro* (*Tokyo University of Science*)

14:15-14:30 ThCT6.4
Multivariate Analysis for Predicting Internal Carotid (IC) and Middle Cerebral (MC) Aneurysmal Rupture by Hemodynamic Parameters 1339-1342
 Suzuki, Takashi (*Tokyo University of Science*); Takao, Hiroyuki* (*Jikei University School of Medicine*); Fujimura, Soichiro (*Tokyo University of Science*); Otani, Katharina (*Siemens Healthcare K.K.*); Uchiyama, Yuya (*Tokyo University of Science*); Tanaka, Kazutoshi (*Tokyo University of Science*); Ishibashi, Toshihiro (*Jikei University School of Medicine, Dept. of Neurosurgery*); Mamori, Hiroya (*Tokyo University of Science*); Murayama, Yuichi (*Jikei University School of Medicine*); Yamamoto, Makoto (*Tokyo University of Science*)

14:30-14:45 ThCT6.5
Hemodynamic Change in a Cerebral Aneurysm Treated by Double Stenting Technique 1343-1346
 Uchiyama, Yuya* (*Tokyo University of Science*); Takao, Hiroyuki (*Jikei University School of Medicine*); Suzuki, Takashi (*Tokyo University of Science*); Fujimura, Soichiro (*Tokyo University of Science*); Tanaka, Kazutoshi (*Tokyo University of Science*); Otani, Katharina (*Siemens Healthcare K.K.*); Hayakawa, Motoharu (*Fujita Health University*); Ishibashi, Toshihiro (*Jikei University School of Medicine, Dept. of Neurosurgery*); Fukudome, Koji (*Tokyo University of Science*); Mamori, Hiroya (*Tokyo University of Science*); Yamamoto, Makoto (*Tokyo University of Science*); Murayama, Yuichi (*Jikei University School of Medicine*)

14:45-15:00 ThCT6.6
Relationship between Cerebral Aneurysm Initiation and Hemodynamic Parameters 1347-1350
 Tanaka, Kazutoshi* (*Tokyo University of Science*); Takao, Hiroyuki (*Jikei University School of Medicine*); Suzuki, Takashi (*Tokyo University of Science*); Fujimura, Soichiro (*Tokyo University of Science*); Uchiyama, Yuya (*Tokyo University of Science*); Otani, Katharina (*Siemens Healthcare K.K.*); Ishibashi, Toshihiro (*Jikei University School of Medicine, Dept. of Neurosurgery*); Mamori, Hiroya (*Tokyo University of Science*); Fukudome, Koji (*Tokyo University of Science*); Yamamoto, Makoto (*Tokyo University of Science*); Murayama, Yuichi (*Jikei University School of Medicine*)

ThCT7: 13:30-15:00	Meeting Room 316C
MRI: RF, Parallel Imaging and Pulse Sequence (Theme 2) (Oral Session)	
Chair: Wright, Steven M. (<i>Texas A&M University</i>)	

13:30-13:45 ThCT7.1
Super Slice Interpolation for Generating Thin-Slice Images from Multichannel Multislice MRI Data 1351-1355
 Feng, Yanqiu (*Southern Medical University*); Lyu, Mengye (*Hong Kong University*); Liu, Yilong (*University of Hong Kong*); Victor B., Xie (*University of Hong Kong*); Ka-Fung Henry, Mak (*University of Hong Kong*); Guo, Hua (*Tsinghua University*); Wu, Ed X.* (*University of Hong Kong*)

13:45-14:00 ThCT7.2
A Surface Electromyography-Driven Magnetic Resonance Sequence Controller for Real-Time Myoelectric Triggered Imaging 1356-1359
 Schwartz, Martin* (*Univ. of Tübingen*); Martirosian, Petros (*Dept. of Diagnostic and Interventional Radiology, Univ. Clinic of Tübingen*); Yang, Bin (*Institute of Signal Processing and System Theory, Univ. of Stuttgart*); Schick, Fritz (*Dept. of Diagnostic and Interventional Radiology, Univ. Clinic of Tübingen*)

14:00-14:15 ThCT7.3
Effect of Incident Field Magnitude and Phase Distribution on RF-Induced Heating Due to Hip Implants 1360-1363
 Kozlov, Mikhail* (*Max Planck Institute for Human Cognitive and Brain Sciences*); Horner, Marc (*ANSYS, Inc.*); Kainz, Wolfgang (*Food and Drug Administration*); Angelone, Leonardo M. (*US Food and Drug Administration, Center for Devices and Radiological Health*)

14:15-14:30 ThCT7.4
Double-Tuned Cable Traps for Multinuclear MRI and MRS 1364-1367
 Wilcox, Matthew* (*Texas A&M University*); McDougall, Mary (*Texas A&M University*)

14:30-14:45 ThCT7.5
Flexible RF Filtering Front-End for Simultaneous Multinuclear MR Spectroscopy 1368-1371
 Huang, Chung-Huan* (*Texas A&M University*); Ogier, Stephen (*Texas A&M University*); Gu, Minyu (*Texas A&M University*); Wright, Steven M. (*Texas A&M University*)

14:45-15:00 ThCT7.6
4D Dual-Venc Spiral Flow 1372-1375
 Callahan, Sean* (*University of Louisville*); Henn, Alexander (*University of Louisville*); Kendrick, Michael (*Veteran's Affairs Medical Center*); Wang, Hui (*Philips Medical Systems*); Negahdar, MJ (*University of Louisville*); Kheradvar, Arash (*University of California, Irvine*); Stoddard, Marcus (*University of Louisville*); Amini, Amir (*University of Louisville*)

ThCT8: 13:30-15:00	Meeting Room 318A
Brain Physiology and Modelling (Theme 6) (Oral Session)	
Chair: Butera, Robert (<i>Georgia Institute of Technology</i>)	
Co-Chair: Zouridakis, George (<i>University of Houston</i>)	

13:30-13:45 ThCT8.1
Auditory Steady-State Responses across Chirp Repetition Rates for Ear-EEG and Scalp EEG 1376-1379
 Christensen, Christian Bech* (*Aarhus University*); Kappel, Simon Lind (*Aarhus University, Denmark*); Kidmose, Preben (*Aarhus University, Denmark*)

13:45-14:00	ThCT8.2
Graph-Based Models of Cortical Axons for the Prediction of Neuronal Response to Extracellular Electrical Stimulation .. 1380-1383	
Bingham, Clayton* (<i>University of Southern California</i>); Bouteiller, Jean-Marie Charles (<i>University of Southern California</i>); Song, Dong (<i>University of Southern California</i>); Berger, Theodore (<i>USC</i>)	
14:00-14:15	ThCT8.3
Decoding Movement States in Stepping Cycles based on Subthalamic LFPs in Parkinsonian Patients .. 1384-1387	
Tan, Huiling (<i>University Research Lecturer in Nuffield Dept. of Clinical NeuroSciences, University of Oxford</i>); Fischer, Petra (<i>University of Oxford</i>); Shah, Syed Ahmar* (<i>Postdoctoral Scientist, University of Oxford</i>); Vidaurre, Diego (<i>University of Oxford</i>); Woolrich, Mark (<i>Oxford University</i>); Brown, Peter (<i>Director of the Medical Research Council Brain Network Dynamics Unit at the University of Oxford, and Professor of Experimental</i>)	
14:15-14:30	ThCT8.4
A Closed-Loop Multi-Channel Asynchronous Neurostimulator to Mimic Neural Code for Cognitive Prosthesis .. 1388-1391	
Elyahoodayan, Sahar* (<i>University of Southern California</i>); Berger, Theodore (<i>USC</i>); Song, Dong (<i>University of Southern California</i>)	
14:30-14:45	ThCT8.5
Sleep Depth Enhancement through Ambient Temperature Manipulation in Mice .. 1392-1395	
Ajwad, Asmaa (<i>University of Kentucky</i>); Huffman, Dillon (<i>University of Kentucky</i>); Yaghouby, Farid (<i>FDA</i>); O'Hara, Bruce (<i>University of Kentucky</i>); Sunderam, Sridhar* (<i>University of Kentucky</i>)	
14:45-15:00	ThCT8.6
Cholinergic Modulation of CA1 Pyramidal Cells via M1 Muscarinic Receptor Activation: A Computational Study under Physiological and Hyperactive Levels .. 1396-1399	
Mergenthal, Adam* (<i>University of Southern California</i>); Bouteiller, Jean-Marie Charles (<i>University of Southern California</i>); Berger, Theodore (<i>USC</i>)	
ThCT9: 13:30-15:00 Meeting Room 318B Signal Processing and Classification of Acoustic and Auditory Signals (Theme 1) (Oral Session) Chair: Sankar, Ravi (<i>University of South Florida</i>)	
13:30-13:45	ThCT9.1
Comparison of Cough, Wheeze and Sustained Phonations for Automatic Classification between Healthy Subjects and Asthmatic Patients .. 1400-1403	
Yadav, Shivani* (<i>IISc</i>); Ghosh, Prasanta (<i>Indian Institute of Science</i>); Krishnaswamy, Uma maheswari (<i>M.S.Ramaiah Medical College</i>); NK, Kausthubha (<i>IISc</i>); Gope, Dipanjan (<i>IISc</i>)	
13:45-14:00	ThCT9.2
Study of the Automatic Detection of Parkinson's Disease based on Speaker Recognition Technologies and Allophonic Distillation .. 1404-1407	
Moro Velazquez, Laureano (<i>Johns Hopkins University</i>); Gómez-García, Jorge Andrés (<i>Universidad Nacional de Colombia Sede Manizales</i>); Godino-Llorente, Juan Ignacio (<i>Universidad Politécnica de Madrid</i>); Rusz, Jan (<i>Czech Technical University in Prague</i>); Skodda, Sabine (<i>Universitätsklinikum Knappschafts Krankenhaus Bochum GmbH</i>); Grandas-Pérez, Francisco (<i>Hospital General Universitario Gregorio Marañón</i>); Velázquez, José-Miguel (<i>Hospital General Universitario Gregorio Marañón</i>); Nöth, Elmar (<i>University of Erlangen-Nuremberg</i>); Orozco-Arroyave, Juan-Rafael (<i>Universidad de Antioquia</i>); Dehak, Najim* (<i>Johns Hopkins University</i>)	
14:00-14:15	ThCT9.3
Learning Front-End Filter-Bank Parameters using Convolutional Neural Networks for Abnormal Heart Sound Detection .. 1408-1411	
Humayun, Ahmed Imtiaz (<i>mHealth Lab, Bangladesh University of Engineering and Technology (BUET)</i>); Ghaffarzadegan, Shabnam* (<i>Robert Bosch LLC</i>); Feng, Zhe (<i>Robert Bosch LLC</i>); Hasan, Taufiq (<i>Bangladesh University of Engineering and Technology</i>)	
14:15-14:30	ThCT9.4
Multifractal Analysis of Speech Imagery of IPA Vowels .. 1412-1415	
Sikdar, Debdeep (<i>IIT Kharagpur</i>); Roy, Rinku (<i>IIT Kharagpur</i>); Bakshi, Koushik* (<i>Indian Institute of Technology Kharagpur</i>); Mahadevappa, Manjunatha (<i>Indian Institute of Technology Kharagpur</i>)	

14:30-14:45 ThCT9.5
Bruit-Enhancing Phonoangiogram Filter using Sub-Band Autoregressive Linear Predictive Coding 1416-1419
 Majerus, Steve* (APT Center, Cleveland VAMC); Mandal, Soumyajit (Case Western Reserve University); Vince, Geoff (Volcano Corp.); Pinault, Gilles (Case Western Reserve University); Damaser, Margot S. (Lerner Research Institute, The Cleveland Clinic Foundation)

14:45-15:00 ThCT9.6
Classification of Parkinson's Disease using Pitch Synchronous Speech Analysis 1420-1423
 Appakaya, Sai Bharadwaj* (University of South Florida); Sankar, Ravi (University of South Florida)

ThCT10: 13:30-15:00 Meeting Room 319A
Motor Neuroprostheses (II) (Theme 6) (Oral Session)
Chair: Ellis, Michael (Northwestern University)
Co-Chair: Petroff, Neil (Tarleton State University)

13:30-13:45 ThCT10.1
Selective Recruitment of Arm Motoneurons in Nonhuman Primates using Epidural Electrical Stimulation of the Cervical Spinal Cord 1424-1427
 Barra, Beatrice* (Univ. of Fribourg); Roux, Camille (Univ. of Fribourg); Kaeser, Mélanie (Univ. of Fribourg); Schiavone, Giuseppe (Ecole Polytechnique Federale de Lausanne); Lacour, Stéphanie (EPFL); Bloch, Jocelyne (Centre Hospitalier Universitaire Vaudois, CHUV); Courtine, Gregoire (EPFL); Rouiller, Eric M. (Univ. of Fribourg); Schmidlin, Eric (Univ. of Fribourg); Capogrosso, Marco (Ecole Polytechnique Federale de Lausanne)

13:45-14:00 ThCT10.2
Flexibility of Finger Activation Patterns Elicited through Non-Invasive Multi-Electrode Nerve Stimulation 1428-1431
 Shin, Henry (University of North Carolina at Chapel Hill); Hu, Xiaogang* (University of North Carolina-Chapel Hill)

14:00-14:15 ThCT10.3
Long-Term Functionality of a Soft Electrode Array for Epidural Spinal Cord Stimulation in a Minipig Model ... 1432-1435
 Schiavone, Giuseppe* (Ecole Polytechnique Federale de Lausanne); Wagner, Fabien (EPFL Lausanne); Fallegger, Florian (EPFL Lausanne); Kang, Xiao-Yang (EPFL Lausanne); Vachicouras, Nicolas (EPFL Lausanne); Barra, Beatrice (University of Fribourg); Capogrosso, Marco (Ecole Polytechnique Federale de Lausanne); Bloch, Jocelyne (Centre Hospitalier Universitaire Vaudois, CHUV); Courtine, Gregoire (EPFL); Lacour, Stéphanie (EPFL)

14:15-14:30 ThCT10.4
A Novel EMG-Driven Functional Electrical Stimulator for Post-Stroke Individuals to Practice Activities of Daily Living 1436-1439
 Yao, Jun* (Northwestern University); Sullivan, Jane (Northwestern University); Dewald, Julius P. A. (Northwestern University)

14:30-14:45 ThCT10.5
Applying Multichannel Optogenetic System for Epidural Spinal Cord Stimulation in Rats 1440-1443
 Chang, Shih-Yin* (University of Tokyo); Naganuma, Kazunori (University of Tokyo); Kanazawa, Hoshinori (University of Tokyo); Sekino, Masaki (University of Tokyo); Onodera, Hiroshi (University of Tokyo Graduate School of Engineering); Kuniyoshi, Yasuo (University of Tokyo)

ThCT11: 13:30-15:00 Meeting Room 319B
Time-Frequency Analysis in Sleep Studies (Theme 1) (Oral Session)
Chair: Porta, Alberto (Università degli Studi di Milano)

13:30-13:45 ThCT11.1
Feature Selection for the Detection of Sleep Apnea using Multi-Bio Signals from Overnight Polysomnography 1444-1447
 Li, Xilin* (University of Technology Sydney); Al-Ani, Ahmed (University of Technology, Sydney); Ling, Sai Ho, Steve (University of Technology Sydney)

13:45-14:00	ThCT11.2
Autonomic Cardiac Activity in Adults with Short and Long Sleep Onset Latency	1448-1451
Nano, Marina-Marinelá* (<i>Eindhoven University of Technology</i>); Fonseca, Pedro (<i>Philips Research and Eindhoven University of Technology</i>); Overeem, Sebastiaan (<i>Kempenhaeghe Foundation, Sleep Medicine Centre</i>); Vullings, Rik (<i>Eindhoven University of Technology</i>); Aarts, Ronald M. (<i>Philips</i>)	
14:00-14:15	ThCT11.3
Automatic Sleep Stage Classification using Single-Channel EEG: Learning Sequential Features with Attention-Based Recurrent Neural Networks	1452-1455
Phan, Huy* (<i>University of Oxford</i>); Andreotti, Fernando (<i>University of Oxford</i>); Cooray, Navin (<i>Institute of BioMedical Engineering, University of Oxford</i>); Chén, Oliver (<i>University of Oxford</i>); De Vos, Maarten (<i>University of Oxford</i>)	
14:15-14:30	ThCT11.4
Characteristics of EEG Power Spectrum during Sleep Spindle Events in ADHD Children	1456-1459
De Dea, Federica* (<i>University of Trieste</i>); Zanus, Caterina (<i>Child Neuropsychiatry, IRCCS Children's Hospital "Burlo Garofolo"</i>); Carrozzi, Marco (<i>Child Neuropsychiatry, IRCCS Children's Hospital "Burlo Garofolo"</i>); Stecca, Matteo (<i>Child Neuropsychiatry, IRCCS Children's Hospital "Burlo Garofolo"</i>); Accardo, Agostino (<i>University of Trieste</i>)	
14:30-14:45	ThCT11.5
Automating the Detection of REM Sleep Behaviour Disorder	1460-1463
Cooray, Navin* (<i>Institute of BioMedical Engineering, University of Oxford</i>); Andreotti, Fernando (<i>University of Oxford</i>); Lo, Christine (<i>Sheffield Institute of Translational Neuroscience</i>); Symmonds, Mkael (<i>Dept. of Clinical Neurophysiology, Oxford University Hospitals, John Radcliffe Hospital, University of Oxford, UK</i>); Hu, Michele (<i>Nuffield Dept. of Clinical NeuroSciences, University of Oxford</i>); De Vos, Maarten (<i>University of Oxford</i>)	
14:45-15:00	ThCT11.6
Quantitative Analysis of a Marked Point Process based Sleep Spindle Detector	1464-1467
Akella, Shailaja* (<i>University of Florida, Gainesville</i>); Principe, Jose (<i>University of Florida</i>)	

ThCT12: 13:30-15:00	Meeting Room 321A
Joint Biomechanics (Theme 8) (Oral Session)	

13:30-13:45	ThCT12.1
In Vivo Relationship between Joint Stiffness, Joint-Based Estimates of Muscle Stiffness, and Shear-Wave Velocity	1468-1471
Vigotsky, Andrew* (<i>Northwestern University</i>); Rouse, Elliott (<i>University of Michigan</i>); Lee, Sabrina (<i>Northwestern University</i>)	
13:45-14:00	ThCT12.2
Elbow Joint Angle Estimation with Surface Electromyography and Autoregressive Moving Average Models	1472-1475
Fischi Sommer, Leonardo (<i>Univ. of São Paulo</i>); Barreira, Cauê (<i>Univ. of Sao Paulo</i>); López Noriega, Carlos (<i>Univ. of São Paulo</i>); Camargo-Junior, Franklin (<i>Univ. of São Paulo</i>); Moura, Rafael Traldi (<i>Polytechnic School. Univ. of Sao Paulo</i>); Forner-Cordero, Arturo* (<i>Escola Politécnica da Universidade de Sao Paulo</i>)	
14:00-14:15	ThCT12.3
A New Algorithm to Estimate Glenohumeral Joint Location based on Scapula Rhythm	1476-1480
Heidari, Omid* (<i>Idaho State University</i>); Pourgharibshahi, Vahid (<i>Idaho State University</i>); Urfer, Alex (<i>Idaho State University</i>); Perez Gracia, Alba (<i>Idaho State University</i>)	
14:15-14:30	ThCT12.4
Shoulder Glenohumeral Elevation Estimation based on Upper Arm Orientation	1481-1484
Hamdan, Sara* (<i>Ozyegin Univ.</i>); Oztog, Erhan (<i>Ozyegin Univ.</i>); Furukawa, Jun-ichiro (<i>ATR Computational Neuroscience Labs</i>); Morimoto, Jun (<i>ATR Computational Neuroscience Labs</i>); Ugurlu, Barkan (<i>Ozyegin Univ.</i>)	
14:30-14:45	ThCT12.5
A Functional Method for Generating Individualized Spine Models from Motion-Capture Data	1485-1489
Seko, Sarah* (<i>UC Berkeley</i>); Matthew, Robert Peter (<i>UC Berkeley</i>); Bajcsy, Ruzena (<i>UC Berkeley, CITRIS</i>); Lotz, Jeffrey (<i>Orthopaedic Surgery, University of California at Berkeley</i>)	

14:45-15:00 ThCT12.6
Generalized Lower Limb Joint Angular Phase Space Analysis of Subject Specific Normal and Modified Gait 1490-1493
 Rodrigues, Carlos M. B.* (*INESCTEC - Technology & Science Associate Lab*); Correia, Miguel (*Universidade do Porto, Faculdade de Engenharia*); Abrantes, João M. C. S. (*MovLab - ULHT*); Rodrigues, Marco Aurélio Benedetti (*Federal University of Pernambuco*); Nadal, Jurandir (*Federal University of Rio de Janeiro*)

ThCT13: 13:30-15:00 Meeting Room 321B
Cardiovascular, Pulmonary, and Sleep Engineering (Theme 5) (Oral Session)

13:30-13:45 ThCT13.1
A Guide-Wired Helical Microrobot for Mechanical Thrombectomy: A Feasibility Study 1494-1497
 Nguyen, Kim Tien (*Chonnam National University*); Go, Gwangjun (*Robot Research Initiative*); Choi, Eunpyo (*Chonnam National University*); Kang, Byungjeon (*Robot Research Initiative, Chonnam National University*); Park, Jongoh (*Chonnam National University*); Kim, Chang-Sei* (*Chonnam National University*)

13:45-14:00 ThCT13.2
Preliminary Study of Palatal Implant for Sleep Apnea Control 1498-1501
 Seo, Jungmin (*Seoul National Univ.*); Kim, Jeong-Whun (*Seoul National Univ. College of Medicine*); Cho, Sung Woo (*Dept. of Otorhinolaryngology, Seoul National Univ. Hospital College of Medicine*); Shim, Shinyong (*Seoul National Univ.*); Choi, Jin-Woo (*Louisiana State Univ.*); Kim, Sung June* (*Seoul National Univ.*)

14:00-14:15 ThCT13.3
Performance Assessment of a Dedicated Reflectance Pulse Oximeter in a Neonatal Intensive Care Unit 1502-1505
 Proença, Martin* (*CSEM SA*); Grossenbacher, Olivier (*CSEM SA*); Dasen, Stephan (*CSEM*); Moser, Virginie (*CSEM*); Ostojic, Daniel (*University of Zurich*); Lemkaddem, Alia (*CSEM*); Ferrario, Damien (*CSEM*); Lemay, Mathieu (*CSEM*); Wolf, Martin (*University of Zurich*); Fauchère, Jean-Claude (*University of Zurich*); Karen, Tanja (*University of Zurich*)

14:15-14:30 ThCT13.4
Basic Performance Tests of the MILL Intravascular CO2 Removal Catheter 1506-1509
 Janeczek, Christoph (*Vienna University of Technology*); Lukitsch, Benjamin (*Vienna University of Technology*); Huber-Dangl, Florentine (*Vienna University of Technology*); Karabegovic, Alen (*Vienna University of Technology*); Jordan, Christian (*Vienna University of Technology*); Haddadi, Bahram (*Vienna University of Technology*); Ullrich, Roman (*CCore Technology GmbH*); Krenn, Claus Georg (*CCore Technology GmbH*); Gfoehler, Margit (*TU Wien*); Harasek, Michael* (*Vienna University of Technology*)

14:30-14:45 ThCT13.5
Design, Development, and Characterization of Breathforce: A Respiratory Training System for Patients with Spinal Cord Injuries 1510-1513
 Tran, Kevin* (*University of Louisville*); Chen, Yangsheng (*Kentucky Spinal Cord Injury Research Center*); Ovechkin, Alexander (*University of Louisville*); Roussel, Thomas (*University of Louisville*)

14:45-15:00 ThCT13.6
Feasibility of a Post-Auricle Wireless Power System for Pediatric Mechanical Circulatory Support Pumps ... 1514-1517
 Valdovinos, John* (*California State University Northridge*); Nagra, Simerjit (*California State University Northridge*); Hussain, Fatima (*California State University Northridge*); Alvarez, Isabel (*CSUN*)

ThCT14: 13:30-15:00 Meeting Room 322AB
Ambulatory and Diagnostic Systems and Devices (II) (Theme 9) (Oral Session)
Chair: Srimathveeravalli, Govindarajan (*Memorial Sloan-Kettering Cancer Center*)
Co-Chair: Holmes, David (*Mayo Clinic*)

13:30-13:45 ThCT14.1
Estimating Mini Mental State Examination Scores using Game-Specific Performance Values: A Preliminary Study 1518-1521
 Jung, Hee-Tae (*University of Massachusetts Amherst*); Lee, Hyunsuk (*WooriSoft*); Kim, Kwangwook (*WooriSoft*); Kim, Byeongil (*WooriSoft*); Park, Sung Ji (*Heeeyeon Hospital*); Ryu, Taekyeong (*Heeeyeon Hospital*); Kim, Yangsoo (*Heeeyeon Hospital*); Lee, Sunghoon Ivan* (*University of Massachusetts Amherst*)

13:45-14:00	ThCT14.2
Optimizing Mental Workload by Functional Near-Infrared Spectroscopy based Dynamic Difficulty Adjustment	1522-1525
Ung, Wei Chun (<i>Universiti Teknologi Petronas</i>); Meriaudeau, Fabrice (<i>Universite de Bourgogne</i>); Tang, Tong Boon* (<i>Universiti Teknologi Petronas</i>)	
14:00-14:15	ThCT14.3
Automated Measurement and Subtask Analysis of the Timed Up-and-Go Test in the Field of Geriatrics	1526-1529
Ziegl, Andreas (<i>AIT Austrian Institute of Technology GmbH</i>); Kastner, Peter (<i>AIT Austrian Institute of Technology</i>); Modre, Robert (<i>ARC Seibersdorf Research GmbH</i>); Schreier, Guenter* (<i>AIT Austrian Institute of Technology GmbH</i>)	
14:15-14:30	ThCT14.4
Mobile Fall Risk Assessment Solution for Daily-Life Settings	1530-1533
Similä, Heidi* (<i>VTT Technical Research Centre of Finland Ltd.</i>); Immonen, Milla Sinikka (<i>VTT Technical Research Centre of Finland</i>); Niemirepo, Timo (<i>VTT Technical Research Centre of Finland Ltd.</i>)	
14:30-14:45	ThCT14.5
A New Smart Balance Rehabilitation System Technology Platform: Development and Preliminary Assessment of the Smarter Balance System for Home-Based Balance Rehabilitation for Individuals with Parkinson's Disease	1534-1537
Alberto, Fung (<i>University of Houston</i>); Lai, Eugene (<i>Houston Methodist Neurological Institute</i>); Lee, Beom-Chan* (<i>University of Houston</i>)	
14:45-15:00	ThCT14.6
Functional Near Infrared Spectroscopy in the Noninvasive Assessment of Brain Death	1538-1541
Li, Ting* (<i>Chinese Academy of Medical Science and Peking Union Medical College</i>); Pan, Boan (<i>University of Electronic Science and Technology of China</i>)	

ThCT15: 13:30-15:00	Meeting Room 323A
Health Technologies (Theme 9) (Oral Session)	
Chair: Holmes, David (<i>Mayo Clinic</i>)	
Co-Chair: Bomzon, Ze'ev (<i>Novocure</i>)	

13:30-13:45	ThCT15.1
Non-Invasive Method to Monitor Molecular Changes in Human Stratum Corneum during Acute Barrier Disruption using Reflectance NIR Spectroscopy	1542-1545
Shin, Eui Seok* (<i>Samsung Advanced Institute of Technology</i>); Lee, June-Young (<i>Samsung Advanced Institute of Technology</i>); Lee, Seung Jun (<i>Samsung Advanced Institute of Technology</i>); Nam, Sung Hyun (<i>Samsung Advanced Institute of Technology, Samsung Electronics</i>)	
13:45-14:00	ThCT15.2
On the Fly Reporting of Human Body Movement based on Kinect V2	1546-1549
Rodrigues, Joana (<i>Faculty of Engineering (FEUP), University of Porto, Porto</i>); Maia, Paulo (<i>Faculty of Engineering (FEUP), University of Porto, Porto</i>); Choupina, Hugo Miguel Pereira (<i>University of Porto</i>); Cunha, Joao Paulo Silva* (<i>INESC TEC</i>)	
14:00-14:15	ThCT15.3
Physiological Responses of the Youth Viewing a Japanese Garden	1550-1553
Zhang, Yawen* (<i>Hong Kong University of Science and Technology</i>); Liu, Congcong (<i>Hong Kong University of Science and Technology</i>); Herrup, Karl (<i>Hong Kong University of Science and Technology</i>); Shi, Bertram E. (<i>Hong Kong University of Science and Technology</i>)	
14:15-14:30	ThCT15.4
Knee Extensor Muscular Activity Estimation during Different Walking Patterns: Flat Normal and Brisk Walking, Stair Climbing	1554-1557
Cosentino, Sarah* (<i>Waseda Univ.</i>); Kasai, Ritaro (<i>Waseda Univ.</i>); Gu, Zixi (<i>Waseda Univ.</i>); Sessa, Salvatore (<i>Waseda Univ.</i>); Kawakami, Yasuo (<i>Waseda Univ.</i>); Takanishi, Atsuo (<i>Waseda Univ.</i>)	

14:30-14:45 ThCT15.5
Long Distance Vital Signs Monitoring with Person Identification for Smart Home Solutions 1558-1561
 Szankin, Maciej* (*Intel Corp.*); Kwasniewska, Alicja (*Gdansk University of Technology*); Sirlapu, Tejaswini (*Intel*); Wang, Mingshan (*Intel Corp.*); Ruminski, Jacek (*Gdansk University of Technology*); Nicolas, Rey (*Intel Corp.*); Bartscherer, Marko (*Intel Corp.*)

14:45-15:00 ThCT15.6
Elevation Measurement of Laryngeal Prominence from Depth Images for Evaluating Swallowing Function 1562-1565
 Sugimoto, Chika* (*Yokohama National University*); Masuyama, Yuto (*Yokohama National University*)

ThCT16: 13:30-15:00 Meeting Room 323B
Health Informatics – eHealth (Theme 10) (Oral Session)
Chair: Caon, Maurizio (*University of Applied Sciences and Arts Western Switzerland*)

13:30-13:45 ThCT16.1
Improved Sparse Adaptive Algorithms for Accurate Non-Contact Heartbeat Detection using Time-Window-Variation Technique 1566-1571
 Ye, Chen* (*Keio University*); Toyoda, Kentaroh (*Keio University*); Ohtsuki, Tomoaki (*Keio University*)

13:45-14:00 ThCT16.2
Co-Saliency-Enhanced Deep Recurrent Convolutional Networks for Human Fall Detection in E-Healthcare 1572-1575
 Ge, Chenjie* (*Chalmers University of Technology*); Gu, Irene Y.H. (*Chalmers University of Technology*); Yang, Jie (*Shanghai Jiao Tong University*)

14:00-14:15 ThCT16.3
Teenagers' Usage of a Mobile-Wearable-Cloud Platform to Promote Healthy Lifestyles 1576-1579
 Caon, Maurizio* (*University of Applied Sciences and Arts Western Switzerland*); Carrino, Stefano (*University of Applied Sciences and Arts Western Switzerland*); Angelini, Leonardo (*University of Applied Sciences and Arts Western Switzerland*); Abou Khaled, Omar (*University of Applied Sciences and Arts Western Switzerland*); Mugellini, Elena (*University of Applied Sciences and Arts Western Switzerland*); Velickovski, Filip (*EURECAT*); Andreoni, Giuseppe (*Politecnico di Milano*)

14:15-14:30 ThCT16.4
Seasonal Variation in an At-Home Telemonitoring Trial 1580-1583
 Argha, Ahmadreza* (*University of New South Wales*); Celler, Branko George (*University of New South Wales*)

14:30-14:45 ThCT16.5
Increasing Health Care Adherence through Gamification, Video Feedback, and Real-World Rewards 1584-1587
 Saric, Kevin (*CSIRO*); Redd, Christian Brandt* (*Commonwealth Scientific and Industrial Research Organization*); Varnfield, Marlien (*CSIRO*); O'Dwyer, John (*CSIRO*); Karunanithi, Mohanraj (*CSIRO Digital Productivity Flagship*)

ThCT17: 13:30-15:00 Meeting Room 323C
Sensing / Animal Models (Theme 7) (Oral Session)

13:30-13:45 ThCT17.1
Imaging of IR700DX Labeled Mouse Breast Tumor using a Custom Angle-Selective Fluorescence Contact Imaging System 1588-1591
 Papageorgiou, Efthymios Philip* (*UC Berkeley*); Giverts, Simeon (*UC Berkeley*); Zhang, Hui (*UCSF*); Park, Catherine (*UCSF*); Boser, Bernhard (*UC Berkeley*); Anwar, Mekhail (*UCSF*)

13:45-14:00 ThCT17.2
A Conductance-Based Sensor to Estimate Bladder Volume in Felines 1592-1595
 McAdams, Ian* (*Cleveland Clinic*); Majerus, Steve (*APT Center, Cleveland VAMC*); Zorman, Christian (*Case Western Reserve University*); Damaser, Margot S. (*Lerner Research Institute, The Cleveland Clinic Foundation*); Bourbeau, Dennis (*FES Center, Cleveland VAMC*)

14:00-14:15 ThCT17.3
Towards an Untethered Ultrasound Beamforming System for Brain Stimulation in Behaving Animals ... 1596-1599
 Seok, Chunkyun* (*North Carolina State University*); Ali, Ziad (*North Carolina State University*); Yamaner, Feysel
 Yalcin (*North Carolina State University*); Sahin, Mesut (*New Jersey Institute of Technology*);
 Oralkan, Omer (*North Carolina State University*)

14:15-14:30 ThCT17.4
Evaluation of Bone Conduction Vibration System using Photoacoustic Effect 1600-1603
 Wadamori, Naoki* (*Nagaoka University of Technology*)

14:30-14:45 ThCT17.5
Unobtrusive Heartbeat Detection from Mice using Sensors Embedded in the Nest 1604-1607
 Gurel, Nil Zeynep* (*Georgia Institute of Technology*); Jeong, Hyeon Ki (*Georgia Institute of Technology*); Kloefkorn,
 Heidi (*Emory University*); Shawn, Hochman (*Emory University*); Inan, Omer (*Georgia Institute of Technology*)

14:45-15:00 ThCT17.6
**A Wireless Optoelectronic Neuroscience Platform for Chronic Fluorescence Sensing in
 Freely Behaving Rodents** 1608-1611
 Noormohammadi Khiaarak, Mehdi* (*Laval University*); Gagnon-Turcotte, Gabriel (*Université Laval*); Martianova,
 Ekaterina (*Laval University*); Bories, Cyril (*Laval University*); Martel, Sylvain (*Ecole Polytechnique de Montreal*);
 C. Proulx, Christophe (*Laval University*); De Koninck, Yves (*Laval University*); Gosselin, Benoit (*Laval University*)

ThCT18: 13:30-15:00 Meeting Room 324
Wearable Sensors (Theme 7) (Oral Session)
Chair: Selvaraj, Nandakumar (*VitalConnect, Inc.*)
Co-Chair: Nallathambi, Gabriel (*VitalConnect, Inc.*)

13:30-13:45 ThCT18.1
**A Novel Environment-Invariant Core Body Temperature Estimation for High Sensitivity and
 Specificity Fever Screening** 1612-1615
 Silawan, Nawatt (*Panasonic Corp., Automotive & Industrial Systems Company, Engineering Division*);
 Kusakame, Koichi (*Panasonic Industrial Devices Singapore Technology Centre*); Kek, Khai Jun* (*Panasonic
 Industrial Devices Singapore*); Kuan, Win Sen (*National University Hospital*)

13:45-14:00 ThCT18.2
Polymer-Coated Fiber Optic Probe for the Monitoring of Breathing Pattern and Respiratory Rate 1616-1619
 Iacoponi, Sara (*Università Campus Bio-Medico di Roma*); Massaroni, Carlo* (*Università Campus Bio-Medico di
 Roma*); Lo Presti, Daniela (*Campus Bio-Medico di Roma University*); Saccomandi, Paola (*University Campus
 Bio-Medico of Rome*); Caponero, Michele Arturo (*ENEA - Centro Ricerche Frascati*); D'Amato, Rosaria (*ENEA -
 Centro Ricerche Frascati*); Schena, Emiliano (*University of Rome Campus Bio-Medico*)

14:00-14:15 ThCT18.3
Detection of Respiratory Crackle Sounds via an Android Smartphone-Based System 1620-1623
 Olvera-Montes, Nemecio Carlos (*Univ. Autónoma Metropolitana*); Reyes, Bersaín Alexander* (*Univ. Autónoma
 de San Luis Potosí (UASLP)*); Charleston-Villalobos, Sonia (*Univ. Autónoma Metropolitana*); Gonzalez-
 Camarena, Ramon (*Univ. Autónoma Metropolitana*); Mejía Ávila, Mayra (*Instituto Nacional de Enfermedades
 Respiratorias*); Dorantes Méndez, Guadalupe (*Univ. Autónoma de San Luis Potosí*); Reulecke, Sina (*Univ.
 Autónoma Metropolitana*); Aljama-Corrales, Tomas (*Univ. Autónoma Metropolitana*)

14:15-14:30 ThCT18.4
A 3D-Printed, Adjustable-Stiffness Knee Brace with Embedded Magnetic Angle Sensor 1624-1627
 Bolus, Nicholas* (*Georgia Institute of Technology*); Ganti, Venu (*Georgia Institute of Technology*);
 Inan, Omer (*Georgia Institute of Technology*)

14:30-14:45 ThCT18.5
Clinical Validation of a Wearable Respiratory Rate Device for Neonatal Monitoring 1628-1631
 Raj, Antony* (*HTIC IIT Madras*); SP, Preejith (*Healthcare Technology Innovation Center - IITMadras*);
 Raja, Vijai Shankar (*Helyxon Helathcare Technologies PL*); Joseph, Jayaraj (*HTIC, Indian Institute of
 Technology Madras*); Sivaprakasam, Mohanasankar (*Indian Institute of Technology Madras*)

14:45-15:00 ThCT18.6
Fully Disposable Wireless Patch Sensor for Continuous Remote Patient Monitoring 1632-1635
 Selvaraj, Nandakumar* (*VitalConnect, Inc.*); Nallathambi, Gabriel (*VitalConnect, Inc.*); Moghadam, Rod (*VitalConnect, Inc.*); Aga, Arshan (*VitalConnect, Inc.*)

ThCT19: 13:30-15:00 Meeting Room 325A
Education and Career Development in BioMedical Engineering (Theme 11) (Oral Session)
Chair: Wheeler, Bruce (*University of Florida*)

13:30-13:45 ThCT19.1
Designing a Hybrid Engineering Course Combining Case-Based and Lecture-Based Teaching 1636-1639
 Bassir Kazeruni, Neda, Mélanie (*Columbia University*); Laboy, Andre (*Columbia University*); Hess, Henry* (*Columbia University*)

13:45-14:00 ThCT19.2
Engineering, Physical Therapy and the Community: A Service Learning Course 1640-1643
 Aceros, Juan* (*University of North FLorida*); Lundy, Mary (*University of North Florida*); Rodriguez, Ayshka (*University of North Florida*)

14:00-14:15 ThCT19.3
Proposal for a New Training Exercise for Single Port Laparoscopic Cholecystectomy 1644-1647
 Amado, Lusvin* (*Centro Industrial de Mantenimiento Integral and Pontifical Bolivarian University*); Salinas, Sergio Alexander (*Universidad Pontificia Bolivariana-Seccional Bucaramanga*); Pimentel, Anibal (*Pontificia Bolivariana - Clinica Chicamocha S.A.*)

14:15-14:30 ThCT19.4
Activities to Invigorate a Student Chapter of the IEEE Engineering in Medicine and Biology Society 1648-1651
 Carlson, Charles* (*Kansas State University*); Lyle, Alexandra (*Kansas State University*); Phillips, Gabrielle Johannah (*Kansas State University*); Chappell, Jacob (*Kansas State University*); Brown, Mariah (*Kansas State University*); Fallahi, Hojjatollah (*Kansas State University*); Wang, Shangxian (*Kansas State University*); Suliman, Ahmad (*Kansas State University*); Warren, Steve (*Kansas State University*)

14:30-14:45 ThCT19.5
How to Invent New Medical Devices 1652-1655
 Webster, John G* (*University of Wisconsin-Madison*)

14:45-15:00 ThCT19.6
Integrated Information Rich Engineering Course Design 1656-1659
 Nizami, Shermeen* (*Carleton University*); Renon, Flavia (*Carleton University*)

ThPoS-01: 17:15-19:00 Exhibit Hall 2
Biorobotics and Biomechanics (II) – Poster (Theme 8) (Poster Session)

17:15-19:00 ThPoS-01.1
The Influence of Mechanical Rubbing on the Dissolution of Blood Clots 1660-1663
 Mahdy, Dalia (*German University in Cairo*); Hamdi, Nabila (*German University in Cairo*); Hesham El Feshawy, Sarah (*German University in Cairo GUC*); El-sharkawy, Ahmed (*German University in Cairo*); Khalil, Islam S. M.* (*German University in Cairo*)

17:15-19:00 ThPoS-01.2
Prediction of Minimum Toe Clearance with a Radial Basis Function Network at the Start of the Swing Phase 1664-1667
 Miyake, Tamon* (*Waseda University*); Fujie, Masakatsu G. (*Waseda University*); Sugano, Shigeki (*Waseda University*)

17:15-19:00 ThPoS-01.3
F3Hand: A Five-Fingered Prosthetic Hand Driven with Curved Pneumatic Artificial Muscles 1668-1671
 Nemoto, Yusuke* (*Osaka Institute of Technology*); Ogawa, Kazunori (*Daiya Industry Co., Ltd.*); Yoshikawa, Masahiro (*Osaka Institute of Technology*)

17:15-19:00	ThPoS-01.4
On Muscle Selection for EMG based Decoding of Dexterous, In-Hand Manipulation Motions	1672-1675
Kwon, Yongje (<i>University of Auckland</i>); Dwivedi, Anany (<i>University of Auckland</i>); McDaid, Andrew (<i>University of Auckland</i>); Liarokapis, Minas* (<i>University of Auckland</i>)	
17:15-19:00	ThPoS-01.5
Empirical based Modeling for the Assessment of Dynamic Knee Stability: Implications for Anterior Cruciate Ligament Injury Risk	1676-1679
Morgan, Kristin* (<i>University of Connecticut</i>); Donnelly, Cyril (<i>University of Western Australia</i>); Reinbolt, Jeffrey (<i>University of Tennessee</i>)	
17:15-19:00	ThPoS-01.6
A sEMG Classification Framework with Less Training Data	1680-1684
Kaneishi, Daisuke* (<i>University of California, Berkeley</i>); Matthew, Robert Peter (<i>UC Berkeley</i>); Tomizuka, Masayoshi (<i>UC Berkeley</i>)	
17:15-19:00	ThPoS-01.7
Blowfly Yaw Control via Electrical Stimulation of the H1 Lobula Plate Tangential Cell	1685-1688
Williams, Rhys* (<i>Imperial College London</i>); Massey, Travis (<i>University of California, Berkeley</i>); Maharbiz, Michel (<i>University of California, Berkeley</i>)	
17:15-19:00	ThPoS-01.8
Development of an Integrated Actuated Hand Orthosis and Virtual Reality System for Home-Based Rehabilitation	1689-1692
Ghassemi, Mohammad* (<i>North Carolina State University</i>); Ochoa, Jose Mauricio (<i>Rehabilitation Institute of Chicago</i>); Yuan, Ning (<i>Illinois Institute of technology</i>); Tsoupikova, Daria (<i>University of Illinois at Chicago</i>); Kamper, Derek (<i>North Carolina State University</i>)	
ThPoS-02: 17:15-19:00	
Biorobotics and Biomechanics (III) – Poster (Theme 8) (Poster Session)	
17:15-19:00	ThPoS-02.1
Evidence of a “Clock” Determining Human Locomotion	1693-1696
Tiseo, Carlo* (<i>Nanyang Technological University</i>); Veluvolu, Kalyana C. (<i>Kyungpook National University</i>); Ang, Wei Tech (<i>Nanyang Technological University</i>)	
17:15-19:00	ThPoS-02.2
Comparing Physical Human-Robot Interaction with Spring- and Elastomer-Based Series Elastic Actuators	1697-1700
Jarrett, Chris (<i>University of Auckland</i>); McDaid, Andrew* (<i>University of Auckland</i>)	
17:15-19:00	ThPoS-02.3
Asymmetric Dual Arm Approach for Post Stroke Recovery of Motor Functions Utilizing the EXO-UL8 Exoskeleton System: A Pilot Study	1701-1707
Shen, Yang* (<i>University of California Los Angeles</i>); Ma, Ji (<i>University of California Los Angeles</i>); Dobkin, Bruce (<i>UCLA</i>); Rosen, Jacob (<i>University of California Los Angeles (UCLA)</i>)	
17:15-19:00	ThPoS-02.4
Observations and Experiments for the Definition of a New Robotic Device Dedicated to CT, CBCT and MRI-Guided Percutaneous Procedures	1708-1712
Pfeil, Antoine (<i>INSA Strasbourg, ICube Lab</i>); Barbé, Laurent (<i>University of Strasbourg, CNRS, ICube</i>); Wach, Benoît (<i>University of Strasbourg, CNRS, ICube</i>); Cazzato, Roberto Luigi (<i>University Hospital of Strasbourg</i>); Gangi, Afshin (<i>University Hospital of Strasbourg</i>); Renaud, Pierre* (<i>INSA Strasbourg</i>)	
17:15-19:00	ThPoS-02.5
Functional Tasks Performed by People with Severe Muscular Atrophy using an sEMG Controlled Robotic Manipulator	1713-1718
Hagengruber, Annette* (<i>German Aerospace Center, DLR</i>); Vogel, Jörn (<i>German Aerospace Center, DLR</i>)	
17:15-19:00	ThPoS-02.6
Modified Computed Torque Control of a Robotic Orthosis for Gait Rehabilitation	1719-1722
Dao, Quy Thinh* (<i>Shibaura Institute of Technology</i>); Yamamoto, Shin-ichiroh (<i>Shibaura Institute of Technology</i>)	

17:15-19:00 ThPoS-02.7
Autonomous Positioning of Eye Surgical Robot using the Tool Shadow and Kalman Filtering 1723-1726
 Tayama, Takashi (*University of Tokyo*); Kurose, Yusuke (*University of Tokyo*); Marques Marinho, Murilo (*University of Tokyo*); Koyama, Yuki (*University of Tokyo*); Harada, Kanako* (*University of Tokyo*); Omata, Seiji (*Nagoya University*); Arai, Fumihito (*Nagoya University*); Sugimoto, Koichiro (*University of Tokyo Hospital*); Araki, Fumiyuki (*University of Tokyo Hospital*); Totsuka, Kiyohito (*University of Tokyo Hospital*); Takao, Muneyuki (*University of Tokyo Hospital*); Aihara, Makoto (*University of Tokyo Hospital*); Mitsuishi, Mamoru (*University of Tokyo*)

17:15-19:00 ThPoS-02.8
Reference Trajectory Adaptation to Improve Human-Robot Interaction: A Database-Driven Approach 1727-1730
 Haufe, Florian Leander* (*ETH Zurich*); Maggioni, Serena (*ETH Zurich*);
 Melendez-Calderon, Alejandro (*cereneo Advanced Rehabilitation Institute*)

ThPoS-03: 17:15-19:00	Exhibit Hall 2
Biorobotics and Biomechanics (IV) – Poster (Theme 8) (Poster Session)	

17:15-19:00 ThPoS-03.1
Design and Pilot Evaluation of a Reconfigurable Spinal Exoskeleton 1731-1734
 Johnson, Alwyn Patrice (*Livity Technologies*); Gorsic, Maja (*Univ. of Wyoming*); Regmi, Yubi (*Univ. of Wyoming*);
 Dai, Boyi (*Univ. of Wyoming*); Davidson, Bradley (*Univ. of Denver*); Novak, Domen* (*Univ. of Wyoming*)

17:15-19:00 ThPoS-03.2
Musculoskeletal Simulation for Determining Influences of the Magnitude of Sensory Noise and Stiffness on the Selection of Hip or Ankle Movement Strategies 1735-1738
 Kaminishi, Kohei* (*University of Tokyo*); Jiang, Ping (*University of Tokyo*); Chiba, Ryosuke (*Asahikawa Medical University*); Takakusaki, Kaoru (*Asahikawa Medical University*); Ota, Jun (*University of Tokyo*)

17:15-19:00 ThPoS-03.3
An Investigation of the Sensing Capabilities of Magnetotactic Bacteria 1739-1742
 Serag El Din, Nermeen (*German Univ. in Cairo*); Ewis, Mohamed (Mr); Yousry, Noura (*German Univ. in Cairo*);
 Ahmed, Ola (Miss); Gomaa, Iman (*Nile Univ.*); Klingner, Anke (*German Univ. in Cairo*); Hageman, Tijmen (*Korea Institute of Science and Technology*); Pichel, Marc (Mr); Mitwally, Mohamed (*German Univ. in Cairo (GUC)*); Abelman, Leon (*MESA+, Univ. of Twente*); Khalil, Islam S. M.* (*German Univ. in Cairo*)

17:15-19:00 ThPoS-03.4
Load Exposure of Osseointegrated Implants for Transfemoral Limb Prosthesis during Running 1743-1746
 Thesleff, Alexander* (*Chalmers University of Technology*); Ludvigsson, Sofie (*Lunds Tekniska Högskola*); Öhr, Emilia (*Lunds Tekniska Högskola*); Ortiz-Catalan, Max (*Chalmers University of Technology*)

17:15-19:00 ThPoS-03.5
The Effects of Hind Limb Suspension and Cast Mediated Immobilization on Bone Strength Properties 1747-1750
 Sanseverino, Matthew* (*The College of New Jersey*); Speacht, Toni (*Penn State College of Medicine*);
 Donahue, Henry (*Virginia Commonwealth University*); Lau, Anthony (*The College of New Jersey*)

17:15-19:00 ThPoS-03.6
Estimation of the Operating Force from the Human Motion 1751-1754
 Ding, Ming* (*Nara Institute of Science and Technology*); Baba, Ryuzo (*Nara Institute of Science and Technology*); Masanthia, Kritsada (*Kasetsart University*); Garcia Ricardez, Gustavo Alfonso (*Nara Institute of Science and Technology*); Takamatsu, Jun (*Nara Institute of Science and Technology*);
 Ogasawara, Tsukasa (*Nara Institute of Science and Technology*)

17:15-19:00 ThPoS-03.7
A Biomechatronic EPP Upper-Limb Prosthesis Controller and Its Performance Comparison to Other Topologies 1755-1758
 Bertos, Georgios* (*National Technical University of Athens*); Kontogiannopoulos, Spyridon (*National Technical University of Athens*); Vangelatos, Zacharias (*UC Berkeley*); Papadopoulos, Evangelos (*National Technical University of Athens*)

17:15-19:00 ThPoS-03.8
A Biomechatronic EPP Upper-Limb Prosthesis Teleoperation System Implementation using Bluetooth Low Energy 1759-1762
 Bertos, Georgios* (*National Technical University of Athens*); Koukoulas, Nikolaos (*NTUA*); Papadopoulos, Evangelos (*National Technical University of Athens*); Mablekos-Alexiou, Anestis (*University College London*)

17:15-19:00 ThPoS-03.9
Modeling Space Radiation Induced Bone Changes in Rat Femurs through Finite Element Analysis 1763-1766
 Johnson, Dale* (*The College of New Jersey*); Lawrence, Summer (*University of North Carolina at Chapel Hill*); Livingston, Eric Wilson (*University of North Carolina at Chapel Hill*); Robert, Hienz (*Johns Hopkins University School of Medicine*); Davis, Catherine (*Johns Hopkins University School of Medicine*); Lau, Anthony (*The College of New Jersey*)

ThPoS-04: 17:15-19:00	Exhibit Hall 2
Biorobotics and Biomechanics (V) – Poster (Theme 8) (Poster Session)	

17:15-19:00 ThPoS-04.1
Model-Free Control of Movement in a Tendon-Driven Limb via a Modified Genetic Algorithm 1767-1770
 Marjaninejad, Ali* (*University of Southern California*); Annigeri, Rohit (*University of Southern California*); Valero-Cuevas, Francisco (*University of Southern California*)

17:15-19:00 ThPoS-04.2
A Neuromorphic Quadratic, Integrate, and Fire Silicon Neuron with Adaptive Gain 1771-1776
 Parent, David* (*San Jose State University*); Basham, Eric (*San Jose State University*)

17:15-19:00 ThPoS-04.3
Increasing the Learning Capacity of BCI Systems via CNN-HMM Models 1777-1780
 Saidutta, Yashas Malur* (*Georgia Institute of Technology*); Fekri, Faramarz (*Georgia Institute of Technology*); Zou, Jun (*Formerly, Georgia Institute of Technology*)

17:15-19:00 ThPoS-04.4
Design and Experiment of a Passive Sit-to-Stand and Walking (STSW) Assistance Device for the Elderly 1781-1784
 Kim, Seung-Won* (*Korea Institute of Science and Technology*); Song, Jiyeon (*Korea Institute of Science and Technology*); Suh, Seungbeum (*Korea Institute of Science & Technology*); Lee, Woosub (*Korea Institute of Science and Technology (KIST)*); Kang, Sungchul (*Korea Institute of Science and Technology*)

17:15-19:00 ThPoS-04.5
Footwear Affects Biomechanical Work and Knee Adduction Moment during Stance Phase in Medial Knee Osteoarthritic Male Pakistani Adults 1785-1788
 Khan, Saad Jawaid* (*University of Malaya*); Khan, Soobia Saad (*University of Malaya*); Rehman, Muhammad Zia ur (*National University of Science and Technology, Islamabad Pakistan*); Shafique, Muhammad (*Riphah International University*)

17:15-19:00 ThPoS-04.6
A Pilot Study on the Novel Non-Invasive Nerve-Holder with Negative-Pressure Suctions 1789-1792
 Hwang, Donghyun (*Korea Institute of Science and Technology*); Lim, Byeongkyu (*Korea Institute of Science and Technology (KIST)*); Jung, Hyun Gi (*Korea Institute of Science and Technology (KIST)*); Ihn, Yong Seok (*Korea Institute of Science and Technology*); Jeong, Jinwoo (*Sungkyunkwan University*); Yim, Sehyuk (*Korea Institute of Science and Technology*); Oh, Sang-Rok (*Korea Institute of Science and Technology*); Kim, Keehoon* (*Korea Institute of Science and Technology*)

17:15-19:00 ThPoS-04.7
SATR-DL: Improving Surgical Skill Assessment and Task Recognition in Robot-Assisted Surgery with Deep Neural Networks 1793-1796
 Wang, Ziheng* (*University of Texas at Dallas*); Majewicz, Ann (*University of Texas Dallas*)

17:15-19:00 ThPoS-04.8
Development of 6-Axis Orthodontic Force and Moment Sensing Device for Decreasing Accident of Orthodontic Treatment 1797-1800
 Shimoda, Kunio* (*Tokyo University of Science*); Takemura, Hiroshi (*Tokyo University of Science*); Obara, Yuuya (*Tokyo University of Science*); Shigeta, Masahiro (*Tokyo University of Science*); Soga, Kohei (*Tokyo University of Science*); Suga, Kazuhiro (*Kogakuin University*); Lai, Wei-jen (*Tokyo Medical and Dental University*); Kim, Sunmin (*Tokyo Medical and Dental University*); Kanno, Zusei (*Tokyo Medical and Dental University*); Uo, Motohiro (*Tokyo Medical and Dental University*)

ThPoS-05: 17:15-19:00 Exhibit Hall 2
Biorobotics and Biomechanics (VI) – Poster (Theme 8) (Poster Session)

17:15-19:00 ThPoS-05.1
An Assistive Robotic Arm for People with Physical Disabilities of the Extremities: HOG based Food Detection 1801-1804
 Gushi, Shotaro (*University of the Ryukyus*); Higa, Hiroki* (*University of the Ryukyus*)

17:15-19:00 ThPoS-05.2
Impedance Model of the Interaction between Environment and Human Body and Its Modification Design 1805-1808
 Murai, Akihiko* (*National Institute of Advanced Industrial Science and Technology (AIST)*)

17:15-19:00 ThPoS-05.3
Bone Drilling Breakthrough Detection via Energy-Based Signal 1809-1812
 Ho, Danny* (*Chinese University of Hong Kong*); Li, Tingguang (*Chinese University of Hong Kong*); Meng, Max Q.-H. (*Chinese University of Hong Kong*)

17:15-19:00 ThPoS-05.4
Gaze-Controlled Laser Pointer Platform for People with Severe Motor Impairments: Preliminary Test in Telepresence 1813-1816
 Petrushin, Alexey (*Italian Institute of Technology*); Barresi, Giacinto (*Istituto Italiano di Tecnologia*); Mattos, Leonardo* (*Istituto Italiano di Tecnologia*)

17:15-19:00 ThPoS-05.5
Visual Terrain Identification and Surface Inclination Estimation for Improving Human Locomotion with a Lower-Limb Prosthetic 1817-1820
 Diaz-Paz, Jean Pierre* (*Universidad del Valle*); da Silva, Rafael Luiz (*North Carolina State University*); Zhong, Boxuan (*North Carolina State University*); Huang, He (*North Carolina State University and University of North Carolina at Chapel Hill*); Lobaton, Edgar (*North Carolina State University*)

17:15-19:00 ThPoS-05.6
Preliminary Analysis of Positive Knee Energy Injection in a Transfemoral Amputee Walking with a Powered Prosthesis 1821-1824
 Hood, Sarah* (*University of Utah*); Lenzi, Tommaso (*University of Utah*)

17:15-19:00 ThPoS-05.7
Assessment of Robot Interventions in a Task-Based Rehabilitation: A Case Study 1825-1828
 MajidiRad, AmirHossein (*Wichita State University*); Adhikari, Visharath (*Wichita State University*); Yihun, Yimesker* (*Wichita State University*)

17:15-19:00 ThPoS-05.8
Automatic Surgical Skill Rating using Stylistic Behavior Components 1829-1832
 Ershad, Marzieh* (*University of Texas at Dallas*); Rege, Robert (*University of Texas Southwestern Medical Center*); Majewicz, Ann (*University of Texas Dallas*)

ThPoS-06: 17:15-19:00 Exhibit Hall 2
Biorobotics and Biomechanics (VII) – Poster (Theme 8) (Poster Session)

17:15-19:00 ThPoS-06.1
A Postural Model for Tracking the Base of Support 1833-1836
 Tiseo, Carlo* (*Nanyang Technological University*); Foo, Ming Jeat (*Nanyang Technological University*); Veluvolu, Kalyana C. (*Kyungpook National University*); Ang, Wei Tech (*Nanyang Technological University*)

17:15-19:00	ThPoS-06.2
Biosensing by Learning: Cancer Detection as Iterative Optimization	1837-1840
Chen, Yifan* (<i>The University of Waikato</i>); Sharifi, Neda (<i>The University of Waikato</i>); Holmes, Geoffrey (<i>The University of Waikato</i>); Cheang, U Kei (<i>Southern University of Science and Technology</i>)	
17:15-19:00	ThPoS-06.3
Design of a Handheld Trocar Insertion Device for Laparoscopic Surgery to Avoid Overshooting	1841-1844
Sun, Junpeng* (<i>Tokyo Institute of Technology</i>); Tadano, Kotaro (<i>Tokyo Institute of Technology</i>)	
17:15-19:00	ThPoS-06.4
Assessment and Comparison of Target Registration Accuracy in Surgical Instrument Tracking Technologies	1845-1848
Teatini, Andrea* (<i>University of Oslo - Dept. of Informatics, The Intervention Centre - Oslo University Hospital</i>); Pérez de Frutos, Javier (<i>SINTEF, Technology and Society</i>); Langø, Thomas (<i>SINTEF</i>); Edwin, Bjørn (<i>Oslo University Hospital, Dept. of Hepato-Pancreatic-Biliary surgery, Oslo, Norway; Dept. of Health Research, SINTEF A</i>); Elle, Ole Jacob (<i>The Intervention Centre, Oslo University Hospital and Dept. of Informatics, University of Oslo</i>)	
17:15-19:00	ThPoS-06.5
Consistent Manufacturing Device for Coiled Polymer Actuators	1849-1852
Horton, Sarah* (<i>University of Ottawa</i>); Dumond, Patrick (<i>University of Ottawa</i>)	
17:15-19:00	ThPoS-06.6
Testing of Coiled Nylon Actuators for use in Spastic Hand Exoskeletons	1853-1856
Bahrami, Sanaz* (<i>University of Ottawa</i>); Dumond, Patrick (<i>University of Ottawa</i>)	
17:15-19:00	ThPoS-06.7
Assessing the Role of Teleoperated Robotic Systems in Biomanipulations – A Case Study on Blastocyst Microinjection	1857-1860
Mattos, Leonardo* (<i>Istituto Italiano di Tecnologia</i>); Caldwell, Darwin G. (<i>Italian Institute of Technology</i>); Grant, Edward (<i>NC State University</i>)	
17:15-19:00	ThPoS-06.8
Surgical Robot with Environment Reconstruction and Force Feedback	1861-1866
Li, Xiao* (<i>University of Illinois at Urbana Champaign</i>); Kesavadas, Thenkurussi (<i>UIUC/HCESC</i>)	

ThPoS-07: 17:15-19:00

Exhibit Hall 2

Biorobotics and Biomechanics (VIII) – Poster (Theme 8) (Poster Session)

17:15-19:00	ThPoS-07.1
A Soft Wearable Robotic Suit for Ankle and Hip Assistance: A Preliminary Study	1867-1870
Jin, Shanhai* (<i>Yanbian University</i>); Guo, Shijie (<i>Hebei University of Technology</i>); Kazunobu, Hashimoto (<i>Ningbo Institute of Intelligent Manufacturing Industry</i>); Xiaogang, Xiong (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Yamamoto, Motoji (<i>Kyushu University</i>)	
17:15-19:00	ThPoS-07.2
Locomotion Control of Pigeons using Polymer-Based Deep Brain Electrodes	1871-1874
Choi, Gwang Jin (<i>Seoul National Univ.</i>); Jang, Jungwoo (<i>Seoul National Univ.</i>); Kang, Seonmi (<i>College of Veterinary Medicine and Research Institute for Veterinary Science, Seoul National Univ.</i>); Shim, Shinyong (<i>Seoul National Univ.</i>); Baek, Changhoon (<i>Seoul National Univ.</i>); Kim, Boyoon (<i>College of Veterinary Medicine and Research Institute for Veterinary Science, Seoul National Univ.</i>); Park, Yoonji (<i>College of Veterinary Medicine and Research Institute for Veterinary Science, Seoul National Univ.</i>); Kim, Sunhyo (<i>College of Veterinary Medicine and Research Institute for Veterinary Science, Seoul National Univ.</i>); Jung, Younginha (<i>Nanoscience and Technology, Seoul National Univ.</i>); Seo, Kangmoon (<i>Seoul National Univ. College of Veterinary Medicine</i>); Seo, Jong Mo (<i>Seoul National Univ., School of Engineering</i>); Song, Yoon-Kyu (<i>Seoul National Univ.</i>); Kim, Sung June* (<i>Seoul National Univ.</i>)	
17:15-19:00	ThPoS-07.3
A Force Augmenting Exoskeleton for the Human Hand Designed for Pinching and Grasping	1875-1878
Triolo, Emily (<i>The College of New Jersey</i>); Stella, Martha (<i>The College of New Jersey</i>); BuSha, Brett* (<i>The College of New Jersey</i>)	

17:15-19:00	ThPoS-07.4
High-Performance Polymer Dry Adhesives based on Ethylene Vinyl Acetate Copolymer and High-Adhesion Mechanism	1879-1882
Yuan, Lifang (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Wu, Tianzhun* (<i>Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences (CAS)</i>); Wang, Zhiwei (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>)	
17:15-19:00	ThPoS-07.5
Residual Limb Revision Surgery Alters Velocity-Curvature Coupling during Stepping and Turning of a Transfemoral Amputee	1883-1886
Levy, Emily (<i>University of Texas at Dallas</i>); Gordon, Keith (<i>Feinberg School of Medicine, Northwestern University</i>); Fey, Nicholas* (<i>University of Texas at Dallas</i>)	
17:15-19:00	ThPoS-07.6
Virtual-Reality Cataract Surgery Simulator using Haptic Sensory Substitution in Continuous Circular Capsulorhexis	1887-1890
Kim, Yunjoo* (<i>KAIST</i>); Jeong, Hwayeong (<i>KAIST</i>); Park, Hyunkyu (<i>KAIST</i>); Kim, Ji Ah (<i>Seoul National University Bundang Hospital</i>); Kim, Taewoo (<i>Seoul National University Bundang Hospital</i>); Kim, Jung (<i>Korea Advanced Institute of Science and Technology</i>)	
17:15-19:00	ThPoS-07.7
Evaluation of Compensatory Movement by Shoulder Joint Torque during Gain Adjustment of a Powered Prosthetic Wrist Joint	1891-1894
Kato, Akira* (<i>Waseda University</i>); Nagumo, Haruno (<i>Waseda University</i>); Miyake, Tamon (<i>Waseda University</i>); Fujie, Masakatsu G. (<i>Waseda University</i>); Sugano, Shigeki (<i>Waseda University</i>)	
17:15-19:00	ThPoS-07.8
Verification of Computed Muscle Control and Static Optimization for Isokinetic, Isometric and Isotonic Exercise of Upper Limb	1895-1898
Choi, Wiha (<i>DGIST</i>); Oh, Sehoon* (<i>DGIST</i>)	
ThPoS-08: 17:15-19:00	Exhibit Hall 2
Brain Functional Imaging – Poster (Theme 6) (Poster Session)	
17:15-19:00	ThPoS-08.1
Disrupted Network Topology in Patients with Lewy Bodies Dementia Compared to Alzheimer's Disease, Parkinson Disease Dementia and Health Control	1899-1902
Zhou, Hucheng (<i>Shanghai University</i>); Jiang, Jiehui* (<i>Shanghai University</i>); Ping, Wu (<i>PET Center, Huashan Hospital, Fudan University</i>); Guo, Qihao (<i>Huashan Hospital</i>); Zuo, Chuantao (<i>PET Center, Huashan Hospital</i>)	
17:15-19:00	ThPoS-08.2
Improving EEG-Based Motor Imagery Classification via Spatial and Temporal Recurrent Neural Networks	1903-1906
Ma, Xuelin (<i>Institute of Automation, Chinese Academy of Sciences</i>); Qiu, Shuang (<i>Tianjin University</i>); Du, Changde (<i>Institute of Automation, Chinese Academy of Sciences</i>); He, Huiguang* (<i>Institute of Automation, Chinese Academy of Sciences</i>); Xing, Jiezhen (<i>Institute of Automation, Chinese Academy of Sciences</i>)	
17:15-19:00	ThPoS-08.3
Effect of Emotion States on the Updating Function of Working Memory	1907-1910
Liu, Xiaoya (<i>Tianjin University</i>); Liu, Shuang* (<i>Tianjin University</i>); Guo Dongyue, Dongyue (<i>Tianjin University</i>); Sheng Yue, Yue (<i>Tianjin University</i>); Ke, Yufeng (<i>Tianjin University</i>); An, Xingwei (<i>Tianjin University</i>); Xu, Minpeng (<i>Tianjin University</i>); He, Feng (<i>Tianjin University</i>); Cheng, Xiaoman (<i>Tianjin University of Technology</i>); Ming, Dong (<i>Tianjin University</i>)	
17:15-19:00	ThPoS-08.4
Relationship between Kinesthetic/Visual Motor Imagery Difficulty and Event-Related Desynchronization/Synchronization	1911-1914
Igasaki, Tomohiko* (<i>Kumamoto University</i>); Takemoto, Junya (<i>Kumamoto University</i>); Sakamoto, Katsuya (<i>Kumamoto University</i>)	

17:15-19:00	ThPoS-08.5
Resting-State Gamma-Band EEG Abnormalities in Autism 1915-1918	
Shou, Guofa* (<i>University of Oklahoma</i>); Mosconi, Matthew (<i>University of Kansas</i>); Ethridge, Lauren (<i>University of Oklahoma Health Sciences Center; University of Oklahoma</i>); Sweeney, John (<i>University of Cincinnati</i>); Ding, Lei (<i>University of Oklahoma</i>)	
17:15-19:00	ThPoS-08.6
Single-Trial EEG Classification of Similar Errors 1919-1922	
Wirth, Christopher* (<i>University of Sheffield</i>); Lacey, Eric (<i>Trinity College Dublin</i>); Dockree, Paul (<i>Trinity College Dublin</i>); Arvaneh, Mahnaz (<i>University of Sheffield</i>)	
17:15-19:00	ThPoS-08.7
On the Spatiotemporal Characteristics of Class-Discriminating Functional Networks 1923-1926	
Haddad, Ali (<i>Rutgers University</i>); Shamsi, Foroogh (<i>Rutgers University</i>); Najafizadeh, Laleh* (<i>Rutgers University</i>)	
17:15-19:00	ThPoS-08.8
Frequency Band Variations Predict EEG Single-Trial Classification Performance in Disorder of Consciousness Patients 1927-1930	
Finke, Andrea* (<i>Bielefeld University, Bielefeld, Germany</i>); Steppacher, Inga (<i>Bielefeld University</i>); Kissler, Johanna (<i>Bielefeld University</i>); Ritter, Helge (<i>CITEC, CoR-Lab, Bielefeld University, Bielefeld, Germany</i>)	
17:15-19:00	ThPoS-08.9
Effect of Body Positions on EEG Signals in Mal De Debarquement Syndrome 1931-1934	
Chen, Yafen* (<i>University of Oklahoma</i>); Tang, Julia (<i>University of Oklahoma</i>); Shou, Guofa (<i>University of Oklahoma</i>); Urbano, Diamond (<i>Laureate Institute for Brain Research</i>); Doudican, Benjamin (<i>Laureate Institute of Brain Research</i>); Besio, W. G. (<i>University of Rhode Island</i>); Cha, Yoon-Hee (<i>Laureate Institute of Brain Research</i>); Ding, Lei (<i>University of Oklahoma</i>); Yuan, Han (<i>University of Oklahoma</i>)	
ThPoS-09: 17:15-19:00	Exhibit Hall 2
Brain-Computer Interface – Poster (Theme 6) (Poster Session)	
17:15-19:00	ThPoS-09.1
Does a Subject Independent Dynamic Stopping Model for P300 Speller Work on Different Flash Durations and Inter Stimulus Intervals? 1935-1938	
Xue, Yuqi* (<i>Tianjin University</i>); Tang, Jiabei (<i>Tianjin University</i>); Zhou, Peng (<i>Tianjin University</i>); Xu, Minpeng (<i>Tianjin University</i>); Ming, Dong (<i>Tianjin University</i>); Qi, Hongzhi (<i>Tianjin University</i>)	
17:15-19:00	ThPoS-09.2
Different Feedback Methods for an SSVEP-Based BCI 1939-1943	
Benda, Mihaly (<i>Rhine-Waal University of Applied Sciences</i>); Stawicki, Piotr (<i>Rhine-Waal University of Applied Sciences</i>); Gembler, Felix (<i>Rhine-Waal University of Applied Sciences</i>); Grichnik, Roland (<i>Rhine-Waal University of Applied Sciences</i>); Rezeika, Aya (<i>Rhine-Waal University of Applied Sciences</i>); Saboor, Abdul (<i>Rhine-Waal University of Applied Sciences</i>); Volosyak, Ivan* (<i>Rhine-Waal University of Applied Sciences</i>)	
17:15-19:00	ThPoS-09.3
Decoding Hindlimb Kinematics from Primate Motor Cortex using Long Short-Term Memory Recurrent Neural Networks 1944-1947	
Wang, Yinong (<i>Brown University</i>); Truccolo, Wilson* (<i>Brown University</i>); Borton, David (<i>Brown University</i>)	
17:15-19:00	ThPoS-09.4
Ensemble Convolved Feature Extraction for Affective Auditory P300 Brain-Computer Interfaces 1948-1951	
Onishi, Akinari* (<i>Chiba University</i>); Nakagawa, Seiji (<i>Chiba University</i>)	
17:15-19:00	ThPoS-09.5
Discriminating between Imagined Speech and Non-Speech Tasks using EEG 1952-1955	
Alsaleh, Mashael* (<i>University of Sheffield</i>); Moore, Roger (<i>University of Sheffield</i>); Christensen, Heidi (<i>University of Sheffield</i>); Arvaneh, Mahnaz (<i>University of Sheffield</i>)	
17:15-19:00	ThPoS-09.6
Using Robust Principal Component Analysis to Reduce EEG Intra-Trial Variability 1956-1959	
Jao, Ping-Keng* (<i>École Polytechnique Fédérale de Lausanne</i>); Chavarriaga, Ricardo (<i>Ecole Polytechnique Federale de Lausanne</i>); Millán, José del R. (<i>Ecole Polytechnique Federale de Lausanne</i>)	

17:15-19:00	ThPoS-09.7
Motor Imagery based Brain Computer Interface Paradigm for Upper Limb Stroke Rehabilitation	1960-1963
Petersen, Jacob* (<i>Rigshospitalet, Denmark</i>); Iversen, Helle K. (<i>Apoplexy Unit, Dept. of Neurology, Glostrup Hospital</i>); Puthusserypady, Sadasivan (<i>Technical University of Denmark</i>)	
17:15-19:00	ThPoS-09.8
Hierarchical Graphical Models for Context-Aware Hybrid Brain-Machine Interfaces	1964-1967
Ozdenizci, Ozan* (<i>Northeastern University</i>); Gunay, Sezen Yagmur (<i>Northeastern University</i>); Quivira, Fernando (<i>Northeastern University</i>); Erdogan, Deniz (<i>Northeastern University</i>)	
17:15-19:00	ThPoS-09.9
Improvement in Classification of Tactile Event-Related Potentials using Random-Interval Tasks	1968-1971
Hori, Junichi* (<i>Niigata University</i>); Akagawa, Rei (<i>Niigata University</i>)	
17:15-19:00	ThPoS-09.10
Evaluating the Performance of Non-Hair SSVEP-Based BCIs Featuring Template-Based Decoding Methods	1972-1975
Chan, Wen-Hsuan (<i>University of California San Diego</i>); Chiang, Kuan-Jung (<i>University of California San Diego</i>); Nakanishi, Masaki (<i>University of California San Diego</i>); Wang, Yu-Te* (<i>University of California San Diego</i>); Jung, Tzyy-Ping (<i>University of California San Diego</i>)	
17:15-19:00	ThPoS-09.11
P300 Latency Estimation using Least Mean Squares Filter	1976-1979
Mowla, Md Rakibul* (<i>Kansas State University</i>); Huggins, Jane E. (<i>University of Michigan</i>); Natarajan, Balasubramaniam (<i>Kansas State University</i>); Thompson, David (<i>Kansas State University</i>)	
17:15-19:00	ThPoS-09.12
Mental Fatigue Estimation using EEG in a Vigilance Task and Resting States	1980-1983
Tian, Sen (<i>Hebei University of Technology</i>); Wang, Yijun* (<i>Institute of Semiconductors, Chinese Academy of Sciences</i>); Dong, Guoya (<i>Hebei University of Technology</i>); Pei, Weihua (<i>Institute of Semiconductors, CAS</i>); Chen, Hongda (<i>Institute of Semiconductors, CAS</i>)	
17:15-19:00	ThPoS-09.13
EEG-Based Discrimination of Different Cognitive Workload Levels from Mental Arithmetic	1984-1987
Chin, Zheng Yang* (<i>Institute for Infocomm Research</i>); Zhang, Xin (<i>Temasek Junior College</i>); Wang, Chuanchu (<i>Institute for Infocomm Research</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>)	
17:15-19:00	ThPoS-09.14
Modeling EEG-Based Motor Imagery with Session to Session Online Adaptation	1988-1991
Zhang, Zhuo* (<i>A*STAR</i>); Foong, Ruyi (<i>Agency for Science, Technology and Research (A*Star), Nanyang Technological University (NTU)</i>); Phua, Kok Soon (<i>Institute for Infocomm Research</i>); Wang, Chuanchu (<i>Institute for Infocomm Research</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>)	
17:15-19:00	ThPoS-09.15
Robust Local Field Potential-Based Neural Decoding by Actively Selecting Discriminative Channels	1992-1995
Yang, Huijuan* (<i>Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR)</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>); Libedinsky, Camilo (<i>A*STAR</i>); So, Rosa (<i>Institute for Infocomm Research</i>)	
17:15-19:00	ThPoS-09.16
EEG Channel Selection based on Correlation Coefficient for Motor Imagery Classification: A Study on Healthy Subjects and ALS Patient	1996-1999
Yang, Tao* (<i>Institute of Infocomm Research</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>); Phua, Kok Soon (<i>Institute for Infocomm Research</i>); Yu, Juanhong (<i>Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR)</i>); Toh, Valerie (<i>National Neuroscience Institute</i>); Ng, Wai Hoe (<i>National Neuroscience Institute</i>); So, Rosa (<i>Institute for Infocomm Research</i>)	
17:15-19:00	ThPoS-09.17
A Hybrid EEG-EMG BMI Improves the Detection of Movement Intention in Cortical Stroke Patients with Complete Hand Paralysis	2000-2003
López-Larraz, Eduardo* (<i>University of Tübingen</i>); Birbaumer, Niels (<i>Eberhard-Karls-University</i>); Ramos-Murguialday, Ander (<i>Eberhard Karls University of Tübingen/Tecnalia</i>)	

17:15-19:00	ThPoS-09.18
Data Space Adaptation for Multiclass Motor Imagery-Based BCI	2004-2007
Giles, Joshua* (<i>The University of Sheffield</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>); Mihaylova, Lyudmila (<i>University of Sheffield</i>); Arvaneh, Mahnaz (<i>University of Sheffield</i>)	
17:15-19:00	ThPoS-09.19
Convolutional Neural Network for Target Face Detection using Single-Trial EEG Signal	2008-2011
Wang, Haofei* (<i>Hong Kong University of Science and Technology</i>); Shi, Bertram E. (<i>Hong Kong University of Science and Technology</i>); Wang, Yiwen (<i>Hong Kong University of Science and Technology</i>)	
17:15-19:00	ThPoS-09.20
Decoding Spike Trains from Neurons with Spatio-Temporal Receptive Fields	2012-2015
Sadras, Nitin* (<i>University of Southern California</i>); Shanechi, Maryam (<i>University of Southern California</i>)	
17:15-19:00	ThPoS-09.21
Non-Contact Wearable EEG Sensors for SSVEP-Based Brain Computer Interface Applications	2016-2019
Kim, Insoo* (<i>University of Connecticut Health Center</i>); Soleymanpour, Rahim (<i>University of Connecticut</i>); Patel, Charmi (<i>University of Connecticut</i>)	
17:15-19:00	ThPoS-09.22
Covert Speech vs. Motor Imagery: A Comparative Study of Class Separability in Identical Environments	2020-2023
Jahangiri, Amir* (<i>University of Essex</i>); Chau, Juan M. (<i>Pontificia Universidad Catolica del Peru</i>); Achanccaray, David (<i>Tohoku University</i>); Sepulveda, Francisco (<i>University of Essex</i>)	
17:15-19:00	ThPoS-09.23
Upper Limb Prosthesis Control: A Hybrid EEG-EMG Scheme for Motion Estimation in Transhumeral Subjects	2024-2027
Bakshi, Koushik* (<i>Indian Institute of Technology Kharagpur</i>); Pramanik, Rajesh (<i>IPGMER SSKM Kolkata</i>); Mahadevappa, Manjunatha (<i>Indian Institute of Technology Kharagpur</i>); Kumar, Cheruvu Siva (<i>Indian Institute of Technology, Kharagpur</i>)	
17:15-19:00	ThPoS-09.24
Brain Computer Interface using Modulation of Auditory Steady-State Response with Help of Stochastic Resonance	2028-2031
Nishifuji, Seiji* (<i>Yamaguchi University</i>); Hirotaka, Nakamura (<i>Yamaguchi University</i>); Matsubara, Atsushi (<i>Yamaguchi University</i>)	
17:15-19:00	ThPoS-09.25
Implication of N400 and P600 Waves in the Linguistic Code Change in Monolinguals and Bilinguals	2032-2035
Achanccaray, David* (<i>Tohoku University</i>); Astucuri, Jhonatan Roberto (<i>Universidad Peruana Cayetano Heredia</i>); Hayashibe, Mitsuhiro (<i>INRIA</i>); Pirca, Jairo (<i>Pontificia Universidad Católica del Perú</i>); Espinoza Valverde, Vilma (<i>Universidad Peruana Cayetano Heredia</i>)	

ThPoS-10: 17:15-19:00	Exhibit Hall 2
Brain Physiology and Modeling – Poster (Theme 6) (Poster Session)	

17:15-19:00	ThPoS-10.1
Module Differences of Glucose Metabolic Brain Network among Alzheimer's Disease, Parkinson's Disease Dementia, Lewy Body Dementia and Health Control	2036-2039
Chen, Danyan (<i>Shanghai Institute for Advanced Communication and Data Science, Shanghai University</i>); Jiang, Jiehui* (<i>Shanghai University</i>); Ping, Wu (<i>PET Center, Huashan Hospital, Fudan University</i>); Guo, Qihao (<i>Huashan Hospital</i>); Zuo, Chuantao (<i>PET Center, Huashan Hospital</i>)	
17:15-19:00	ThPoS-10.2
EEG Neural Correlates of Self-Paced Left and Right-Hand Movement Intention during a Reaching Task	2040-2043
Yang, Lingling* (<i>Sun Yat-Sen University</i>); Lu, Yao (<i>Sun Yat-Sen University</i>)	
17:15-19:00	ThPoS-10.3
Neuro-Glial Network Model of Postictal Generalized EEG Suppression (PGES)	2044-2047
Grigorovsky, Vasily* (<i>University of Toronto</i>); Bardakjian, Berj Luther (<i>University of Toronto</i>)	

Human Performance – Poster (Theme 6) (Poster Session)

- 17:15-19:00 ThPoS-11.1
Transfer Functions of a Spinal Cord Stimulation System in Mixed Media and Homogeneous Media for Estimation of RF Heating during MRI Scans 2048-2051
 Min, Xiaoyi* (St. Jude Medical, Inc.); Sison, Shiloh (St. Jude Medical, Inc.)
- 17:15-19:00 ThPoS-11.2
Muscle Synergy for Hand Motions based on Electromyography Analysis 2052-2055
 Zeng, Haibin (Shandong University); Wei, Na (Qilu Hospital, Shandong University); Yue, Shouwei (Dept. of Physical Medicine and Rehabilitation, Qilu Hospital, Shandong University); Tian, Xincheng (Shandong University); Li, Ke* (Shandong University)
- 17:15-19:00 ThPoS-11.3
Estimation of Compressive Tibiofemoral Force using Over Resistance of Ankle-Foot Orthosis on Gait 2056-2059
 Yamamoto, Masataka* (Hyogo Prefectural Awaji Medical Center); Shimatani, Koji (Prefectural University of Hiroshima); Hasegawa, Masaki (Faculty of Health and Welfare, Prefectural University of Hiroshima); Murata, Takuya (Hiroshima University); Kurita, Yuichi (Hiroshima University)
- 17:15-19:00 ThPoS-11.4
Neuromechanical Simulation of Hand Pronation and Supination Task in Parkinson's Disease 2060-2063
 Ziegelman, Liran (University of Illinois at Urbana-Champaign); Hu, Yang (University of Illinois at Urbana-Champaign); Hernandez, Manuel* (University of Illinois)
- 17:15-19:00 ThPoS-11.5
Control with Adjusted Pulse Frequency and Amplitude in Functional Electrical Stimulation 2064-2067
 Kitamura, Tomoya (SAITama University); Mizukami, Naoto (SAITama University); Mizoguchi, Hiroto (SAITama University); Sakaino, Sho* (SAITama University); Tsuji, Toshiaki (SAITama University)
- 17:15-19:00 ThPoS-11.6
An Analytical Approach to Posture-Dependent Muscle Force and Muscle Activation Patterns 2068-2071
 Marjaninejad, Ali* (University of Southern California); Berry, Jasmine (University of Southern California); Valero-Cuevas, Francisco (University of Southern California)
- 17:15-19:00 ThPoS-11.7
Motion Sequence Alignment for a Kinect-Based In-Home Exercise System for Lymphatic Health and Lymphedema Intervention 2072-2075
 Chiang, An-Ti* (New York University); Chen, Qi (New York University); Wang, Yao (Polytechnic Institute of New York University); Fu, Mei R. (New York University)
- 17:15-19:00 ThPoS-11.8
Comparison of Accelerometry-Based Features for Fall Risk Assessment Measured from Two Sensor Locations 2076-2079
 Immonen, Milla Sinikka* (VTT Technical Research Centre of Finland); Similä, Heidi (VTT Technical Research Centre of Finland Ltd.)
- 17:15-19:00 ThPoS-11.9
Eye Movements of Patients with MCI against Wrong-Way Driving Countermeasures N/A
 Nagao, Tomoki (University of Tokyo); Nihei, Misato* (University of Tokyo); Kamata, Minoru (University of Tokyo); Tamai, Akira (Tsuruga Onsen Hospital); Nagami, Yutaka (Takushoku University); Nakagawa, Hiroshi (East Nippon Expressway Company Ltd.); Goto, Makoto (East Nippon Expressway Company Ltd.); Matsushita, Kensuke, Kensuke (Nexco-East Engineering Company Ltd. A)
- 17:15-19:00 ThPoS-11.10
Objective and Subjective Assessment of Amplified Parkinsonian Speech Quality 2084-2087
 Gaballah, Amr* (University of Western Ontario); Parsa, Vijay (University of Western Ontario); Andreetta, Monika (University of Western Ontario); Adams, Scott (University of Western Ontario)

17:15-19:00 ThPoS-11.11
Latency and Amplitude Changes in Cognitive Event Related Potentials Due to Hemodialysis 2088-2091
 Martínez Rosas, Lilia Elba (*Universidad Autónoma Metropolitana*); Rodríguez González, Monica (*Universidad Autónoma Metropolitana*); Bojorges-Valdez, Erik Rene* (*Universidad Iberoamericana A.C.*); Yanez-Suarez, Oscar (*Universidad Autonoma Metropolitana*); Pina-Ramirez, Omar (*Universidad Autonoma Metropolitana*)

17:15-19:00 ThPoS-11.12
Instance-Based Genre-Specific Music Emotion Prediction with an EEG Setup 2092-2095
 Liu, Xiaoyu (*Nanyang Technological University*); Phyo Wai, Aung Aung (*Nanyang Technological University*); Kumaran, Shastikk (*NUS High School of Mathematics and Science*); Saravanan, Yukesh Ragavendar (*NUS High School of Mathematics and Science*); Lin, Zhiping* (*Nanyang Technological University*)

17:15-19:00 ThPoS-11.13
Impact of Nurse-Assisted Patient Turning at Different Sleep Stages on the Quality of Subsequent Sleep 2096-2099
 Sugawara, Hisayoshi* (*Graduate School of Nursing, Chiba University*); Amemiya, Ayumi (*Chiba University*); Kase, Ryutaro (*Graduate School of Nursing, Chiba University*); Masujima, Mariko (*Graduate School of Nursing, Chiba University*); Sakai, Ikuko (*Graduate School of Nursing, Chiba University*); L. Tanaka, Yuji (*Dept. of Nursing Physiology, Graduate School of Nursing, Chiba University*); Komiyama, Masatoshi (*Dept. of Nursing Physiology, Graduate School of Nursing, Chiba University*)

17:15-19:00 ThPoS-11.14
Postural Balance Performance of Children with ADHD, with and without Medication: A Quantitative Approach 2100-2103
 Sarafpour, Maryam (*Psychology Dept., Azad University, Science & Research Campus*); Shirazi, Seyed Yahya* (*University of Central Florida*); Shirazi, Elham (*Mental Health Research Center, Tehran Institute of Psychiatry-School of Behavioral Sciences and Mental Health, Iran University of Medical Sciences*); Ghazaei, Fatemeh (*Neuromusculoskeletal Research Center, Dept. of Physical Medicine and Rehabilitation, Iran University of Medical Sciences*); Parnianpour, Zahra (*University of Chicago Graham School*)

ThPoS-12: 17:15-19:00	Exhibit Hall 2
Motor Neuroprostheses – Poster (Theme 6) (Poster Session)	

17:15-19:00 ThPoS-12.1
A Reliable Multi-User EMG Interface based on a Generic-Musculoskeletal Model against Loading Weight Changes 2104-2107
 Pan, Lizhi* (*NC State University and University of North Carolina at Chapel Hill*); Harmody, Andrew (*North Carolina State University*); Huang, He (*North Carolina State University and University of North Carolina at Chapel Hill*)

17:15-19:00 ThPoS-12.2
Spatio-Temporal Inertial Measurements Feature Extraction Improves Hand Movement Pattern Recognition without Electromyography 2108-2111
 Khushaba, Rami N. (*University of Technology, Sydney (UTS)*); Krasoulis, Agamemnon* (*Newcastle University*); Al-Jumaily, Adel (*University of Technology Sydney*); Nazarpour, Kianoush (*Newcastle University*)

17:15-19:00 ThPoS-12.3
Abstract Decoding using Bayesian Muscle Activation Estimators 2112-2115
 Dyson, Matthew (*Newcastle University*); Nazarpour, Kianoush* (*Newcastle University*)

17:15-19:00 ThPoS-12.4
CMOS Magnetic Sensors for Wearable Magnetomyography 2116-2119
 Heidari, Hadi (*University of Glasgow*); Zuo, Siming (*University of Glasgow*); Krasoulis, Agamemnon (*Newcastle University*); Nazarpour, Kianoush* (*Newcastle University*)

17:15-19:00 ThPoS-12.5
Flexo-Glove: A 3D Printed Soft Exoskeleton Robotic Glove for Impaired Hand Rehabilitation and Assistance 2120-2123
 Mohammadi, Alireza* (*University of Melbourne*); Lavranos, Jim (*Caulfield Hospital*); Choong, Peter (*University of Melbourne*); Oetomo, Denny (*University of Melbourne*)

17:15-19:00	ThPoS-12.6
Crosstalk Reduction in Epimysial EMG Recordings from Transhumeral Amputees with Principal Component Analysis 2124-2127	
Matran-Fernandez, Ana* (<i>Univ. of Essex</i>); Mastinu, Enzo (<i>Chalmers - Univ. of technology</i>); Poli, Riccardo (<i>Univ. of Essex</i>); Ortiz-Catalan, Max (<i>Chalmers Univ. of Technology</i>); Citi, Luca (<i>Univ. of Essex</i>)	
17:15-19:00	ThPoS-12.7
Coordination of Voluntary Residual Muscle Contractions in Transtibial Amputees: A Pilot Study 2128-2131	
Fleming, Aaron* (<i>North Carolina State University and University of North Carolina at Chapel Hill</i>); Huang, Stephanie (<i>North Carolina State University</i>); Huang, He (<i>North Carolina State University and University of North Carolina at Chapel Hill</i>)	
17:15-19:00	ThPoS-12.8
Comparing the Effects of Signal Noise on Pattern Recognition and Linear Regression-Based Myoelectric Controllers 2132-2135	
Teh, Yuni* (<i>Northwestern University</i>); Woodward, Richard (<i>Northwestern University</i>); Hargrove, Levi (<i>Rehabilitation Institute of Chicago</i>)	
ThPoS-13: 17:15-19:00	Exhibit Hall 2
Biorobotics and Biomechanics (I) – Poster (Theme 8) (Poster Session)	
17:15-19:00	ThPoS-13.1
An sEMG-based Interface to give People with Severe Muscular Atrophy Control over Assistive Devices 2136-2141	
Vogel, Jörn* (<i>German Aerospace Center, DLR</i>); Hagengruber, Annette (<i>German Aerospace Center, DLR</i>)	
17:15-19:00	ThPoS-13.2
A Variable-Impedance Tactile Sensor with Online Performance Tuning for Tissue Hardness Palpation in Robot-Assisted Minimally Invasive Surgery 2142-2145	
Ju, Feng* (<i>Nanjing Univ. of Aeronautics and Astronautics</i>); Yun, Yahui (<i>Nanjing Univ. of Aeronautics and Astronautics</i>); Zhang, Zhao (<i>Jinling Institute of Technology</i>); Wang, Yaoyao (<i>Nanjing Univ. of Aeronautics and Astronautics</i>); Wang, Yaming (<i>NUAA</i>); Zhang, Lei (<i>College of Mechanical and Electrical Engineering, Nanjing Univ. of Aeronautics and Astronautics</i>); Chen, Bai (<i>Nanjing Univ. of Aeronautics and Astronautics</i>)	
17:15-19:00	ThPoS-13.3
Wrist Kinematics and Kinetics during Wheelchair Propulsion with a Novel Handle-Based Propulsion Mechanism 2146-2149	
Babu Rajendra Kurup, Nithin (<i>TU Wien</i>); Puchinger, Markus (<i>TU Wien</i>); Keck, Thomas (<i>TU Wien</i>); Gfoehler, Margit* (<i>TU Wien</i>)	
17:15-19:00	ThPoS-13.4
Eye-Hand Coordination Assessment Metrics using a Multi-Platform Haptic System with Eye-Tracking and Motion Capture Feedback 2150-2153	
Pernalet, Norali* (<i>California State Polytechnic Univ. Pomona</i>); Raheja, Amar (<i>California State Polytechnic Univ., Pomona</i>); Segura, Manuel (<i>California State Polytechnic Univ., Pomona</i>); Menychtas, Dimitrios (<i>Univ. of South Florida</i>); Wieczorek, Tyler (<i>Univ. of South Florida</i>); Carey, Stephanie (<i>Univ. of South Florida</i>)	
17:15-19:00	ThPoS-13.5
Granular Jamming based Controllable Organ Design for Abdominal Palpation 2154-2157	
He, Liang* (<i>Imperial College London</i>); Herzig, Nicolas (<i>Imperial College London</i>); De Lusignan, Simon (<i>University of Surrey</i>); Nanayakkara, Thrishantha (<i>King's College London</i>)	
17:15-19:00	ThPoS-13.6
The Helping Hand: An Assistive Manipulation Framework using Augmented Reality and Tongue-Drive Interfaces 2158-2161	
Chu, Fu-Jen* (<i>Georgia Institute of Technology</i>); Xu, Ruinian (<i>Georgia Institute of Technology</i>); Zhang, Zhenxuan (<i>Georgia Institute of Technology</i>); Vela, Patricio A. (<i>Georgia Inst. of Technology</i>); Ghovanloo, Maysam (<i>Georgia Institute of Technology</i>)	

17:15-19:00 ThPoS-13.7
Design and Evaluation of a Performance-Based Adaptive Curriculum for Robotic Surgical Training: A Pilot Study 2162-2165
 Mariani, Andrea (*Politecnico di Milano*); Pellegrini, Edoardo (*Politecnico di Milano*); Enayati, Nima (*Politecnico di Milano*); Kazanzides, Peter (*Johns Hopkins University*); Vidotto, Marco* (*Politecnico di Milano*); De Momi, Elena (*Politecnico di Milano*)

ThPoS-14: 17:15-19:00 Exhibit Hall 2
Neural Stimulation – Poster (Theme 6) (Poster Session)

17:15-19:00 ThPoS-14.1
Investigation of the Stimulation Capabilities of a High-Resolution Neurorecording Probe for the Application of Closed-Loop Deep Brain Stimulation 2166-2169
 Tarnaud, Thomas* (*Ghent University/IMEC*); Tanghe, Emmeric (*Ghent University*); Haesler, Sebastian (*Neuroelectronics Research Flanders, IMEC*); Lopez, Carolina Mora (*IMEC*); Martens, Luc (*iMinds / Ghent University*); Joseph, Wout (*Ghent University*)

17:15-19:00 ThPoS-14.2
Novel tDCS Montage Favors Lower Limb Motor Imagery Detection 2170-2173
 Rodriguez-Ugarte, Marisol* (*Miguel Hernández Univ. of Elche*); Ianez, Eduardo (*Univ. Miguel Hernandez de Elche*); Ortiz, Mario (*Univ. Miguel Hernández*); Azorin, Jose M. (*Univ. Miguel Hernandez de Elche*)

17:15-19:00 ThPoS-14.3
Simulation Study on Coil Design for Transcranial Magnetic Stimulation 2174-2177
 Hao, Dongmei* (*Beijing Univ. of Technology*); Zhou, Yanan (*Beijing Research Center for Intelligent Agricultural Equipments*); Gao, Pei (*Beijing Univ. of Technology*); Yang, Lin (*Beijing Univ. of Technology*); Yang, Yimin (*Beijing Univ. of Technology*); Chen, Fei (*Southern Univ. of Science and Technology*)

17:15-19:00 ThPoS-14.4
Synchronous Responses of Population Neurons to the Changes of Inter-Pulse-Intervals during Stimulations of Afferent Fibers 2178-2181
 Ma, Weijian (*Zhejiang University*); Feng, Zhouyan* (*Zhejiang University*); Hu, Hanhan (*Zhejiang University*); Wang, Zhaoxiang (*Zhejiang University*); Zhou, Wenjie (*Zhejiang University*)

17:15-19:00 ThPoS-14.5
Frequency-Dependent Inhibition Induced by Stimulations in Rat Hippocampus 2182-2185
 Qiu, Chen (*Zhejiang University*); Feng, Zhouyan* (*Zhejiang University*); Zheng, Lvpiao (*Zhejiang University*); Huang, Lu (*Zhejiang University*)

17:15-19:00 ThPoS-14.6
Merged Haptic Sensation in the Hand during Concurrent Non-Invasive Proximal Nerve Stimulation 2186-2189
 Vargas, Luis* (*Joint Dept. of BioMedical Engineering at University of North Carolina-Chapel Hill and NC State University*); Huang, He (*North Carolina State University and University of North Carolina at Chapel Hill*); Zhu, Yong (*North Carolina State University*); Hu, Xiaogang (*University of North Carolina-Chapel Hill*)

17:15-19:00 ThPoS-14.7
On the Need for Adaptive Learning in On-Demand Deep Brain Stimulation for Movement Disorders 2190-2193
 Khobragade, Nivedita* (*University of Illinois at Chicago*); Tuninetti, Daniela (*University of Illinois at Chicago*); Graupe, Daniel (*University of Illinois at Chicago*)

17:15-19:00 ThPoS-14.8
Delayed Feedback Frequency Adjustment for Deep Brain Stimulation of Subthalamic Nucleus Oscillations 2194-2197
 Daneshzand, Mohammad (*University of Bridgeport*); Faezipour, Miad* (*University of Bridgeport*); Barkana, Buket (*University of Bridgeport*)

17:15-19:00 ThPoS-14.9
Assessments of Basic Properties of Distal-Presented Bone-Conducted Ultrasonic Hearing 2198-2201
 Ogino, Riki (*Chiba University*); Otsuka, Sho (*Chiba University*); Nakagawa, Seiji* (*Chiba University*)

17:15-19:00	ThPoS-14.10
PEDOT as a High Charge Injection Material for Low-Frequency Stimulation	2202-2205
Boehler, Christian* (<i>University of Freiburg</i>); Asplund, Maria (<i>University of Freiburg</i>)	
17:15-19:00	ThPoS-14.11
Closed Loop Microfabricated Facial Reanimation Device Coupling EMG-Driven Facial Nerve Stimulation with a Chronically Implanted Multichannel Cuff Electrode	2206-2209
Askari, Sina* (<i>University of California Irvine</i>); Presacco, Alessandro (<i>University of Maryland, College Park</i>); Sahyouni, Ronald (<i>UC Irvine</i>); Djalilian, Hamid (<i>University of California</i>); Shkel, Andrei (<i>UC Irvine</i>); Lin, Harrison (<i>UC Irvine</i>)	
17:15-19:00	ThPoS-14.12
Electrophysiological Activity Evoked by Direct Electrical Stimulation of the Human Brain: Interest of the P0 Component	2210-2213
Boyer, Anthony* (<i>INRIA, CAMIN, University of Montpellier</i>); Hugues, Duffau (<i>Plasticity of Central Nervous System, Stem Cells and Glial Tumors</i>); Vincent, Marion (<i>CNRS, University of Lille</i>); Ramdani, Sofiane (<i>UMR5506 - IDH</i>); Mandonnet, Emmanuel (<i>Hopital Lariboisière, Dept. of Neurosurgery</i>); Guiraud, David (<i>INRIA</i>); Bonnetblanc, François (<i>INRIA, LIRMM, Équipe Demar, University of Montpellier 2</i>)	
17:15-19:00	ThPoS-14.13
Crucial Role of Nerve Depolarisation in High Frequency Conduction Block in Mammalian Nerves: Simulation Study	2214-2217
Perra, Emanuele (<i>Aalto University Helsinki</i>); Rapeaux, Adrien* (<i>Imperial College London</i>); Nikolic, Konstantin (<i>Imperial College London</i>)	
17:15-19:00	ThPoS-14.14
Therapeutic Effects of Repetitive Transcranial Magnetic Stimulation on Corticospinal Tract Activities and Neuromuscular Properties in Children with Cerebral Palsy	2218-2221
Parvin, Shokoofeh (<i>Tehran University of Medical Sciences</i>); Shahrokhi, Amin (<i>Noorafshar Hospital</i>); Tafakhori, Abbas (<i>School of Medicine, Tehran University of Medical Sciences</i>); Irani, Ashkan (<i>Dept. of Occupational Therapy, Faculty of Rehabilitation, Shahid Beheshti University of Medical Sciences Health Services</i>); Rasteh, Mehrnaz (<i>Day Hospital</i>); Mirbagheri, Mehdi* (<i>Northwestern University/RIC</i>)	
17:15-19:00	ThPoS-14.15
Analysis of Adverse Effects of Stimulation during DBS Surgery by Patient-Specific FEM Simulations	2222-2225
Shah, Ashesh (<i>University of Applied Sciences and Arts, Northwestern Switzerland</i>); Alonso, Fabiola (<i>Linköping University</i>); Vogel, Dorian (<i>University of Applied Sciences and Arts Northwestern Switzerland</i>); Wardell, Karin (<i>Linköping University</i>); Coste, Jérôme (<i>Centre Hospitalier Universitaire de Clermont-Ferrand, Image-Guided Clinical NeuroSciences and Connectomics</i>); Lemaire, Jean-Jacques (<i>Centre Hospitalier Universitaire de Clermont-Ferrand, Image-Guided Clinical NeuroSciences and Connectomics</i>); Pison, Daniela (<i>University of Applied Sciences and Arts Northwestern Switzerland</i>); Hemm, Simone* (<i>University of Applied Sciences and Arts Northwestern Switzerland</i>)	
17:15-19:00	ThPoS-14.16
Optimizing Stimulus Waveforms for Suppressing Epileptic Activity Reveals a Counterbalancing Mechanism	2226-2229
Chang, Joshua* (<i>Dell Medical School, University of Texas at Austin</i>); Paydarfar, David (<i>University of Texas at Austin, Dell Medical School</i>)	
17:15-19:00	ThPoS-14.17
Micro-Solenoid Inductors with Magnetic Core for Neural Stimulation	2230-2233
Zaeimbashi, Mohsen (<i>Northeastern University</i>); Wang, Zhiguang (<i>Northeastern University</i>); Lee, Seung Woo (<i>Massachusetts General Hospital and Harvard Medical School</i>); Cash, Sydney (<i>Massachusetts General Hospital</i>); Fried, Shelley (<i>Massachusetts General Hospital / Harvard Medical School</i>); Sun, Nian* (<i>Northeastern University</i>)	
17:15-19:00	ThPoS-14.18
Electrical Weapon Charge Delivery with Arcing	2234-2239
Chiles, Bryan (<i>Axon Enterprise, Inc.</i>); Nerheim, Max (<i>TASER International</i>); Brave, Michael (<i>LAAW International, LLC</i>); Panescu, Dorin (<i>Advanced Cardiac Therapeutics</i>); Kroll, Mark William* (<i>University of Minnesota</i>)	

17:15-19:00	ThPoS-14.19
Neuromuscular Electrical Stimulation with Kilohertz Frequency Alternating Current to Enhance Sensorimotor Cortical Excitability	2240-2243
Yun, Zhao (<i>Chongqing University</i>); Hou, Wensheng* (<i>Bioengineering Inst of Chongqing University</i>); Wang, Xing (<i>Chongqing University</i>)	
17:15-19:00	ThPoS-14.20
Estimating Voluntary Activation of the Elbow and Wrist Muscles in Chronic Hemiparetic Stroke using Twitch Interpolation Methodology	2244-2247
Garmirian, Lindsay* (<i>Northwestern University</i>); Acosta, Anamaria (<i>Northwestern University</i>); Hill, Nayo Marel (<i>Northwestern University</i>); Dewald, Julius P. A. (<i>Northwestern University</i>)	
17:15-19:00	ThPoS-14.21
Computational Models and Tools for Developing Sophisticated Stimulation Strategies for Retinal Neuroprostheses	2248-2251
Guo, Tianruo (<i>University of New South Wales</i>); Tsai, David (<i>Columbia University</i>); Muralidharan, Madhuvanathi (<i>GSBME UNSW</i>); Li, Liming (<i>Shanghai Jiao Tong University</i>); Suaning, Gregg (<i>University of Sydney</i>); Morley, John William (<i>University of Western Sydney</i>); Dokos, Socrates (<i>University of New South Wales</i>); Lovell, Nigel H.* (<i>University of New South Wales</i>)	
17:15-19:00	ThPoS-14.22
Electric Fields Induced by Transcutaneous and Intracranial Current Injections in the Rat Brain	2252-2255
Asan, Ahmet (<i>New Jersey Institute of Technology</i>); Gok, Sinan (<i>New Jersey Institute of Technology</i>); Sahin, Mesut* (<i>New Jersey Institute of Technology</i>)	
ThPoS-15: 17:15-19:00	Exhibit Hall 2
Neurological Disorders – Poster (Theme 6) (Poster Session)	
17:15-19:00	ThPoS-15.1
Congestive Heart Failure Detection via Short-Time Electrocardiographic Monitoring for Fast Reference Advice in Urgent Medical Conditions	2256-2259
Zhang, Yi* (<i>University of Electronic Science and Technology of China</i>); Yang, Qin (<i>University of Electronic Science and Technology of China</i>); Pang, Winnie (<i>University of Electronic Science and Technology of China</i>); Argha, Ahmadreza (<i>University of New South Wales</i>); Xu, Peng (<i>University of Electronic Science and Technology of China</i>); Su, Steven Weidong (<i>University of Technology, Sydney</i>); Yao, Dezhong (<i>University of Electronic Science and Technology of China</i>)	
17:15-19:00	ThPoS-15.2
Experimental Study on Nerve Signals Block for Spasticity based on Antimissile Strategy	2260-2263
Wang, Zhigong* (<i>Southeast University</i>); Lü, Xiaoying (<i>Southeast University</i>); Gao, Yujie (<i>Southeast University</i>); Zhang, Jianjun (<i>Southeast University</i>); Wang, Boshuo (<i>Duke University</i>)	
17:15-19:00	ThPoS-15.3
Using Interictal HFOs to Improve the Identification of Epileptogenic Zones in Preparation for Epilepsy Surgery	2264-2267
Farahmand, Sina* (<i>Illinois Institute of Technology</i>); Sobayo, Tiwalade (<i>Illinois Institute of Technology</i>); Mogul, David (<i>Illinois Institute of Technology</i>)	
17:15-19:00	ThPoS-15.4
Hardware Implementation of a Performance and Energy-Optimized Convolutional Neural Network for Seizure Detection	2268-2271
Heller, Simon* (<i>Dept. of Microsystems Engineering - University of Freiburg</i>); Huegle, Maria (<i>University of Freiburg</i>); Nematollahi, Iman (<i>University of Freiburg</i>); Manzouri, Farrokh (<i>University of Freiburg</i>); Dümpelmann, Matthias (<i>University Medical Center Freiburg</i>); Schulze-Bonhage, Andreas (<i>University Hospital Freiburg</i>); Boedecker, Joschka (<i>University of Freiburg</i>); Woias, Peter (<i>University</i>)	
17:15-19:00	ThPoS-15.5
Neural Modulation by Repetitive Transcranial Magnetic Stimulation (rTMS) for BCI Enhancement in Stroke Patients	2272-2275
Shu, Xiaokang* (<i>Shanghai Jiao Tong University</i>); Chen, Shugeng (<i>Huashan Hospital, Fudan University</i>); Chai, Guohong (<i>Shanghai Jiao Tong University</i>); Sheng, Xinjun (<i>Shanghai Jiao Tong University</i>); Jia, Jie (<i>Fudan University</i>); Zhu, Xiangyang (<i>Shanghai Jiao Tong University</i>)	

17:15-19:00	ThPoS-15.6
Ultra Broad Band Neural Activity Portends Seizure Onset in a Rat Model of Epilepsy 2276-2279	
Ehrens, Daniel* (<i>Johns Hopkins University</i>); Assaf, Fadi (<i>Rappaport Faculty of Medicine and Research Institute, Techion - Israel Institute of Technology</i>); Cowan, Noah (<i>Johns Hopkins University</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>); Schiller, Yitzhak (<i>Rappaport Faculty of Medicine and Research Institute, Techion - Israel Institute of Technology</i>)	
17:15-19:00	ThPoS-15.7
Development of a Method to Quantify Abnormal Kinetic and Kinematic Coupling Patterns during Functional Movements in the Paretic Arm and Hand of Individuals with Pediatric Hemiplegia 2280-2283	
Hill, Nayo Marel* (<i>Northwestern University</i>); Dewald, Julius P. A. (<i>Northwestern University</i>)	
17:15-19:00	ThPoS-15.8
Challenges of Stride Segmentation and Their Implementation for Impaired Gait 2284-2287	
Bobić, Vladislava* (<i>Innovation Center of School of Electrical Engineering, Univ. of Belgrade</i>); Djurić-Jovičić, Milica (<i>Innovation Center of School of Electrical Engineering, Univ. of Belgrade</i>); Radovanović, Saša (<i>Institute for Medical Research, Univ. of Belgrade, Serbia</i>); Dragašević, Nataša (<i>Neurology Clinic, Clinical Center of Serbia, Medical Faculty, Univ. of Belgrade, Serbia</i>); Kostić, Vladimir (<i>Neurology Clinic, Clinical Center of Serbia, Medical Faculty, Univ. of Belgrade, Serbia</i>); Popović, Mirjana (<i>Institute for Medical Research, Univ. of Belgrade, Serbia</i>)	
17:15-19:00	ThPoS-15.9
Temporal Pattern of Ripple Events in Temporal Lobe Epilepsy: Towards a Pattern-Based Localization of the Seizure Onset Zone 2288-2291	
Sumsky, Stefan (<i>University of Connecticut</i>); Santaniello, Sabato* (<i>University of Connecticut</i>)	
17:15-19:00	ThPoS-15.10
Frequency Dependence of Shear Wave Velocity in Stroke-Affected Muscles during Isometric Contraction Preliminary Data 2292-2295	
Saadat, Fatemeh* (<i>Shirley Ryan AbilityLab (formerly Rehabilitation Institute of Chicago)</i>); Son, Jongsang (<i>Shirley Ryan AbilityLab (formerly Rehabilitation Institute of Chicago)</i>); Rymer, William Zev (<i>Northwestern & Rehab Inst of Chicago</i>); Lee, Sabrina (<i>Northwestern University, Rehabilitation Institute of Chicago</i>)	
17:15-19:00	ThPoS-15.11
Neural Correlation between Evoked Tactile Sensation and Central Activities in the Somatosensory Cortex 2296-2299	
Yin, Pengyu (<i>School of BioMedical Engineering, Shanghai Jiao Tong University</i>); Hao, Manzhao (<i>School of BioMedical Engineering, Shanghai Jiao Tong University</i>); Liu, Xiaodong (<i>Shanghai Jiao Tong University</i>); Cao, Chunyan (<i>Dept. of Functional Neurosurgery, RuiJin Hospital Shanghai Jiao Tong University School of Medicine</i>); Niu, Chuanxin M. (<i>Ruijin Hospital, School of Medicine, Shanghai Jiao Tong University</i>); Lan, Ning* (<i>Shanghai Jiao Tong University</i>)	
ThPoS-16: 17:15-19:00	Exhibit Hall 2
Neuromuscular Systems – Poster (Theme 6) (Poster Session)	
17:15-19:00	ThPoS-16.1
Gait Symmetry can Reduce Dependence on the Intact Limb during Walking with Constraint of Unilateral Metatarsophalangeal Joints 2300-2303	
Liu, Yixiang (<i>Harbin Institute of Technology</i>); Zang, Xizhe* (<i>Harbin Institute of Technology</i>); Zhang, Niansong (<i>Nanjing University of Science and Technology</i>); Wu, Ming (<i>Rehabilitation Institute of Chicago</i>)	
17:15-19:00	ThPoS-16.2
Towards Enhancement of Patients' Engagement: Online Modification of Rehabilitation Training Modes using Facial Expression and Muscle Fatigue 2304-2307	
Wang, Jiaxing (<i>Institute of Automation, Chinese Academy of Sciences</i>); Wang, Weiqun* (<i>Chinese Academy of Sciences</i>); Hou, Zeng-Guang (<i>Institute of Automation, Chinese Academy of Sciences</i>); Liang, Xu (<i>Institute of Automation, Chinese Academy of Sciences</i>); Ren, Shixin (<i>Chinese Academy of Sciences</i>); Peng, Liang (<i>Institute of Automation, Chinese Academy of Sciences</i>)	

17:15-19:00	ThPoS-16.3
Prediction Method of Walking Speed at Swing Phase using Soleus Electromyogram Signal at Previous Stance Phase	2308-2311
Choi, Taejin (<i>Korea Institute of Science and Technology</i>); Im, Chang-Hwan (<i>Hanyang University</i>); Kim, Seung-Jong (<i>Korea Institute of Science and Technology</i>); Kim, Hyungmin (<i>Korea Institute of Science and Technology</i>); Lee, Jong Min* (<i>Korea Institute of Science and Technology</i>)	
17:15-19:00	ThPoS-16.4
Application of an LDA Classifier for Determining User-Intent in Multi-DOF Quasi-Static Shoulder Tasks in Individuals with Chronic Stroke: Preliminary Analysis	2312-2315
Kopke, Joseph V* (<i>Northwestern University</i>); Hargrove, Levi (<i>Rehabilitation Institute of Chicago</i>); Ellis, Michael (<i>Northwestern University</i>)	
17:15-19:00	ThPoS-16.5
Designing Feedback Controllers for Human-Prosthetic Systems using H-Infinity Model Matching	2316-2319
Costacurta, Julia* (<i>Johns Hopkins University</i>); Osborn, Luke (<i>Johns Hopkins University</i>); Thakor, Nitish (<i>Johns Hopkins University</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>)	
17:15-19:00	ThPoS-16.6
Parkinsonian Tremor Detection from Subthalamic Nucleus Local Field Potentials for Closed-Loop Deep Brain Stimulation	2320-2324
Shah, Syed Ahmar* (<i>Postdoctoral Scientist, University of Oxford</i>); Tinkhauser, Gerd (<i>University of Oxford</i>); Chen, Chiung-Chu (<i>Chang Gung University</i>); Little, Simon (<i>Institute of Neurology, Faculty of Brain Sciences, University College London</i>); Brown, Peter (<i>Director of the Medical Research Council Brain Network Dynamics Unit at the University of Oxford, and Professor of Experimental</i>)	
17:15-19:00	ThPoS-16.7
Identifying Noisy Electrodes in High Density Surface Electromyography Recordings Through Analysis of Spatial Similarities	2325-2328
Bingham, Adrian* (<i>RMIT University Melbourne</i>); Jelfs, Beth (<i>RMIT University</i>); Poosapadi Arjunan, Sridhar (<i>SRM Institute of Science and Technology</i>); Kant Kumar, Dinesh (<i>RMIT University</i>)	
17:15-19:00	ThPoS-16.8
Interference of Visual Conditions and Stance Postures on Center of Pressure Sway in Patients with Schizophrenia with History of Fall	2329-2332
Chern, Jen-Suh (<i>National Taiwan Normal University</i>); Wang, San-Ping (<i>Yu-Li Hospital</i>); Chang, Jer-Hao (<i>National Chung Kung University</i>); Yu, Sung-Nien* (<i>National Chung Cheng University</i>); Lin, Yu-Zhe (<i>National Chung Cheng University</i>)	
17:15-19:00	ThPoS-16.9
Combined Visual Feedback with Pelvic Assistance Force Improves Step Length during Treadmill Walking in Individuals with Post-Stroke Hemiparesis	2333-2336
Hsu, Chao-Jung (<i>Shirley Ryan AbilityLab</i>); Kim, Janis (<i>Rehabilitation Institute of Chicago</i>); Wu, Ming* (<i>Rehabilitation Institute of Chicago</i>)	
17:15-19:00	ThPoS-16.10
Design of Functional Electrical Stimulation Cycling System for Lower-Limb Rehabilitation of Stroke Patients	2337-2340
Wang, Xiaojun (<i>Chinese University of Hong Kong</i>); Leung, Wing Cheong (<i>Chinese University of Hong Kong</i>); Fang, Yuqi (<i>Chinese University of Hong Kong</i>); Chen, Sai (<i>Chinese University of Hong Kong</i>); Mehra, Prabhav (<i>Locus.sh</i>); Tong, Kai Yu, Raymond* (<i>Chinese University of Hong Kong</i>)	
17:15-19:00	ThPoS-16.11
Exploration of the Effect of Race on Cortical Current Flow Due to Transcranial Direct Current Stimulation: Comparison across Caucasian, Chinese, and Indian Standard Brains	2341-2344
Datta, Abhishek (<i>Soterix Medical, Inc.</i>); Thomas, Chris* (<i>Soterix Medical, Inc.</i>); Huang, Yu (<i>City College of New York</i>); Venkatasubramanian, Ganesan (<i>National Institute of Mental Health And NeuroSciences</i>)	

17:15-19:00 ThPoS-16.12
Development and Evaluation of a Kinect-Based Rapid Movement Therapy Training Platform for Balance Rehabilitation 2345-2348
 Junata, Melisa* (*Chinese University of Hong Kong*); Cheng, Kenneth Chik-Chi (*Chinese University of Hong Kong*); Man, Hok Sum (*Chinese University of Hong Kong*); Wang, Xin (*Chinese University of Hong Kong*); Tong, Kai Yu, Raymond (*Chinese University of Hong Kong*)

ThPoS-17: 17:15-19:00 Exhibit Hall 2
Parameter Estimation in Biomedical Models – Poster (Theme 4) (Poster Session)

17:15-19:00 ThPoS-17.1
Studying the Sensitivity of Coronary Blood Flow using Nondimensional Analysis 2349-2353
 Alwan, Ghazwan* (*University of Missouri*); Manring, Noah (*University of Missouri*); Emter, Craig (*University of Missouri*); Delafontaine, Patrick (*University of Missouri*); Leary, Emily (*University of Missouri*)

17:15-19:00 ThPoS-17.2
Modelling of Fasting Glucose-Insulin Dynamics from Sparse Data 2354-2357
 Aradóttir, Tinna Björk* (*Technical University of Denmark*); Boiroux, Dimitri (*Technical University of Denmark*); Bengtsson, Henrik (*Novo Nordisk A/S*); Kjølstad Poulsen, Niels (*Technical University of Denmark*)

17:15-19:00 ThPoS-17.3
An Application of Conditional Robust Calibration (CRC) to the Lotka-Volterra Predator-Prey Model in Computational Systems Biology: A Comparison of Two Sampling Strategies N/A
 Bianconi, Fortunato* (*ICT4life Srl*); Antonini, Chiara (*University of Perugia, Dept. of Engineering*); Tomassoni, Lorenzo (*University of Perugia, Dept. of Engineering*); Valigi, Paolo (*University of Perugia*)

17:15-19:00 ThPoS-17.4
Parameter Estimation in Synaptic Coupling Model using a Point Process Modeling Framework 2362-2365
 Amidi, Yalda* (*Isfahan University of Technology*); Nazari, Behzad (*Isfahan University of Technology*); Sadri, Saeed (*Isfahan University of Technology*); Eden, Uri (*Boston University*); Yousefi, Ali (*Massachusetts General Hospital and Harvard Medical School*)

17:15-19:00 ThPoS-17.5
A Mean Field Model of Acute Hepatic Encephalopathy 2366-2369
 Song, Jiangling (*Massachusetts General Hospital*); Sun, Haoqi (*Massachusetts General Hospital*); Jing, Jin (*Massachusetts General Hospital*); Carlos, Luis (*Massachusetts General Hospital*); Chao, Lingya (*Massachusetts General Hospital*); Zhang, Rui (*The Medical Big Data Research Center of School Mathematics, Northwest University, China*); Cash, Sydney (*Massachusetts General Hospital*); Westover, Brandon* (*MGH / Harvard Medical School*)

17:15-19:00 ThPoS-17.6
A Novel Bi-Level Framework for Fitting the Parameters in Cardiac Cellular Models 2370-2373
 Pouranbarani, Elnaz* (*University of Calgary*); Nygren, Anders (*University of Calgary*)

ThPoS-18: 17:15-19:00 Exhibit Hall 2
Systems Biology and Systems Medicine – Poster (Theme 4) (Poster Session)

17:15-19:00 ThPoS-18.1
Microbiota of Inflammatory Bowel Disease Models 2374-2377
 Gao, Ziyang (*Duke University*); Chen, Kai-Yuan (*Duke University*); Mueller, Olaf (*Duke University*); Zhang, Han (*Johns Hopkins University*); Rakhilin, Nikolai (*School of Electrical and Computer Engineering, Cornell University*); Chen, Jiande (*Johns Hopkins University*); Shen, Xiling* (*Duke University*)

17:15-19:00 ThPoS-18.2
Single-Cell Transcriptomics Reveals Heterogeneity and Drug Response of Human Colorectal Cancer Organoids 2378-2381
 Chen, Kai-Yuan (*Duke University*); Srinivasan, Tara (*Cornell University*); Lin, Christopher (*Duke University*); Tung, Kuei-Ling (*Dept. of Biological and Environmental Engineering, Cornell University*); Hsu, David (*Duke University*); Lipkin, Steven (*Cornell Weill Medicine*); Shen, Xiling* (*Duke University*); Gao, Ziyang (*Duke University*)

17:15-19:00	ThPoS-18.3
In Silico Model of Vitamin D3 Dependent NADPH Oxidase Complex Activation during Mycobacterium Infection	2382-2385
Gough, Maya* (<i>University of Houston</i>); May, Elebeoba (<i>University of Houston</i>)	
17:15-19:00	ThPoS-18.4
Modeling HPV Late Promoter Regulation	2386-2389
Giaretta, Alberto* (<i>University of Padova, Dept. of Information Engineering</i>); Toffolo, Gianna (<i>University of Padova</i>)	
17:15-19:00	ThPoS-18.5
Spatiotemporal Analysis of Mycobacterium-Dependent Macrophage Response	2390-2393
Stolley, Danielle* (<i>University of Houston</i>); May, Elebeoba (<i>University of Houston</i>)	
17:15-19:00	ThPoS-18.6
Deep-2'-O-Me: Predicting 2'-O-Methylation Sites by Convolutional Neural Networks	2394-2397
Mostavi, Milad (<i>University of Texas at San Antonio</i>); Salekin, Sirajul (<i>University of Texas at San Antonio</i>); Huang, Yufei* (<i>University of Texas at San Antonio</i>)	
ThPoS-19: 17:15-19:00	Exhibit Hall 2
Neural Signal Processing Poster (Theme 6) (Poster Session)	
17:15-19:00	ThPoS-19.1
Offline Lower-Limb Kinematic Decodification by Segments of EEG Signals	2398-2401
Mercado, Luis* (<i>Universidad Autónoma de Nuevo León</i>); Azorin, Jose M. (<i>Universidad Miguel Hernandez de Elche</i>); Platas-Garza, Miguel Angel (<i>Universidad Autónoma de Nuevo León</i>); Ubeda, Andres (<i>University of Alicante</i>); Quiroz, Griselda (<i>Universidad Autónoma de Nuevo León</i>)	
17:15-19:00	ThPoS-19.2
Eigen Decomposition of Cardiac Synchronous EEGs for Investigation of Neural Effects of Tempo and Cognition of Songs	2402-2405
Mollakazemi, Mohammad Javad* (<i>University of Kentucky</i>); Biswal, Dibyajyoti (<i>University of Kentucky</i>); Evans, Joyce (<i>University of Kentucky</i>); Patwardhan, Abhijit (<i>University of Kentucky</i>)	
17:15-19:00	ThPoS-19.3
EMD-Based, Mean-Phase Coherence Analysis to Assess Instantaneous Phase-Synchrony Dynamics in Epilepsy Patients	2406-2409
Farahmand, Sina* (<i>Illinois Institute of Technology</i>); Sobayo, Tiwalade (<i>Illinois Institute of Technology</i>); Mogul, David (<i>Illinois Institute of Technology</i>)	
17:15-19:00	ThPoS-19.4
Cross-Recurrence Quantification Analysis for Inter-Muscular Coordination during Power Grip at Different Force Levels	2410-2413
Zhang, Na (<i>Shandong University</i>); Wei, Na (<i>Qilu Hospital, Shandong University</i>); Yue, Shouwei (<i>Dept. of Physical Medicine and Rehabilitation, Qilu Hospital, Shandong University</i>); Tian, Xincheng (<i>Shandong University</i>); Li, Ke* (<i>Shandong University</i>)	
17:15-19:00	ThPoS-19.5
Weighted Network Density Predicts Range of Latent Variable Model Accuracy	2414-2417
Palmerston, Jeremiah Bradley* (<i>City University of Hong Kong</i>); She, Qi (<i>City University of Hong Kong</i>); Chan, Rosa H. M. (<i>City University of Hong Kong</i>)	
17:15-19:00	ThPoS-19.6
Short-Term Fourier Transform based Spike Detection of Spontaneous Peripheral Nerve Activity	2418-2421
Shafer, Benjamin (<i>Food and Drug Administration</i>); Yaghoubi, Farid (<i>FDA</i>); Vasudevan, Srikanth* (<i>Food and Drug Administration</i>)	
17:15-19:00	ThPoS-19.7
Noninvasive Seizure Prediction using Autonomic Measurements in Patients with Refractory Epilepsy ..	2422-2425
Al-Bakri, Amir (<i>University of Kentucky</i>); Villamar, Mauricio (<i>University of Kentucky</i>); Haddix, Chase (<i>University of Kentucky</i>); Bensalem-Owen, Meriem (<i>University of Kentucky Hospital</i>); Sunderam, Sridhar* (<i>University of Kentucky</i>)	

17:15-19:00 ThPoS-19.8
Subspace-Based Suppression of Cortical Stimulation Artifacts 2426-2429
 Wang, Po T. (*University of California Irvine*); McCrimmon, Colin M (*University of California, Irvine*); Heydari, Payam (*University of California Irvine*); Do, An H. (*University of California Irvine*); Nenadic, Zoran* (*University of California Irvine*)

ThPoS-20: 17:15-19:00 Exhibit Hall 2
Sensory Neuroprostheses – Poster (Theme 6) (Poster Session)

17:15-19:00 ThPoS-20.1
Positioning the Nerve Cuff Distally on the Sciatic Nerve Improves the Classification of Ankle-Movement Proprioceptive ENG Signals 2430-2433
 Silveira, Carolina* (*Newcastle University*); Brunton, Emma Kate (*Newcastle University*); Spendiff, Sally (*Newcastle University*); Nazarpour, Kianoush (*Newcastle University*)

17:15-19:00 ThPoS-20.2
Visual and Electric Spiking Responses of Seven Types of Rabbit Retinal Ganglion Cells 2434-2437
 Werginz, Paul* (*Massachusetts General Hospital / Harvard Medical School*); Im, Maesoon (*Henry Ford Health System*); Hadjinicolaou, Alex E. (*Australian College of Optometry*); Fried, Shelley (*Massachusetts General Hospital / Harvard Medical School*)

17:15-19:00 ThPoS-20.3
Evaluation of Time-Domain Features of Sensory ENG Signals 2438-2441
 Silveira, Carolina* (*Newcastle University*); Brunton, Emma Kate (*Newcastle University*); Khushaba, Rami N. (*University of Technology, Sydney (UTS)*); Nazarpour, Kianoush (*Newcastle University*)

17:15-19:00 ThPoS-20.4
An ERP Study on the Combined-Stimulation Advantage in Vocoder Simulations 2442-2445
 Xu, Danying (*Southern University of Science and Technology*); Wang, Lei (*South University of Science and Technology of China*); Chen, Fei* (*Southern University of Science and Technology*)

17:15-19:00 ThPoS-20.5
Congruent Visual Stimulation Facilitates Auditory Frequency Change Detection: An ERP Study 2446-2449
 Wang, Lei* (*South University of Science and Technology of China*); Tsao, Yu (*Academia Sinica*); Chen, Fei (*Southern University of Science and Technology*)

17:15-19:00 ThPoS-20.6
Neural Representation of Harmonic Single Sideband Encoder in Inferior Colliculus of Guinea Pigs 2450-2453
 Wang, Xing* (*Chongqing University*); Xiong, Wei (*Chongqing University*); Jiang, Bin (*Chongqing University*); Hou, Wensheng (*Bioengineering Inst of Chongqing University*); Peng, Fei (*Chongqing University*); Hu, ning (*Chongqing University*)

17:15-19:00 ThPoS-20.7
Using Muscle Synergy to Evaluate the Neck Muscular Activities during Normal Swallowing 2454-2457
 Zhu, Mingxing (*Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences*); Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Technology*); Yang, Zijian (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Lin, Wan-Hua (*Shenzhen Institutes of Advanced Technology*); Huang, Zhen (*Panyu Central Hospital, China*); Fang, Peng (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Tan, Jingqian (*The Third Affiliated Hospital, Sun Yat-Sen University*); Li, Peng (*The Third Affiliated Hospital of Sun Yat-Sen University*); Tong, Michael C. F. (*Chinese University of Hong Kong*); Leung, Ka Ying Karman (*Dept. of Otorhinolaryngology, Head and Neck Surgery (ENT) Chinese University of Hong Kong*); Chen, Shixiong* (*Shenzhen Institutes of Advanced Technology*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)

17:15-19:00 ThPoS-20.8
Comparison of Responses of Visual Cortical Neurons in the Mouse to Intraocular and Extraocular Electric Stimulation of the Retina 2458-2461
 Ryu, Sang Baek (*Massachusetts General Hospital and Harvard Medical School*); Fried, Shelley* (*Massachusetts General Hospital / Harvard Medical School*)

17:15-19:00 ThPoS-20.9
Computational Simulation of Array-Based Electroporation in the Cochlea 2462-2465
 Al Abed, Amr (*Univ. of New South Wales*); Foster, Evelyn (*The Univ. of New South Wales*); Pinyon, Jeremy (*Univ. of New South Wales*); Li, Chung Hon (*Univ. of New South Wales*); Cowin, Gary (*Univ. of Queensland*); Housley, Gary D. (*Univ. of New South Wales*); Lovell, Nigel H.* (*Univ. of New South Wales*)

ThPoS-21: 17:15-19:00 Exhibit Hall 2
Neurorehabilitation – Poster (Theme 6) (Poster Session)

17:15-19:00 ThPoS-21.1
Feasibility of using the RAPAE Smart Board for Upper Limb Therapy in Stroke Survivors: A Pilot Controlled Trial 2466-2469
 Joon Woo, Park (*Daegu University*); Jung, Hee-Tae (*University of Massachusetts Amherst*); Daneault, Jean-Francois (*Harvard Medical School*); Park, Sung Ji (*Heeyeon Hospital*); Ryu, Taekyeong (*Heeyeon Hospital*); Kim, Yangsoo (*Heeyeon Hospital*); Lee, Sunghoon Ivan* (*University of Massachusetts Amherst*)

17:15-19:00 ThPoS-21.2
Effect of Arm Dewatering using End-Effector based Robotic Devices on Muscle Activity 2470-2474
 Fong, Justin* (*University of Melbourne*); Crocher, Vincent (*University of Melbourne*); Haddara, Raneem (*University of Melbourne*); Ackland, David (*University of Melbourne*); Galea, Mary P. (*Dept. of Medicine (Royal Melbourne Hospital)*); Tan, Ying (*University of Melbourne*); Oetomo, Denny (*University of Melbourne*)

17:15-19:00 ThPoS-21.3
Effect of Pelvic Movement on Healthy Subjects during Gait Training using a Gait Rehabilitation System 2475-2478
 Son, Choonghyun (*Korea Institute of Science and Technology*); Moon, Hyunsik (*Korea Institute of Science and Technology*); Kim, Daeun (*Yonsei University*); Chun, Min Ho (*Asan Medical Center, University of Ulsan*); Kim, Seung-Jong (*Korea Institute of Science and Technology*); Choi, Junho* (*Korea Institute of Science and Technology*)

17:15-19:00 ThPoS-21.4
The Effect of Myoelectric Computer Interface Training on Arm Kinematics and Function after Stroke 2479-2482
 Tomic, Goran (*Northwestern Univ.*); Mugler, Emily (*Northwestern Univ.*); Singh, Aparna (*Vanderbilt Univ.*); Gaide, Jonathan (*Purdue Univ.*); Hameed, Saad (*Dow Univ. of Health Sciences*); Alqadi, Murad (*Univ. of Illinois at Chicago*); Robinson, Elizabeth (*Shirley Ryan AbilityLab*); Slutzky, Marc* (*Northwestern Univ.*)

17:15-19:00 ThPoS-21.5
Speaking Ability While using an Inductive Tongue-Computer Interface for Individuals with Tetraplegia: Talking and Driving a Powered Wheelchair – A Case Study 2483-2486
 Andreasen Struijk, Lotte N. S. (*Aalborg University*); Bentsen, Bo (*Center for Sensory Motor Interaction, Aalborg University*); Gaihede, Michael (*Aalborg Hospital, Dept. of Otorhinolaryngology and Head and Neck Surgery*); Lontis, Eugen Romulus* (*Aalborg University*)

17:15-19:00 ThPoS-21.6
Effects of Lower Body Positive Pressure Treadmill Training on Dynamic Balance of Children with Cerebral Palsy 2487-2490
 Dadashi, Farnoosh (*Tehran University of Medical Sciences*); Kharazi, Mohamad Reza (*Dept. of Training and Movement Sciences, Humboldt-Universität zu Berlin, Berlin, Germany*); Lotfian, Mahboube (*Tehran University of Medical Sciences*); Shahrokhi, Amin (*Noorafshar Hospital*); Mirbagheri, Alireza (*Tehran University of Medical Sciences (TUMS)*); Mirbagheri, Mehdi* (*Northwestern University/RIC*)

17:15-19:00 ThPoS-21.7
The Effects of Low Frequency Repetitive Transcranial Magnetic Stimulation on White Matter Structural Connectivity in Children with Cerebral Palsy 2491-2494
 Marzbani, Hengameh (*Tehran University of Medical Sciences*); Shahrokhi, Amin (*Noorafshar Hospital*); Irani, Ashkan (*Dept. of Occupational Therapy, Faculty of Rehabilitation, Shahid Beheshti University of Medical Sciences Health Services*); Mehdinezhad, Mina (*Mina Mehdinezhad is Occupational Therapist, Noorafshar Hospital*); Kohanpour, Mohsen (*Dept. of Neuroimaging and Analysis Group (NIAG), Tehran University of Medical Sciences, Imam Khomeini Hospital*); Mirbagheri, Mehdi* (*Northwestern University/RIC*)

17:15-19:00	ThPoS-21.8
Assessment of Neuroplasticity of Corticospinal Tract Induced by Antigravity Treadmill (AlterG) in Cerebral Palsy Children	2495-2498
Azizi, Shahla (Dept. of Medical Physics and BioMedical Engineering, Tehran Univ. of Medical Sciences); Moradi Birgani, Parmida (Tehran Univ. of Medical Sciences); Marzbani, Hengameh (Tehran Univ. of Medical Sciences); Irani, Ashkan (Dept. of Occupational Therapy, Faculty of Rehabilitation, Shahid Beheshti Univ. of Medical Sciences Health Services); Kohanpour, Mohsen (Dept. of Neuroimaging and Analysis Group (NIAG), Tehran Univ. of Medical Sciences, Imam Khomeini Hospital); Mirbagheri, Mehdi* (Northwestern Univ./RIC)	
17:15-19:00	ThPoS-21.9
The Impact of AlterG Training on Balance and Structure of Vestibulospinal Tract in Cerebral Palsy Children	2499-2502
Azizi, Shahla (Dept. of Medical Physics and BioMedical Engineering, Tehran University of Medical Sciences); Rasooli, Amirhossein (Tehran University of Medical Sciences); Soleimani, Maryam (Dept. of Medical Basic Sciences, University of Social Welfare and Rehabilitation Sciences); Irani, Ashkan (Dept. of Occupational Therapy, Faculty of Rehabilitation, Shahid Beheshti University of Medical Sciences Health Services); Shahrokhi, Amin (Noorafshar Hospital); Mirbagheri, Mehdi* (Northwestern University/RIC)	
17:15-19:00	ThPoS-21.10
Relative Efficacy of Sensor Modalities for Estimating Post-Stroke Motor Impairment	2503-2506
Nelson, Zachariah (University of Tennessee, Knoxville); Wade, Eric* (University of Tennessee)	
17:15-19:00	ThPoS-21.11
Energetics during Robot-Assisted Training Predicts Recovery in Stroke	2507-2510
Wright, Zachary* (University of Illinois at Chicago, Shirley Ryan AbilityLab); Patton, James (University Illinois at Chicago (UIC) & The Shirley Ryan AbilityLab (formerly RIC)); Huang, Felix (Shirley Ryan AbilityLab)	
17:15-19:00	ThPoS-21.12
Feature Learning in Assistive Rehabilitation Robotic Systems	2511-2514
Lu, Lei* (Harbin Institute of Technology); Tan, Ying (University of Melbourne); Oetomo, Denny (University of Melbourne); Mareels, Iven (Melbourne University, Australia); An, Shi (Harbin Institute of Technology)	
17:15-19:00	ThPoS-21.13
Real-Time Electromyography-Driven Functional Electrical Stimulation Cycling System for Chronic Stroke Rehabilitation	2515-2518
Fang, Yuqi* (Chinese University of Hong Kong); Chen, Sai (Chinese University of Hong Kong); Wang, Xiaojun (Chinese University of Hong Kong); Leung, Wing Cheong (Chinese University of Hong Kong); Wang, Xin (Chinese University of Hong Kong); Tong, Kai Yu, Raymond (Chinese University of Hong Kong)	
17:15-19:00	ThPoS-21.14
Directly Measuring the Rate of Slacking as Stroke Survivors Produced Isometric Forces during a Tracking Task	2519-2522
Smith, Brendan W.* (Loyola Marymount University); Rowe, Justin (University of California at Irvine); Reinkensmeyer, David J. (University of California)	
17:15-19:00	ThPoS-21.15
The Impact of Repetitive Transcranial Magnetic Stimulation on Affected and Unaffected Sides of a Child with Hemiplegic Cerebral Palsy	2523-2526
Parvin, Shokoofeh (Tehran University of Medical Sciences); Mehdinezhad, Mina (Mina Mehdinezhad is Occupational Therapist, Noorafshar Hospital); Taghiloo, Aidin (Day Hospital); Nourian, Ruhollah (Sports Medicine Research Center, Tehran University of Medical Sciences; Dept. of Rehabilitation and Sports Medicine, Nooraf); Mirbagheri, Mehdi* (Northwestern University/RIC)	

FrAT1: 08:00-09:30

Meeting Room 311

Brain-Computer Interface (III) (Theme 6) (Oral Session)

Chair: Weiland, James (*University of Michigan*)

08:00-08:15

FrAT1.1

Enhancement of Cortical Activation for Motor Imagery during BCI-FES Training 2527-2530

Wang, Zhongpeng (*Tianjin Univ.*); Chen, Long (*Tianjin Univ.*); Yi, Weibo (*Tianjin Univ.*); Gu, Bin (*Tianjin Univ.*); Liu, Shuang (*Tianjin Univ.*); An, Xingwei (*Tianjin Univ.*); Xu, Minpeng (*Tianjin Univ.*); Qi, Hongzhi (*Tianjin Univ.*); He, Feng (*Tianjin Univ.*); Wan, Bai-kun (*Tianjin Univ.*); Ming, Dong* (*Tianjin Univ.*)

08:15-08:30

FrAT1.2

Enhancing Detection of SSVEPs with Intermodulation Frequencies using Individual Calibration Data 2531-2534

Chen, Xiaogang* (*Institute of BioMedical Engineering, Chinese Academy of Medical Sciences*); Wang, Yijun (*Institute of Semiconductors, Chinese Academy of Sciences*); Zhang, Shangen (*Tsinghua University*); Gao, Xiaorong (*Tsinghua University*)

08:30-08:45

FrAT1.3

EEG Data Augmentation for Emotion Recognition using a Conditional Wasserstein GAN 2535-2538

Luo, Yun (*Shanghai Jiao Tong University*); Lu, Bao-Liang* (*Shanghai Jiao Tong University*)

08:45-09:00

FrAT1.4

Neural Decoding Forelimb Trajectory using Evolutionary Neural Networks with Feedback-Error-Learning Schemes 2539-2542

Lin, Yu-Chieh (*National Yang Ming University*); Chou, Chin (*National Yang-Ming University*); Yang, Shih-Hung (*Feng Chia University*); Lai, Hsin-Yi (*Zhejiang University*); Lo, Yu-Chun (*Taipei Medical University*); Chen, You-Yin* (*National Chiao-Tung University*)

09:00-09:15

FrAT1.5

Analyzing P300 Distractors for Target Reconstruction 2543-2546

McDaniel, Jonathan* (*DCS Corp*); Gordon, Stephen (*DCS Corp*); Solon, Amelia (*DCS Corp*); Lawhern, Vernon (*Human Research and Engineering Directorate, Army Research Lab*)

09:15-09:30

FrAT1.6

Spike Rate Estimation using Bayesian Adaptive Kernel Smoother (BAKS) and Its Application to Brain Machine Interfaces 2547-2550

Ahmadi, Nur* (*Imperial College London*); Constandinou, Timothy (*Imperial College of Science, Technology and Medicine*); Bouganis, Christos-Savvas (*Imperial College London*)

FrAT2: 08:00-09:30

Meeting Room 312

Neural Networks for Cardiac Signal Applications (Theme 1) (Oral Session)

Chair: Nguyen, Hung T. (*Swinburne University of Technology*)

Co-Chair: Wang, Guijin (*Tsinghua University*)

08:00-08:15

FrAT2.1

Premature Ventricular Contraction Detection from Ambulatory ECG using Recurrent Neural Networks 2551-2554

Zhou, Xue* (*University of Aizu*); Zhu, Xin (*The University of Aizu*); Nakamura, Keihiro (*Toho University Ohashi Medical Center*); Mahito, Noro (*Toho University Sakura Medical Center*)

08:15-08:30

FrAT2.2

Bidirectional Recurrent Neural Network and Convolutional Neural Network (BiRCNN) for ECG Beat Classification 2555-2558

Xie, Pengwei (*Tsinghua Univ.*); Wang, Guijin* (*Tsinghua Univ.*); Zhang, Chenshuang (*Tsinghua Univ.*); Chen, Ming (*Tsinghua Univ.*); Yang, Huazhong (*Tsinghua Univ.*); Lv, TingTing (*Beijing Tsinghua Changgung Hospital*); Sang, ZhenHua (*Beijing Tsinghua Changgung Hospital*); Zhang, Ping (*Beijing Tsinghua Changgung Hospital*)

08:30-08:45 FrAT2.3
Region Aggregation Network: Improving Convolutional Neural Network for ECG Characteristic Detection 2559-2562
 Chen, Ming (*Tsinghua University*); Wang, Guijin* (*Tsinghua University*); Xie, Pengwei (*Tsinghua University*); Sang, ZhenHua (*Beijing Tsinghua Changgung Hospital*); Lv, TingTing (*Beijing Tsinghua Changgung Hospital*); Zhang, Ping (*Beijing Tsinghua Changgung Hospital*); Yang, Huazhong (*Tsinghua University*)

08:45-09:00 FrAT2.4
A Novel Deep Learning based Neural Network for Heartbeat Detection in Ballistocardiograph 2563-2566
 Lu, Han (*Nanyang Technological University*); Zhang, Haihong (*Institute for Infocomm Research*); Lin, Zhiping* (*Nanyang Technological University*); Ng, Soon Huat (*Institute for Infocomm Research*)

09:00-09:15 FrAT2.5
Real-Time Cardiac Arrhythmia Classification using Memristor Neuromorphic Computing System 2567-2570
 Hassan, Amr Mahmoud* (*University of Pittsburgh*); Khalaf, Aya (*Cairo University*); Sayed, Khaled (*University of Pittsburgh*); Li, Hai (Helen) (*Duke University*); Chen, Yiran (*University of Pittsburgh*)

09:15-09:30 FrAT2.6
A Generative Modeling Approach to Limited Channel ECG Classification 2571-2574
 Rajan, Deepta* (*IBM Research*); J. Thiagarajan, Jayaraman (*Lawrence Livermore National Lab*)

FrAT3: 08:00-09:30	Meeting Room 314
Deep Learning Imaging (II) (Theme 2) (Oral Session)	

08:00-08:15 FrAT3.1
Classification of Skin Lesions using an Ensemble of Deep Neural Networks 2575-2578
 Harangi, Balazs* (*University of Debrecen*); Hajdu, Andras (*University of Debrecen*); Baran, Agnes (*Faculty of Informatics, University of Debrecen*)

08:15-08:30 FrAT3.2
Using Octuplet Siamese Network for Osteoporosis Analysis on Dental Panoramic Radiographs 2579-2582
 Chu, Peng* (*Temple University*); Bo, Chunjuan (*College of Electromechanical Engineering, Dalian Nationalities University, Dalian, China*); Xin, Liang (*School of Stomatology, Dalian Medical University, Dalian, China*); Yang, Jie (*Temple University*); Megalooikonomou, Vasileios (*University of Patras*); Yang, Fan (*Temple University*); Ling, Haibin (*Temple University*); Huang, Bingyao (*Temple University*); Li, Xinyi (*Temple University*)

08:30-08:45 FrAT3.3
Unsupervised Deep Learning Features for Lung Cancer Overall Survival Analysis 2583-2586
 Wang, Shuo (*Chinese Academy of Sciences*); Liu, Zhenyu (*Institute of Automation, Chinese Academy of Sciences*); Chen, Xi (*School of Information and Electronics, Beijing Institute of Technology*); Zhu, Yongbei (*Institute of Automation, Chinese Academy of Sciences*); Zhou, Hongyu (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Tang, Zhenchao (*Shandong University, Weihai*); Wei, Wei (*Xi'an Polytechnic University*); Dong, Di (*Chinese Academy of Sciences*); Wang, Yunmei (*Dept. of Radiology, Henan Provincial People's Hospital*); Tian, Jie* (*Chinese Academy of Sciences*)

08:45-09:00 FrAT3.4
Transfer Representation Learning using Inception-V3 for the Detection of Masses in Mammography 2587-2590
 Mednikov, Yuval (*BioMedical Engineering Dept., Ben-Gurion University of the Negev, Beer-Sheba*); Nehemia, Sapir (*BioMedical Engineering Dept., Ben-Gurion University of the Negev, Beer-Sheba*); Zheng, Bin (*University of Oklahoma*); Benzaquen, Oshra (*Dept. of Radiology, Rabin Medical Center, Petah-Tikva*); Lederman, Dror* (*Holon Institute of Technology*)

09:00-09:15 FrAT3.5
Controlled Synthesis of Dermoscopic Images via a New Color Labeled Generative Style Transfer Network to Enhance Melanoma Segmentation 2591-2594
 Chi, Yucong (*Duke University*); Bi, Lei (*University of Sydney*); Kim, Jinman* (*University of Sydney*); Feng, Dagan (*University of Sydney*); Kumar, Ashnil (*University of Sydney*)

09:15-09:30 FrAT3.6
Heart Rate Estimation using Hermite Transform Video Magnification and Deep Learning 2595-2598
Moya-Albor, Ernesto (*Universidad Panamericana*); Brieve, Jorge* (*Universidad Panamericana*);
Ponce, Hiram (*Universidad Panamericana*); Rivas-Scott, Orlando Yael (*Universidad Panamericana*);
Gomez-Peña, Cristina Aimee (*Universidad Panamericana*)

FrAT5: 08:00-09:30 Meeting Room 316A
New Imaging Methods and Applications (I) (Theme 2) (Oral Session)
Chair: Gu, Xuejun (*University of Texas Southwestern Medical Center*)
Co-Chair: Gonzalez Ballester, Miguel Angel (*ICREA & Universitat Pompeu Fabra*)

08:00-08:15 FrAT5.1
Fetal MRI Synthesis via Balanced Auto-Encoder based Generative Adversarial Networks 2599-2602
Torrents-Barrena, Jordina (*Universitat Pompeu Fabra*); Piella, Gemma (*Universitat Pompeu Fabra*); Masoller, Narcis (*Fetal i+D Fetal Medicine Research Center, BCNatal - Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic a)*); Gratacós, Eduard (*Fetal i+D Fetal Medicine Research Center, BCNatal - Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clínic a)*); Eixarch, Elisenda (*BCNatal, Hospital Clínic, Hospital Sant Joan de Déu*); Ceresa, Mario (*Universitat Pompeu Fabra*); Gonzalez Ballester, Miguel Angel* (*ICREA & Universitat Pompeu Fabra*)

08:15-08:30 FrAT5.2
A Two-Level Food Classification System for People with Diabetes Mellitus using Convolutional Neural Networks 2603-2606
Kogias, Kleomenis (*National Technical University of Athens*); Andreadis, Ioannis (*BioMedical Simulations and Imaging Lab*); Dalakleidi, Kalliopi (*National Technical University of Athens*); Nikita, Konstantina* (*National Technical University of Athens*)

08:30-08:45 FrAT5.3
The Analysis of Temperature Changes of the Saliva Traces Left on the Fur during Laboratory Rats Social Contacts 2607-2610
Mazur-Milecka, Magdalena (*Gdańsk University of Technology*); Ruminski, Jacek* (*Gdansk University of Technology*)

08:45-09:00 FrAT5.4
MARBLES – Metal Artifact based Landmark Enhanced Susceptibility Weighted Imaging for Interventional Device Localization in MRI 2611-2614
Dhulipala, Pranav Vaidik* (*Texas A&M University*); Shi, Caiyun (*Shenzhen Institutes of Advanced Technology, Lauterbur Research Center for BioMedical Imaging*); Xie, Guoxi (*Shenzhen Institutes of Advanced Technology, Lauterbur Research Center for BioMedical Imaging*); Wang, Haifeng (*Chinese Academy of Sciences*); Ji, Jim Xiuquan (*Texas A&M University*)

09:00-09:15 FrAT5.5
A Convolutional Neural Network based Auto-Positioning Method for Dental Arch in Rotational Panoramic Radiography 2615-2618
Du, Xin* (*UEG Medical Imaging, Co., Ltd.*); Chen, Yi (*UEG Medical Imaging Equipment Co. Ltd., Shanghai, China*); Zhao, Jun (*Shanghai Jiao Tong University*); Xi, Yan (*Rensselaer Polytechnic Institute*)

FrAT6: 08:00-09:30 Meeting Room 316B
Neural Signal Processing (II) (Theme 6) (Oral Session)

08:00-08:15 FrAT6.1
Estimation of Neural Inputs and Detection of Saccades and Smooth Pursuit Eye Movements by Sparse Bayesian Learning 2619-2622
Wadehn, Federico* (*ETH Zurich*); Loeliger, Hans-Andrea (*ETH Zurich*); Weber, Thilo (*ETH Zurich*); Mack, David J. (*University Hospital Zurich*)

08:15-08:30 FrAT6.2
Extraction of Muscle Synergies in Spinal Cord Injured Patients 2623-2626
Cheng, Richard* (*California Institute of Technology*); Burdick, Joel W. (*Caltech*)

08:30-08:45 FrAT6.3
Independent Component Analysis for Fully Automated Multi-Electrode Array Spike Sorting 2627-2630
 Buccino, Alessio Paolo* (*University of Oslo*); Hagen, Espen (*University of Oslo*); Einevoll, Gaute (*Norwegian University of Life Sciences*); Häfliger, Philipp (*University of Oslo, Dept. of Informatics*); Cauwenberghs, Gert (*University of California San Diego*)

08:45-09:00 FrAT6.4
An Information-Theoretic Measure of Multiscale Causality for Spike-Field Activity 2631-2634
 Wang, Chuanmeizhi* (*University of Southern California*); Shanechi, Maryam (*University of Southern California*)

09:00-09:15 FrAT6.5
Estimation of Functional Dependence in High-Dimensional Spike-Field Activity 2635-2638
 Bighamian, Ramin* (*University of Southern California*); Shanechi, Maryam (*University of Southern California*)

09:15-09:30 FrAT6.6
Imputing Missing Values in EEG with Multivariate Autoregressive Models 2639-2642
 Kanemura, Atsunori* (*National Institute of Advanced Industrial Science and Technology (AIST)*); Cheng, Yuhsein (*Tokyo Metropolitan College of Industrial Technology*); Kaneko, Takumi (*Tokyo Metropolitan College of Industrial Technology*); Nozawa, Kento (*National Institute of Advanced Industrial Science and Technology (AIST)*); Fukunaga, Shuichi (*Tokyo Metropolitan College of Industrial Technology*)

FrAT7: 08:00-09:30 Meeting Room 316C
Signal Processing and Classification of Electromyographic Signals (Theme 1) (Oral Session)
Chair: Ramakrishnan, Swaminathan (*IIT Madras, India*)
Co-Chair: Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)

08:00-08:15 FrAT7.1
Transfer Learning Over Time and Placement in Wearable Myoelectric Control Systems 2643-2646
 Kanoga, Suguru* (*National Institute of Advanced Industrial Science and Technology (AIST)*); Matsuoka, Masashi (*Keio University*); Kanemura, Atsunori (*National Institute of Advanced Industrial Science and Technology (AIST)*)

08:15-08:30 FrAT7.2
Improved MUP Template Estimation using Local Time Warping and Kernel Weighted Averaging 2647-2650
 Hamilton-Wright, Andrew* (*Mount Allison University*); Stashuk, Daniel William (*University of Waterloo*)

08:30-08:45 FrAT7.3
EMG-Based Real Time Facial Gesture Recognition for Stress Monitoring 2651-2654
 Orguc, Sirma* (*Massachusetts Institute of Technology*); Khurana, Harneet Singh (*Massachusetts Institute of Technology*); Stankovic, Konstantina M. (*Harvard Medical School, Massachusetts Eye and Ear Infirmary*); Lee, Hae-Seung (*Massachusetts Institute of Technology*); Chandrakasan, Anantha P. (*Massachusetts Institute of Technology*)

08:45-09:00 FrAT7.4
Real-Time Hand Motion Recognition using sEMG Patterns Classification 2655-2658
 Crepin, Roxane* (*Laval Univ.*); Cheikh Latyr, Fall (*Université Laval*); Mascaret, Quentin (*Laval Univ.*); Gosselin, Clément (*Université Laval*); Campeau-Lecours, Alexandre (*Université Laval*); Gosselin, Benoit (*Laval Univ.*)

09:00-09:15 FrAT7.5
Analysis of Sequential Visibility Motifs in Isometric Surface Electromyography Signals in Fatiguing Condition 2659-2662
 Makaram, Navaneethakrishna* (*Indian Institute of Technology Madras*); Ramakrishnan, Swaminathan (*IIT Madras, India*)

09:15-09:30 FrAT7.6
Analysis of Uterine Electromyography Signals in Preterm Condition using Multifractal Algorithm 2663-2666
 Namadurai, Punitha* (*Indian Institute of Technology Madras*); Ramakrishnan, Swaminathan (*IIT Madras, India*)

08:00-08:15		FrAT8.1
	Long-Term Depression Learning in Spinal Cord Networks	2667-2670
	Baker, Zachary* (<i>George Mason University</i>); Therrien, Karen (<i>George Mason University</i>); LaFosse, Paul (<i>George Mason University</i>); Noor, Abdul (<i>George Mason University</i>); Peixoto, Nathalia (<i>George Mason University</i>)	
08:15-08:30		FrAT8.2
	Preliminary Study of Time to Recovery of Rat Sciatic Nerve from High Frequency Alternating Current Nerve Block	2671-2674
	Rapeaux, Adrien* (<i>Imperial College London</i>); Brunton, Emma Kate (<i>Newcastle University</i>); Nazarpour, Kianoush (<i>Newcastle University</i>); Constandinou, Timothy (<i>Imperial College of Science, Technology and Medicine</i>)	
08:30-08:45		FrAT8.3
	Capacitive Micromachined Ultrasonic Transducer (CMUT) Ring Array for Transcranial Ultrasound Neuromodulation	2675-2678
	Kim, Hyunggug (<i>KAIST</i>); Kim, Seongyeon (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Lee, Hyunjoo Jenny* (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	
08:45-09:00		FrAT8.4
	Improved Target Specificity of Transcranial Focused Ultrasound Stimulation (TFUS) using Double-Crossed Ultrasound Transducers	2679-2682
	Kim, Seongyeon* (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Kim, Hyunggug (<i>KAIST</i>); Shim, Chaeyun (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Lee, Hyunjoo Jenny (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	
09:00-09:15		FrAT8.5
	Bayesian Optimization of Asynchronous Distributed Microelectrode Stimulation for Spatial Memory	2683-2686
	Ashmaig, Omer (<i>Emory University</i>); Connolly, Mark (<i>Emory University</i>); Gross, Robert (<i>Emory University</i>); Mahmoudi, Babak* (<i>Emory University</i>)	
09:15-09:30		FrAT8.6
	Noninvasive Detection of Motor-Evoked Potentials in Response to Brain Stimulation Below the Noise Floor – How Weak can a Stimulus Be and Still Stimulate	2687-2690
	Goetz, Stefan* (<i>Duke University</i>); Zhongxi, Li (<i>Duke University</i>); Peterchev, Angel V (<i>Duke University</i>)	

08:00-08:15		FrAT9.1
	Real-Time ECG Delineation with Randomly Selected Wavelet Transform Feature and Random Walk Estimation	2691-2694
	Xia, Zhourui (<i>Beijing University of Posts and Telecommunications</i>); Wang, Guijin (<i>Tsinghua University</i>); Fu, Dapeng (<i>Beijing Zhong Guan Cun Hospital (Chinese Academy of Sciences Zhong Guan Cun Hospital)</i>); Wang, Haiqing* (<i>Beijing Zhong Guan Cun Hospital (Chinese Academy of Sciences Zhong Guan Cun Hospital)</i>); Chen, Ming (<i>Tsinghua University</i>); Xie, Pengwei (<i>Tsinghua University</i>); Yang, Huazhong (<i>Tsinghua University</i>)	
08:15-08:30		FrAT9.2
	Parametric Modeling of Electrocardiograms using Particle Swarm Optimization	2695-2698
	Peng, Tommy* (<i>Univ. of Auckland</i>); Trew, Mark L. (<i>Univ. of Auckland</i>); Malik, Avinash (<i>Univ. of Auckland</i>)	
08:30-08:45		FrAT9.3
	Daily Stress Monitoring using Heart Rate Variability of Bathtub ECG Signals	2699-2702
	Li, Tianhui* (<i>University of Aizu</i>); Chen, Ying (<i>University of Aizu</i>); Chen, Wenxi (<i>University of Aizu</i>)	

08:45-09:00	FrAT9.4
Improved Heart Rate Tracking using Multiple Wrist-Type Photoplethysmography during Physical Activities	2703-2706
Zhu, Lianning (1990); Du, Dongping* (Texas Tech University)	
09:00-09:15	FrAT9.5
Classification of Heart Diseases based on ECG Signals using Long Short-Term Memory	2707-2710
Liu, Ming (Hanyang University ERICA); Kim, Younghoon* (Hanyang University)	
09:15-09:30	FrAT9.6
Mathematical Modeling of Arterial Blood Pressure using Photo-Plethysmography Signal in Breath-Hold Maneuver	2711-2714
Soltan zadi, Armin (University of Texas at Arlington); Alex, Raichel (University of Texas Arlington); Zhang, Rong (University of Texas Southwestern Medical Center at Dallas); Watenpau, Donald (Sleep Consultants Inc.); Behbehani, Khosrow* (University of Texas at Arlington)	
FrAT10: 08:00-09:30 Ophthalmic and Retinal Imaging (I) (Theme 2) (Oral Session) Chair: Chan, Kevin C. (New York University) Co-Chair: Palaniappan, Kannappan (University of Missouri-Columbia) Meeting Room 319A	
08:00-08:15	FrAT10.1
Automated Diabetic Macular Edema (DME) Analysis using Fine Tuning with Inception-Resnet-V2 on OCT Images	N/A
Kamble, Ravi (SGGS India); Chan, Genevieve C Y (Universiti Teknologi Petronas); Perdomo Charry, Oscar Julian (Universidad Nacional de Colombia); Kokare, Manesh (SGGSIE& T, Nanded, India); Müller, Henning (University of Applied Sciences Western Switzerland (HES-SO)); Meriaudeau, Fabrice* (Universiti Teknologi Petronas, Malaysia); González, Fabio (Universidad Nacional de Colombia)	
08:15-08:30	FrAT10.2
Are There Categories of Corneal Shapes?	2719-2723
Bouazizi, Hala* (Univ. of Montreal); Brunette, Isabelle (Univ. of Montréal); Meunier, Jean (Univ. de Montreal)	
08:30-08:45	FrAT10.3
Multi-Cell Multi-Task Convolutional Neural Networks for Diabetic Retinopathy Grading	2724-2727
Zhou, Kang* (ShanghaiTech University); Gu, Zaiwang (Ningbo Institute of Materials Technology and Engineering; Shanghai University); Liu, Wen (ShanghaiTech University); Luo, Weixin (ShanghaiTech University); Cheng, Jun (Institute of BioMedical Engineering, Chinese Academy of Sciences); Gao, Shenghua (ShanghaiTech University); Liu, Jiang (Ningbo Institute of Materials Technology and Engineering, CAS)	
08:45-09:00	FrAT10.4
Monocular Retinal Depth Estimation and Joint Optic Disc and Cup Segmentation using Adversarial Networks	2728-2731
WITHDRAWN M Shankaranarayana, Sharath* (Indian Institute of Technology Madras); Ram, Keerthi (IIT Madras); Mitra, Kaushik (Indian Institute of Technology Madras); Sivaprakasam, Mohanasankar (Indian Institute of Technology Madras)	
09:00-09:15	FrAT10.5
Detection of Diabetes by Macrovascular Tortuosity of Superior Bulbar Conjunctiva	2732-2735
Kondarage, Achintha Iroshan* (University of Moratuwa); De Zoysa, Dulara Nawanath (University of Moratuwa); Warnapura, Chamari (National Diabetes Center, Rajagiriya, Sri Lanka); Wijesuriya, Mahen (National Diabetes Center, Rajagiriya, Sri Lanka); Jayasinghe, Saroj (Dept. of Clinical Medicine, University of Colombo); Nanayakkara, Nuwan Dayananda (University of Moratuwa); De Silva, Anjula (University of Moratuwa)	
09:15-09:30	FrAT10.6
Sensitivity of Cross-Trained Deep CNNs for Retinal Vessel Extraction	2736-2739
Kassim, Yasmin M.* (University of Missouri Columbia); Palaniappan, Kannappan (University of Missouri-Columbia)	

- 08:00-08:15 FrAT11.1
Anatomical Biomarkers for Adolescent Major Depressive Disorder from Diffusion Weighted Imaging using SVM Classifier 2740-2743
 Chu, Shu-Hsien* (*University of Minnesota*); Lenglet, Christophe (*University of Minnesota*); Westlund Schreiner, Melinda (*University of Minnesota*); Klimes-Dougan, Bonnie (*University of Minnesota*); Cullen, Kathryn R. (*University of Minnesota*); Parhi, Keshab (*University of Minnesota*)
- 08:15-08:30 FrAT11.2
A Quantitative Model for Estimating the Scale of Photochemically Induced Ischemic Stroke 2744-2747
 Yao, Zhaojie* (*University of Washington, Seattle*); Yazdan-Shahmorad, Azadeh (*University of Washington*)
- 08:30-08:45 FrAT11.3
Visual Displacement Perception in Parkinson's Disease Analyzed using a Computer-Generated Graphical Tool 2748-2751
 Bernardinis, Matthew* (*University of Western Ontario (UWO)*); Atashzar, Seyed Farokh (*ECE Dept. at Western University (UWO)*, and *Canadian Surgical Technologies & Advanced Robotics*); Jog, Mandar (*University of Western Ontario - London Health Sciences Centre*); Patel, Rajni (*London Health Sciences Centre*)
- 08:45-09:00 FrAT11.4
Altered Connectivity in Autistic Adults during Complex Facial Emotion Recognition: A Study of EEG Imaginary Coherence 2752-2755
 Black, Melissa H (*Curtin University, School of Occupational Therapy, Social Work and Speech Pathology*); Almabruk, Tahani A. A. (*Omar Al-Mukhtar University*); Albrecht, Matt A (*Curtin University, Curtin Health Innovation Research Institute, School of Public Health*); Chen, Nigel, T (*Curtin University, School of Occupational Therapy, Social Work and Speech Pathology*); Lipp, Ottmar, V (*Curtin University, School of Psychology*); Tan, Tele* (*Curtin University*); Bölte, Sven (*Karolinska Institutet*); Girdler, Sonya (*Curtin University*)
- 09:00-09:15 FrAT11.5
Deep Learning Enabled Automatic Abnormal EEG Identification 2756-2759
 Roy, Subhrajit* (*IBM Research*); Kiral-Kornek, Filiz Isabell (*IBM Research Australia*); Harrer, Stefan (*IBM Research*)
- 09:15-09:30 FrAT11.6
Design of Soft Robotic Actuation for Supporting Eyelid Closure Movement 2760-2763
 Kozaki, Yuta* (*Univ. of Tsukuba*); Matsushiro, Naoki (*Osaka Police Hospital*); Suzuki, Kenji (*Univ. of Tsukuba*)

- 08:00-08:15 FrAT12.1
Modified Sequence Method to Assess Baroreflex Sensitivity in Rats 2764-2767
 Schultz, James* (*University of Minnesota*); Annoni, Elizabeth (*University of Minnesota*); Tolkacheva, Elena (*University of Minnesota*)
- 08:15-08:30 FrAT12.2
Effects of Instructed Meditation Augmented by Computer-Rendered Artificial Virtual Environment on Heart Rate Variability 2768-2771
 Kazzi, Christina (*Macquarie University*); Blackmore, Conner (*Macquarie University*); Shirbani, Fatemeh (*Macquarie University, Faculty of Medicine and Health Sciences*); Tan, Isabella (*Macquarie University*); Butlin, Mark (*Macquarie University*); Avolio, Alberto P* (*Macquarie University*); Barin, Edward (*Macquarie University*)
- 08:30-08:45 FrAT12.3
Variations of Heart Rate, Pulse Arrival Time and Blood Pressure in a Versatile Laboratory Protocol 2772-2775
 Ahmaniemi, Teemu* (*Nokia Technologies*); Rajala, Satu (*Nokia Technologies*); Lindholm, Harri (*Nokia Technologies*); Taipalus, Tapio (*Nokia Technologies*); Müller, Kiti (*Nokia Bell Labs*)

08:45-09:00 FrAT12.4
Baroreflex Sensitivity during Listening to Music Computed from Time Domain Sequences and Frequency Domain Transfer Function 2776-2779
 Biswal, Dibyajyoti* (*Univ. of Kentucky*); Mollakazemi, Mohammad Javad (*Univ. of Kentucky*); Thyagarajan, Sridevi (*Univ. of Kentucky*); Evans, Joyce (*Univ. of Kentucky*); Patwardhan, Abhijit (*Univ. of Kentucky*)

09:00-09:15 FrAT12.5
Comparison of Different Strategies to Assess Cardiac Baroreflex Sensitivity based on Transfer Function Technique in Patients Undergoing General Anesthesia 2780-2783
 Bari, Vlasta* (*IRCCS PoliClinico San Donato*); Vaini, Emanuele (*IRCCS PoliClinico San Donato*); De Maria, Beatrice (*IRCCS Fondazione Salvatore Maugeri, Milano*); Cairo, Beatrice (*Università degli Studi di Milano*); Pistuddi, Valeria (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive Care, IRCCS PoliClinico San Donato, Milan*); Ranucci, Marco (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive Care, IRCCS PoliClinico San Donato, Milan*); Porta, Alberto (*Università degli Studi di Milano*)

09:15-09:30 FrAT12.6
The Role of Baroreflex Sensitivity in Acute Hypotensive Episodes Prediction in the Intensive Care Unit 2784-2787
 Angelotti, Giovanni (*Politecnico di Milano*); Morandini, Pierandrea (*Politecnico di Milano*); Lehman, Li-wei (*Massachusetts Institute of Technology*); Mark, Roger (*Massachusetts Institute of Technology*); Barbieri, Riccardo* (*Politecnico di Milano*)

FrAT13: 08:00-09:30 Meeting Room 321B
Lower Limb Exoskeleton (Theme 8) (Oral Session)
Chair: Dhaher, Yasin (*Northwestern University*)

08:00-08:15 FrAT13.1
FES Coupled with a Powered Exoskeleton for Cooperative Muscle Contribution in Persons with Paraplegia 2788-2792
 Murray, Spencer* (*Parker Hannifin*); Farris, Ryan (*Vanderbilt University*); Goldfarb, Michael (*Vanderbilt University*); Hartigan, Clare (*Shepherd Center*); Kandilakis, Casey (*Shepherd Center*); Truex, Don (*Vanderbilt University*)

08:15-08:30 FrAT13.2
Effects of Exoskeleton Training Intervention on Net Loading Force in Chronic Spinal Cord Injury 2793-2796
 Husain, Syed (*Kessler Foundation*); Ramanujam, Arvind (*Kessler Foundation*); Momeni, Kamyar (*Kessler Foundation*); Forrest, Gail F* (*Kessler Foundation*)

08:30-08:45 FrAT13.3
A Velocity-Based Flow Field Control Approach for Reshaping Movement of Stroke-Impaired Individuals with a Lower-Limb Exoskeleton 2797-2800
 Martinez Guerra, Andres* (*Vanderbilt University*); Lawson, Brian (*Vanderbilt University*); Goldfarb, Michael (*Vanderbilt University*)

08:45-09:00 FrAT13.4
Repeatability of EMG Activity during Exoskeleton Assisted Walking in Children with Cerebral Palsy: Implications for Real Time Adaptable Control 2801-2804
 Bulea, Thomas C.* (*National Institutes of Health*); Lerner, Zachary (*Northern Arizona University*); Damiano, Diane (*National Institutes of Health*)

09:00-09:15 FrAT13.5
Mechanisms for Improving Walking Speed after Longitudinal Powered Robotic Exoskeleton Training for Individuals with Spinal Cord Injury 2805-2808
 Ramanujam, Arvind (*Kessler Foundation*); Momeni, Kamyar (*Kessler Foundation*); Husain, Syed (*Kessler Foundation*); Augustine, Jonathan (*Kessler Foundation*); Garbarini, Erica (*Kessler Foundation*); Barrance, Peter (*Kessler Foundation*); Spungen, Ann (*James J. Peters Veterans Affairs Medical Center, Bronx, NY*); Asselin, Pierre (*James J. Peters Veterans Affairs Medical Center, Bronx, NY*); Knezevic, Steven (*James J. Peters Veterans Affairs Medical Center, Bronx, NY*); Forrest, Gail F* (*Kessler Foundation*)

09:15-09:30 FrAT13.6
Robotic Exoskeleton Gait Training for Inpatient Rehabilitation in a Young Adult with Traumatic Brain Injury 2809-2812
 Nolan, Karen J.* (*Kessler Foundation*); Karunakaran, Kiran (*NJIT, Kessler Foundation*); Ehrenberg, Naphtaly (*NJIT*); Kesten, Adam (*Kessler Institute for Rehabilitation*)

Ambulatory and Diagnostic Systems and Devices (I) (Theme 9) (Oral Session)**Chair:** Smith, Michael (*University Of Calgary*)**Co-Chair:** Farajidavar, Aydin (*New York Institute of Technology*)

08:00-08:15

FrAT14.1

Inverse Kinematic Assessment of Rehabilitative Therapy in Children using Orthotics 2813-2816

Murphy, Michael (*Loyola University Stritch School of Medicine*); Rammer, Jacob (*Marquette University*);
 Vinehout, Kaleb* (*Marquette University*); Caballero, Meghan (*Medical College of Wisconsin*); Cornwell, Christy
 (*Bay Cliff Health Camp*); Fritz, Jessica (*Marquette University*); Harris, Gerald (*Marquette University*)

08:15-08:30

FrAT14.2

A Low Cost, Handheld E-Nose for Renal Diseases Early Diagnosis 2817-2820

Le Maout, Paul* (*IMT Atlantique*); Laquintinie, Pierre (*IMT Atlantique*); Lahuec, Cyril (*TELECOM Bretagne, France*); Seguin, Fabrice (*Institut Mines Telecom Atlantique*); Wojkiewicz, Jean-Luc (*IMT Lille Douai*);
 Redon, Nathalie (*IMT Lille Douai*); Dupont, Laurent (*IMT Atlantique*)

08:30-08:45

FrAT14.3

Evaluation of Dynamic Time Warp Barycenter Averaging (DBA) for Its Potential in Generating a Consensus Nanopore Signal for Genetic and Epigenetic Sequences 2821-2824

Chan, Rachel S. L. (*Electrical and Computer Engineering, University of Calgary*); Gordon, Paul (*Bioinformatics, Alberta Children's Hospital Research Institute, University of Calgary*); Smith, Michael* (*University of Calgary*)

08:45-09:00

FrAT14.4

Towards the Ambulatory Assessment of Movement Quality in Stroke Survivors using a Wrist-Worn Inertial Sensor 2825-2828

Lee, Sunghoon Ivan* (*University of Massachusetts Amherst*); Jung, Hee-Tae (*University of Massachusetts Amherst*); Joon Woo, Park (*Daegu University*); Jeong, Jugyeong (*Heeeyeon Hospital*); Ryu, Taekyeong (*Heeeyeon Hospital*); Kim, Yangsoo (*Heeeyeon Hospital*); dos Santos, Vitor Sotero (*Institute of Physics, Lab of Biosystems, Universidade Federal da Bahia*); Miranda, Jose Garcia Vivas (*Institute of Physics, Lab of Biosystems, Universidade Federal da Bahia*); Daneault, Jean-Francois (*Harvard Medical School*)

09:00-09:15

FrAT14.5

A Configurable Portable System for Ambulatory Monitoring of Gastric Bioelectrical Activity and Delivering Electrical Stimulation 2829-2832

Alrofati, Wahib (*New York Institute of Technology*); Javan Khoshkholgh, Amir (*New York Institute of Technology*); Bao, Rui (*New York Institute of Technology*); Kang, Qi (*New York Institute of Technology*);
 Abumahfouz, Nadi (*New York Institute of Technology*); Farajidavar, Aydin* (*New York Institute of Technology*)

09:15-09:30

FrAT14.6

A Novel Diagnostic System for Infectious Diseases using Solid-State Nanopore Devices 2833-2836

Miyagawa, Takuya* (*Toshiba Corp.*); Hongo, Sadato (*Toshiba Corp.*); Nakamura, Naofumi (*Toshiba Corp.*);
 Horiguchi, Yukichi (*Tokyo Medical and Dental University*); Miyahara, Yuji (*Tokyo Medical and Dental University, Institute of Biomaterials and Bioengineering*); Shibata, Hideki (*Toshiba Corp.*)

General and Theoretical Informatics – Algorithms (I) (Theme 10) (Oral Session)

08:00-08:15

FrAT16.1

Integrating Signal Processing Modules of Hearing Aids into a Real-Time Smartphone App 2837-2840

Chowdhury, Tahsin Ahmed (*University of Texas at Dallas*); Sehgal, Abhishek (*University of Texas at Dallas*);
 Kehtarnavaz, Nasser* (*University of Texas at Dallas*)

08:15-08:30

FrAT16.2

Towards Non-Invasive Labour Detection: A Free-Living Evaluation 2841-2844

Altini, Marco* (*Bloom Technologies, USA - ACTLab, University of Passau, DE*); Rossetti, Elisa (*Bloom Technologies*); Rooijakkers, Michael Johannes (*Eindhoven University of Technology*); Penders, Julien (*Bloomlife*)

08:30-08:45	FrAT16.3
Estimating Running Performance Combining Non-Invasive Physiological Measurements and Training Patterns in Free-Living	2845-2848
Altini, Marco* (<i>Bloom Technologies, USA - ACTLab, University of Passau, DE</i>); Amft, Oliver (<i>Friedrich-Alexander Universität Erlangen-Nürnberg (FAU)</i>)	
08:45-09:00	FrAT16.4
A Fast Respiratory Rate Estimation Method using Joint Sparse Signal Reconstruction based on Regularized Sparsity Adaptive Matching Pursuit	N/A
Han, Zhongyi (<i>Beijing Institute of Technology</i>); Wang, Qun* (<i>Beijing Institute of Technology</i>); Yue, Liang (<i>Beijing Institute of Technology</i>); Liu, Zhiwen (<i>Beijing Institute of Technology</i>)	
09:00-09:15	FrAT16.5
Near-Infrared Spectroscopy Studies on TBI Patients with Modified Multiscale Entropy Analysis	2853-2856
Wang, Hengbing (<i>Fudan University</i>); Ren, Haoran* (<i>Fudan University</i>); Jiang, Xinyu (<i>Fudan University</i>); Sun, Yirui (<i>Huashan Hospital of Fudan University</i>); Wang, Zeyu (<i>Fudan University</i>); Chen, Wei (<i>Fudan University</i>)	
09:15-09:30	FrAT16.6
Features Extraction for Cuffless Blood Pressure Estimation by Autoencoder from Photoplethysmography ...	2857-2860
Shimazaki, Shota* (<i>Aichi Prefectural University</i>); Bhuiyan, Md. Shoaib (<i>Suzuka University of Medical Science</i>); Kawanaka, Haruki (<i>Aichi Prefectural University</i>); Oguri, Koji (<i>Aichi Prefectural University</i>)	
FrAT17: 08:00-09:30 Meeting Room 323C	
Sensors for Long Term Monitoring (Theme 7) (Oral Session)	
08:00-08:15	FrAT17.1
Respiratory and Cardiac Monitoring at Night using a Wrist Wearable Optical System	2861-2864
Renevey, Philippe (<i>CSEM</i>); Delgado-Gonzalo, Ricard* (<i>CSEM</i>); Lemkaddem, Alia (<i>CSEM</i>); Verjus, Christophe (<i>CSEM</i>); Combetaldi, Selina (<i>Dept. of Psychology of Univ. of Fribourg</i>); Rasch, Björn (<i>Dept. of Psychology of Univ. of Fribourg</i>); Leeners, Brigitte (<i>Univ. Spital Zürich</i>); Dammeier, Franziska (<i>Ava</i>); Kübler, Florian (<i>Ava</i>)	
08:15-08:30	FrAT17.2
Wearable Textile based on Silver Plated Knitted Sensor for Respiratory Rate Monitoring	2865-2868
Molinaro, Nunzia (<i>Università Campus Bio-Medico di Roma</i>); Massaroni, Carlo* (<i>Università Campus Bio-Medico di Roma</i>); Lo Presti, Daniela (<i>Campus Bio-Medico di Roma University</i>); Saccomandi, Paola (<i>University Campus Bio-Medico of Rome</i>); Di Tomaso, Giulia (<i>Feinstein Institute for Medical Research, Northwell Health</i>); Zollo, Loredana (<i>Università Campus Bio-Medico</i>); Perego, Paolo (<i>Politecnico di Milano</i>); Andreoni, Giuseppe (<i>Politecnico di Milano</i>); Schena, Emiliano (<i>University of Rome Campus Bio-Medico</i>)	
08:30-08:45	FrAT17.3
Effect of Compression Garments on Cardiovascular Function during Recovery Phase	2869-2872
Nguyen, Thi Nhu Lan* (<i>University of Technology Sydney</i>); David, Eager (<i>UTS</i>); Nguyen, Hung T. (<i>Swinburne University of Technology</i>)	
08:45-09:00	FrAT17.4
E-BilnSn Enhanced Rigidity Alterable Artificial Bandage	2873-2876
Yao, Youyou (<i>Tsinghua University</i>); Wang, Hongzhang (<i>Tsinghua University</i>); Yang, Xiaohu (<i>University of Chinese Academy of Sciences</i>); Liu, Jing* (<i>Tsinghua University</i>)	
09:00-09:15	FrAT17.5
An Ultra-Miniaturized Near Infrared Spectroscopy System to Assess Sleep Apnea in Children with Down Syndrome	2877-2880
Beppler, Eric (<i>North Carolina State University</i>); Dieffenderfer, James (<i>North Carolina State University</i>); Songkakul, Tanner (1991); Krystal, Andrew (<i>Duke University</i>); Bozkurt, Alper* (<i>North Carolina State University</i>)	
09:15-09:30	FrAT17.6
Accelerometer based Active Snore Detection for Behavioral Modification	2881-2884
Beppler, Eric (<i>North Carolina State University</i>); Dieffenderfer, James (<i>North Carolina State University</i>); Hood, Charles (<i>North Carolina State University</i>); Bozkurt, Alper* (<i>North Carolina State University</i>)	

- 08:00-08:15 FrAT18.1
Gold Foil-Based Biosensor for the Determination of Hydrogen Peroxide 2885-2888
 Narayanan, J. Shankara (*University of Maryland Baltimore County*); Slaughter, Gymama* (*University of Maryland Baltimore County*)
- 08:15-08:30 FrAT18.2
Portable Fluorescence Detection Platform with Integrating Sphere 2889-2892
 Harmon, Dain (*University of Alaska Fairbanks*); Chen, Cheng-fu* (*University of Alaska Fairbanks*); Halford IV, John (*University of Alaska Fairbanks*)
- 08:30-08:45 FrAT18.3
Applying Machine Learning to the Flagellar Motor for Biosensing 2893-2896
 Zajdel, Tom* (*University of California, Berkeley*); Nam, Andrew (*University of California, Berkeley*); Yuan, Jove (*University of California, Berkeley*); Shirsat, Vikram Rajas (*University of California, Berkeley*); Rad, Behzad (*Lawrence Berkeley National Labs*); Maharbiz, Michel (*University of California, Berkeley*)
- 08:45-09:00 FrAT18.4
Capacitive Micromachined Ultrasonic Transducer (CMUT)-Based Biosensor for Detection of Low Concentration Neuropeptide 2897-2900
 Lee, Sung Woo (*Korea Advanced Institute of Science and Technology*); Eom, Gayoung (*Korea Advanced Institute of Science and Technology (KAIST)*); Yoon, Inug (*KAIST*); Park, Sangjun (*KAIST*); Kook, Geon (*Korea Advanced Institute of Science and Technology*); Kim, Mi Kyung (*Korea Advanced Institute of Science and Technology (KAIST)*); Kim, Hyojung (*Korea Advanced Institute of Science and Technology*); Seo, Ji-Won (*Korea Advanced Institute of Science and Technology*); Lee, Hyunjo Jenny* (*Korea Advanced Institute of Science and Technology (KAIST)*)
- 09:00-09:15 FrAT18.5
Label-Free Paper-Based Immunosensor with Graphene Nanocomposites for Electrochemical Detection of Follicle-Stimulating Hormone 2901-2904
 Luo, Jinping (*Institute of Electronics, Chinese Academy of Sciences*); Kong, Zhuang (*State Key Lab of Transducer Technology, Institute of Electronics, Chinese Academy of Sciences*); Wang, Yang (*State Key Lab of Transducer Technology, Institute of Electronics, Chinese Academy of Sciences*); Xie, Jing Yu (*Institute of Electronics, Chinese Academy of Sciences*); Liu, Juntao (*Institute of Electronics, Chinese Academy of Sciences*); Jin, Hongyan (*Obstetrics and Gynecology Dept., First Hospital Peking University*); Cai, Xinxia* (*Institute of Electronics, Chinese Academy of Sciences*)
- 09:15-09:30 FrAT18.6
Identification of Biomarkers with Different Classifiers in Urine Test 2905-2908
 Zhang, Haotian (*ChongQing Technology and Business University*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*)

- 08:00-08:15 FrAT19.1
A Mobile App for the Remote Monitoring and Assistance of Patients with Parkinson's Disease and Their Caregivers 2909-2912
 Bernardini, Silvia (*Campus Bio-medico University of Rome*); Cianfrocca, Claudia (*Università Campus Bio Medico di Roma*); Maioni, Melissa (*Università Campus Bio-Medico di Roma/Istituto dell'Agire Scientifico e Tecnologico FAST*); Pennacchini, Maddalena (*Università Campus Bio-Medico di Roma*); Tartaglioni, Daniela (*Università Campus Bio-Medico di Roma*); Vollero, Luca* (*Università Campus Bio-Medico di Roma*)

08:15-08:30	FrAT19.2
Identification of Parkinson's Disease Utilizing a Single Self-recorded 20-step Walking Test Acquired by Smartphone's Inertial Measurement Unit	
Mehrang, Saeed (<i>Tampere University of Technology</i>); Jauhiainen, Milla Karoliina (<i>Tampere University of Technology</i>); Pietilä, Julia* (<i>Tampere University of Technology</i>); Puustinen, Juha (<i>Satakunta Hospital District, Satakunta Central Hospital</i>); Ruokolainen, Jari (<i>Tampere University of Technology</i>); Nieminen, Hannu (<i>Tampere University of Technology</i>)	2913-2916
08:30-08:45	FrAT19.3
Activity Tracking with Momentary Assessments	
Moon, Jon* (<i>MEI Research, Ltd.</i>); Shade, John (<i>MEI Research</i>); Wolff-Hughes, Dana (<i>National Institutes of Health</i>); Josse, Pabitra (<i>National Institutes of Health</i>); Locke, Sarah (<i>National Institutes of Health</i>); Beane Freeman, Laura (<i>National Institutes of Health</i>); Hofmann, Jonathan (<i>National Institutes of Health</i>); Bowles, Heather (<i>National Institutes of Health</i>); Friesen, Melissa (<i>National Institutes of Health</i>)	2917-2920
08:45-09:00	FrAT19.4
CEA: Clinical Event Annotator mHealth Application for Real-Time Patient Monitoring	
Nizami, Shermeen* (<i>Carleton University</i>); Basharat, Amna (<i>National University of Computer & Emerging Sciences</i>); Shoukat, Arslan (<i>National University of Computer & Emerging Sciences, Islamabad</i>); Hameed, Uzair (<i>National University of Computer & Emerging Sciences, Islamabad</i>); Raza, Syed Ali (<i>National University of Computer & Emerging Sciences, Islamabad</i>); Bekele, Amente (<i>Carleton University</i>); Giffen, Perry Randall (<i>IBM</i>); Green, James R. (<i>Carleton University</i>)	2921-2924
09:00-09:15	FrAT19.5
Congestive Heart Failure Risk Assessment Monitoring through Internet of Things and Mobile Personal Health Systems	
Spanakis, Emmanouil G. (<i>Foundation for Research and Technology – Hellas (FORTH)</i>); Psarakis, Maria (<i>Foundation for Research and Technology - Hellas</i>); Sakkalis, Vangelis* (<i>ICS-FORTH</i>)	2925-2928
09:15-09:30	FrAT19.6
Severity Classification of Chronic Obstructive Pulmonary Disease and Asthma with Heart Rate and SpO2 Sensors	
Siddiqui, Tasnuba* (<i>University of Memphis</i>); Morshed, Bashir (<i>University of Memphis</i>)	2929-2932
FrBT1: 10:00-11:30 Meeting Room 311	
Neural Interfaces (I) (Theme 6) (Oral Session)	
10:00-10:15	FrBT1.1
Low Temperature Approach for High Density Electrical Feedthroughs for Neural Implants using Maskless Fabrication Techniques	
Langenmair, Michael* (<i>Universitätsklinikum Freiburg</i>); Martens, Julien (<i>Albert-Ludwigs-Universität Freiburg</i>); Gierthmuehlen, Mortimer (<i>Dept. of Neurosurgery University Freiburg</i>); Plachta, Dennis T.T. (<i>University of Freiburg - IMTEK</i>); Stieglitz, Thomas (<i>University of Freiburg</i>)	2933-2936
10:15-10:30	FrBT1.2
An Energy-Efficient, Inexpensive, Spinal Cord Stimulator with Adaptive Voltage Compliance for Freely Moving Rats	
Olafsdottir, Gudrun Erla* (<i>Össur hf.</i>); Serdijn, Wouter A. (<i>Delft University of Technology</i>); Giagka, Vasiliki (<i>Bioelectronics Section, Dept. of Microelectronics, Faculty of Electrical Engineering, Mathematics and Computer Science, Del</i>)	2937-2940
10:30-10:45	FrBT1.3
PDMS Gasket Underfill for Long-Term Insulation of High-Density Interconnections in Active Implantable Medical Devices	
Khan, Sharif* (<i>University of Freiburg</i>); Scholz, Daniel (<i>Albert-Ludwigs-Universität Freiburg</i>); Ordonez, Juan Sebastian (<i>Indigo</i>); Stieglitz, Thomas (<i>University of Freiburg</i>)	2941-2944
10:45-11:00	FrBT1.4
Velocity Selective Recording: A Demonstration of Effectiveness on the Vagus Nerve in Pig	
Metcalfe, Benjamin William* (<i>University of Bath</i>); Taylor, John (<i>University of Bath</i>); Nielsen, Thomas Nørgaard (<i>Aalborg University</i>)	2945-2948

11:00-11:15	FrBT1.5
Experimental Factors Affecting Stability of Electrochemical Impedance Spectroscopy Measurements 2949-2952	
Koo, Beomseo* (<i>University of Michigan</i>); Weiland, James (<i>University of Michigan</i>)	
11:15-11:30	FrBT1.6
Neurophysiological Evaluation of a Customizable μECOG-Based Wireless Brain Implant 2953-2956	
Gkogkidis, Constantin Alexis* (<i>Dept. of Neurosurgery, Medical Center - University of Freiburg, Germany</i>); Bentler, Christian (<i>University of Freiburg</i>); Wang, Xi (<i>Dept. of Neurosurgery, Medical Center - University of Freiburg, Germany</i>); Gierthmuehlen, Mortimer (<i>Dept. of Neurosurgery University Freiburg</i>); Scheiwe, Christian (<i>University Hospitals, Freiburg</i>); Cristina Schmitz, Heidi Ramona (<i>University Hospitals, Freiburg</i>); Haberstroh, Joerg (<i>University Hospitals, Freiburg</i>); Stieglitz, Thomas (<i>University of Freiburg</i>); Ball, Tonio (<i>Dept. of Neurosurgery, Medical Center - University of Freiburg, Germany</i>)	
FrBT2: 10:00-11:30 Meeting Room 312	
Nonlinear Analysis of Cardiovascular Signals (Theme 1) (Oral Session)	
Chair: Valenza, Gaetano (<i>University of Pisa</i>)	
10:00-10:15	FrBT2.1
Cardiovascular Variability in Young Male and Female Subjects in Health and Orthostatic Intolerance 2957-2960	
Reulecke, Sina (<i>Universidad Autónoma Metropolitana</i>); Charleston-Villalobos, Sonia* (<i>Universidad Autonoma Metropolitana</i>); Voss, Andreas (<i>Univ. of Applied Sciences Jena</i>); Gonzalez-Camarena, Ramon (<i>Universidad Autonoma Metropolitana</i>); Gaitan-Gonzalez, Mercedes (<i>Universidad Autonoma Metropolitana</i>); Gonzalez-Hermosillo, Jesus Antonio (<i>Instituto Nacional de Cardiología</i>); Hernandez-Pacheco, Guadalupe (<i>Instituto Nacional de Cardiologia "Ignacio Chavez"</i>); Aljama-Corrales, Tomas (<i>Universidad Autonoma Metropolitana</i>)	
10:15-10:30	FrBT2.2
Coupling Analysis of Fetal and Maternal Heart Rates via Transfer Entropy using Magnetocardiography 2961-2964	
Avci, Recep (<i>University of Arkansas for Medical Sciences</i>); Escalona-Vargas, Diana Irazú* (<i>University of Arkansas for Medical Sciences</i>); Siegel, Eric (<i>University of Arkansas for Medical Sciences</i>); Lowery, Curtis (<i>University of Arkansas for Medical Sciences</i>); Eswaran, Hari (<i>University of Arkansas for Medical Sciences</i>)	
10:30-10:45	FrBT2.3
Motion Artifact Removal for PPG Signals based on Accurate Fundamental Frequency Estimation and Notch Filtering 2965-2968	
Zhang, Qirui (<i>Shanghai Jiao Tong University</i>); Xie, Qingsong (<i>Shanghai Jiao Tong University</i>); Wang, Min (<i>Shanghai Jiao Tong University</i>); Wang, Guoxing* (<i>Shanghai Jiao Tong University</i>)	
10:45-11:00	FrBT2.4
Reconstructed Dynamics of the Imaging Photoplethysmogram 2969-2972	
Sviridova, Nina* (<i>University of Tokyo</i>); Savchenko, Vladimir (<i>Hosei University</i>); Savchenko, Maria (<i>Meiji University</i>); Aihara, Kazuyuki (<i>University of Tokyo</i>); Okada, Kunihiro (<i>National Agriculture and Food Research Organization</i>); Zhao, Tiejun (<i>Niigata Agro-Food University</i>)	
11:00-11:15	FrBT2.5
Poincare Analysis based on Short-Term Heart Rate Variability Data for Stress Evaluation 2973-2976	
Bu, Nan* (<i>NIT, Kumamoto College</i>)	
FrBT4: 10:00-11:30 Meeting Room 315	
Implantable Sensors (I) (Theme 7) (Oral Session)	
Chair: Majerus, Steve (<i>APT Center, Cleveland VAMC</i>)	
10:00-10:15	FrBT4.1
A 3.3 V, 8.89 μA and 5.5 Ppm/$^{\circ}$C CMOS Bandgap Voltage Reference for Power Telemetry in Retinal Prosthesis Systems 2977-2980	
Abdullah Zawawi, Ruhaifi (<i>Dept. of Health Sciences and Technology, GAIHST, Gachon University</i>); Kim, Jae Kun (<i>Dept. of Health Sciences and Technology, GAIHST, Gachon University</i>); Park, Jong-bum (<i>KETI</i>); Abd Manaf, Asrulnizam (<i>Collaborative Microelectronic Design Excellence Center (CEDEC), Universiti Sains Malaysia</i>); Kim, Jungsuk* (<i>Gachon University</i>); Kim, Seong-Woo (<i>Korea University</i>)	

10:15-10:30 FrBT4.2
Interface Adhesion in Implantable Chip-In-Foil Systems 2981-2984
 Bleck, Lena* (*Natural and Medical Sciences Institute at the University of Tübingen*); Steins, Helen (*Natural and Medical Sciences Institute at the University of Tübingen*); von Metzen, Rene Patrick (*Natural and Medical Sciences Institute at the University of Tübingen*)

10:30-10:45 FrBT4.3
Long-Term in Vivo Performance of Novel Ultrasound Powered Implantable Devices 2985-2988
 Kang, Chaoyi (*Food and Drug Administration*); Chang, Ting Chia (*Stanford University*); Vo, Jesse (*Food and Drug Administration*); Charthad, Jayant (*Stanford University*); Weber, Marcus J. (*Stanford University*); Arbabian, Amin (*Stanford University*); Vasudevan, Srikanth* (*Food and Drug Administration*)

10:45-11:00 FrBT4.4
Vascular Graft Pressure-Flow Monitoring using 3D Printed MWCNT-PDMS Strain Sensors 2989-2992
 Majerus, Steve* (*APT Center, Cleveland VAMC*); Chong, Hao (*Case Western Reserve University*); Ariando, David (*Case Western Reserve University*); Lerchbacker, Joseph (*Louis Stokes Cleveland VA Medical Center*); Potkay, Joseph (*VA Ann Arbor Healthcare System*); Bogie, Kath (*Cleveland VA Medical Center/Case Western Reserve University*); Zorman, Christian (*Case Western Reserve University*)

11:00-11:15 FrBT4.5
A Low-Power Injection-Locked VCO for an Implantable MICS Band Transmitter with Wireless Frequency Reference and Tune-while-Lock Channel Calibration 2993-2996
 Nenadovic, Miljana* (*IHP GmbH*); Fiebig, Norbert (*IHP GmbH*); Fischer, Gunter (*IHP GmbH*); Wessel, Jan (*IHP*); Kissinger, Dietmar (*IHP*)

11:15-11:30 FrBT4.6
Sensors Selection for Continuous Monitoring of Bowel State and Activity 2997-3000
 Smiley, Aref* (*Cleveland Clinic*); Majerus, Steve (*APT Center, Cleveland VAMC*); McAdams, Ian (*Cleveland Clinic*); Hanzlicek, Brett (*Advanced Platform Technology Center, Louis Stokes Cleveland VA Medical Center*); Bourbeau, Dennis (*FES Center, Cleveland VAMC*); Damaser, Margot S. (*Lerner Research Institute, The Cleveland Clinic Foundation*)

FrBT5: 10:00-11:30	Meeting Room 316A
Optical Imaging (I) (Theme 2) (Oral Session)	
Chair: Jo, Javier Antonio (<i>Texas A&M University</i>)	
Co-Chair: Pesaran, Bijan (<i>New York University</i>)	

10:00-10:15 FrBT5.1
Spectral Imaging of Thermal Damage Induced during Microwave Ablation in the Liver 3001-3004
 Clancy, Neil* (*University College London*); Gurusamy, Kurinchi (*University College London*); Jones, Geoffrey (*University College London*); Davidson, Brian (*University College London*); Clarkson, Matthew (*University College London*); Hawkes, David J (*University College London*); Stoyanov, Danail (*University College London*)

10:15-10:30 FrBT5.2
A Molecular Imaging "Skin": A Time-Resolving Intraoperative Imager for Microscopic Residual Cancer Detection using Enhanced Upconverting Nanoparticles 3005-3008
 Najafiaghdam, Hossein* (*UC Berkeley*); Papageorgiou, Efthymios Philip (*UC Berkeley*); Torquato, Nicole A. (*Molecular Foundry, Lawrence Berkeley National Lab, CA USA*); Tajon, Cheryl A (*Lawrence Berkeley National Lab*); Zhang, Hui (*UCSF*); Park, Catherine (*UCSF*); Boser, Bernhard (*UC Berkeley*); Cohen, Bruce E. (*Lawrence Berkeley National Lab*); Anwar, Mekhail (*UCSF*)

10:30-10:45 FrBT5.3
Endogenous Fluorescence Lifetime Imaging (FLIM) Endoscopy for Early Detection of Oral Cancer and Dysplasia 3009-3012
 Jo, Javier Antonio* (*Texas A&M University*); Cheng, Shuna (*Texas A&M University*); Cuenca, Rodrigo (*Texas A&M University*); Duran, Elvis (*Texas A&M University*); Malik, Bilal (*QT Ultrasound Labs*); Ahmed, Beena (*University of New South Wales*); Maitland, Kristen (*Texas A&M University*); Cheng, Yi-Shing (*Texas A&M University*); Wright, John (*Texas A&M University*)

10:45-11:00 FrBT5.4
Monkey-MIMMS: Towards Automated Cellular Resolution Large Scale Two-Photon Microscopy in the Awake Macaque Monkey 3013-3016
 Choi, John* (*New York University*); Goncharov, Vasily (*Janelia Research Campus, Howard Hughes Medical Institute*); Kleinbart, Jessica (*New York University*); Orsborn, Amy (*University of California Berkeley*); Pesaran, Bijan (*New York University*)

11:00-11:15 FrBT5.5
Automating Event-Detection of Brain Neuron Synaptic Activity and Action Potential Firing in Vivo using a Random-Access Multiphoton Laser Scanning Microscope for Real-Time Analysis 3017-3023
 Sakaki, Kelly Dean Roy* (*University of British Columbia, Centre for Brain Health*); Coleman, Patrick (*University of British Columbia*); Dellazizzo Toth, Tristan (*University of British Columbia*); Guerrier, Claire (*University of British Columbia*); Haas, Kurt (*University of British Columbia*)

11:15-11:30 FrBT5.6
Fast and Robust Heart Rate Estimation from Videos through Dynamic Region Selection 3024-3027
 Fujita, Yuya* (*Kyoto University*); Hiromoto, Masayuki (*Kyoto University*); Sato, Takashi (*Kyoto University*)

FrBT6: 10:00-11:30 Meeting Room 316B
Human Performance (I) (Theme 6) (Oral Session)
Chair: Jones, Richard D. (*New Zealand Brain Research Institute*)
Co-Chair: Ellis, Michael (*Northwestern University*)

10:00-10:15 FrBT6.1
Sensibility Assessment for User Interface and Training Program of an Upper-Limb Rehabilitation Robot, D-SEMUL 3028-3031
 Kikuchi, Takehito* (*Oita University*); Nagata, Tomoya (*Oita University*); Sato, Chihiro (*Oita University*); Abe, Isao (*Oita University*); Inoue, Akio (*ER Tec, Corp.*); Kugimiya, Shintaro (*Oita Rehabilitation Hospital*); Ohno, Tetsuya (*Oita Rehabilitation Hospital*); Hatabe, Shinnosuke (*Oita Rehabilitation Hospital*)

10:15-10:30 FrBT6.2
The Effectiveness of Compression Garments on EEG during a Running Test 3032-3035
 Nguyen, Thi Nhu Lan* (*University of Technology Sydney*); David, Eager (*UTS*); Nguyen, Hung T. (*Swinburne University of Technology*)

10:30-10:45 FrBT6.3
Ensemble Learning based on Overlapping Clusters of Subjects to Predict Microsleep States from EEG 3036-3039
 Buriro, Abdul Baseer* (*University of Canterbury*); Shoorangiz, Reza (*University of Canterbury*); Weddell, Stephen J. (*University of Canterbury*); Jones, Richard D. (*New Zealand Brain Research Institute*)

10:45-11:00 FrBT6.4
The Impact of Freezing of Gait on Balance Perception and Mobility in Community-Living with Parkinson's Disease 3040-3043
 Mancini, Martina* (*OHSU*); Curtze, Carolin (*Oregon Health & Science Univ.*); Stuart, Samuel (*Oregon Health & Science Univ.*); El-Gohary, Mahmoud (*Portland State Univ.*); McNames, James (*Portland State Univ.*); Nutt, John (*Oregon Health & Science Univ.*); Horak, Fay (*Oregon Health & Science Univ.*)

11:00-11:15 FrBT6.5
Perception of Mechanical Impedance during Active Ankle and Knee Movement 3044-3047
 Azocar, Alejandro* (*University of Michigan*); Shorter, Amanda (*Northwestern University*); Rouse, Elliott (*University of Michigan*)

FrBT7: 10:00-11:30 Meeting Room 316C
Signal Processing and Classification of Electrophysiological Signals (Theme 1) (Oral Session)
Chair: Kameneva, Tatiana (*Swinburne University of Technology*)

10:00-10:15 FrBT7.1
Analysis of Nociceptive Evoked Potentials during Multi-Stimulus Experiments using Linear Mixed Models 3048-3051
 van den Berg, Boudewijn* (*University of Twente*); Buitenweg, Jan Reinoud (*University of Twente*)

10:15-10:30 FrBT7.2
Investigation of the Influence of ECoG Grid Spatial Density on Decoding Hand Flexion and Extension 3052-3055
 Jiang, Tianxiao (*University of Houston*); Jiang, Tao (*Tian Tan Hospital*); Mei, Shenshen (*Haidian Hospital*);
 Wang, Taylor (*Tian Tan Hospital*); Li, Yunlin (*Haidian Hospital*); Sujit, Prabhu (*MD Anderson Cancer Center*);
 Sha, Zhiyi (*University of Minnesota, Dept. of Neurology*); Ince, Nuri Firat* (*University of Houston*)

10:30-10:45 FrBT7.3
Differences between Morphological and Electrophysiological Retinal Ganglion Cell Classes 3056-3059
 Zehra, Syeda (*Swinburne University of Technology*); Hicks, Damien (*Swinburne University of Technology*);
 Hadjinicolaou, Alex E. (*Australian College of Optometry*); Ibbotson, Michael R (*Australian College of
 Optometry*); Kameneva, Tatiana* (*Swinburne University of Technology*)

10:45-11:00 FrBT7.4
EEG Complexity Maps to Characterize Brain Dynamics during Upper Limb Motor Imagery 3060-3063
 Catrambone, Vincenzo* (*Università di Pisa*); Greco, Alberto (*University of Pisa*); Averta, Giuseppe (*University of
 Pisa*); Bianchi, Matteo (*University of Pisa*); Bicchi, Antonio (*University of Pisa*); Scilingo, Enzo Pasquale
 (*University of Pisa*); Valenza, Gaetano (*University of Pisa*)

11:00-11:15 FrBT7.5
Chaotic Analysis of Hippocampal and Cortical Sleep EEG during Various Vigilance States 3064-3067
 Dahal, Prawesh (*Trinity College*); Ning, Taikang (*Trinity College*); Blaise, J. Harry* (*Trinity College*)

11:15-11:30 FrBT7.6
**A New Sympathovagal Balance Index from Electrodermal Activity and Instantaneous
 Vagal Dynamics: A Preliminary Cold Pressor Study** 3068-3071
 Ghiasi, Shadi (*University of Pisa*); Greco, Alberto (*University of Pisa*); Nardelli, Mimma (*University of Pisa*);
 Catrambone, Vincenzo (*Università di Pisa*); Barbieri, Riccardo (*Politecnico di Milano*);
 Scilingo, Enzo Pasquale (*University of Pisa*); Valenza, Gaetano* (*University of Pisa*)

FrBT8: 10:00-11:30	Meeting Room 318A
Neural Stimulation (II) (Theme 6) (Oral Session)	
Chair: Abbas, James (<i>Arizona State University</i>)	

10:00-10:15 FrBT8.1
ROAST: An Open-Source, Fully-Automated, Realistic vOlumetric-Approach-based Simulator for TES 3072-3075
 Huang, Yu* (*City College of New York*); Datta, Abhishek (*Soterix Medical, Inc.*); Bikson, Marom (*The City
 College of New York*); Parra, Lucas C. (*City College of New York*)

10:15-10:30 FrBT8.2
Neuroengineering Tools for Studying the Effect of Intracortical Microstimulation in Rodent Models 3076-3079
 Avena, Alberto* (*Istituto Italiano di Tecnologia*); Guggenmos, David (*Dept. of Physical Medicine and
 Rehabilitation University of Kansas Medical Center*); Pasquale, Valentina (*Istituto Italiano di Tecnologia*);
 Semprini, Marianna (*Italian Institute of Technology*); Nudo, Randolph (*University of Kansas Medical Center*);
 Chiappalone, Michela (*Istituto Italiano di Tecnologia*)

10:30-10:45 FrBT8.3
**The Effect of Movement Phase on the Contralaterally Coordinated Paired
 Associative Stimulation-Induced Excitability** 3080-3083
 Alokaily, Ahmad (*New Jersey Institute of Technology*); Yarossi, Mathew (*Northeastern University*);
 Fluet, Gerard (*Rutgers, The State University of New Jersey*); Tunik, Eugene (*Northeastern University*);
 Adamovich, Sergei* (*New Jersey Institute of Technology*)

10:45-11:00 FrBT8.4
**Effect of Aging on Cortical Current Flow Due to Transcranial Direct Current Stimulation:
 Considerations for Safety** 3084-3087
 Thomas, Chris* (*Soterix Medical, Inc.*); Datta, Abhishek (*Soterix Medical, Inc.*); Woods, Adam J. (*University of
 Pennsylvania*)

11:00-11:15 FrBT8.5
Cortical Brain Stimulation with Endovascular Electrodes 3088-3091
 Gerboni, Giulia* (*University of Melbourne*); John, Sam (*Vascular Bionics Lab, Dept. of Medicine, University of Melbourne*); Ronayne, Stephen (*Vascular Bionics Lab, Dept. of Medicine, University of Melbourne*); Rind, Gil (*Vascular Bionics Lab, Dept. of Medicine, University of Melbourne*); May, Clive (*Florey Institute of Neuroscience and Mental Health*); Oxley, Thomas (*University of Melbourne*); Grayden, David B. (*University of Melbourne*); Opie, Nicholas (*University of Melbourne*); Wong, Yan Tat (*Monash University*)

11:15-11:30 FrBT8.6
Stimulation Effect of Inter-Subject Variability in tDCS – Multi-Scale Modeling Study 3092-3095
 Im, Cheolki (*Gwangju Institute of Science and Technology*); Seo, Hyeon (*Gwangju Institute of Science and Technology*); Jun, Sung Chan* (*Gwangju Institute of Science and Technology*)

FrBT9: 10:00-11:30 Meeting Room 318B
Time-Frequency Analysis of Neural Signals (Theme 1) (Oral Session)
Chair: Song, Dong (*University of Southern California*)

10:00-10:15 FrBT9.1
Signal-Adaptive Denoising of Event-Related Potentials 3096-3099
 Leistriz, Lutz* (*Jena University Hospital, Friedrich Schiller University Jena*); Ligges, Carolin (*Dept. of Child and Adolescent Psychiatry, Psychosomatic Medicine and Psychotherapy, Jena University Hospital*)

10:15-10:30 FrBT9.2
Analysis of Spontaneous EEG Activity in Alzheimer's Disease using Weighted Visibility Graph 3100-3103
 Cai, Lihui (*Tianjin University*); Deng, Bin (*Tianjin University*); Wei, Xile (*Tianjin University*); Wang, Ruofan (*Tianjin University of Technology and Education*); Wang, Jiang* (*Tianjin University*)

10:30-10:45 FrBT9.3
Dynamic Time-Frequency Feature Extraction for Brain Activity Recognition 3104-3107
 Shi, Yang* (*University of Georgia*); Li, Fangyu (*University of Georgia*); Liu, Tianming (*University of Georgia*); Beyette, Fred R (*University of Georgia*); Song, WenZhan (*University of Georgia*)

10:45-11:00 FrBT9.4
Compressed Sensing of EEG with Gabor Dictionary: Effect of Time and Frequency Resolution 3108-3111
 Dao, Phuong Thi (*Auckland University of Technology*); Griffin, Anthony (*Auckland University of Technology*); Li, Xue Jun* (*Auckland University of Technology*)

11:00-11:15 FrBT9.5
The Embedding Transform. A Novel Analysis of Non-Stationarity in the EEG 3112-3115
 Loza, Carlos* (*Universidad San Francisco de Quito*); Principe, Jose (*University of Florida*)

11:15-11:30 FrBT9.6
Automated Detection of High Frequency Oscillations in Human Scalp Electroencephalogram 3116-3119
 Charupanit, Krit (*University of California, Irvine*); Nunez, Michael Dawson (*University of California, Irvine*); Bernardo, Danilo (*University of North Carolina School of Medicine*); Bebin, Martina (*UAB*); Krueger, Darcy A (*Cincinnati Children's Hospital Medical Center*); Northrup, Hope (*McGovern Medical School, University of Texas Health Science Center at Houston*); Sahin, Mustafa (*Boston Children's Hospital*); Wu, Joyce (*University of California Los Angeles*); Lopour, Beth* (*University of California, Irvine*)

FrBT10: 10:00-11:30 Meeting Room 319A
Ultrasound Imaging (I) (Theme 2) (Oral Session)
Chair: Linguraru, Marius George (*Children's National Health System*)

10:00-10:15 FrBT10.1
A New Method for the Anterior Mitral Leaflet Segmentation in Echocardiography Videos by using the Virtual M-Mode Space 3120-3123
 Sultan, Malik Saad (*University of Porto*); Martins, Nelson (*Neadvance, Machine Vision, SA; Universidade do Porto*); Eva, Costa (*Enermeter, Sistemas de Medição, Lda, Braga, Portugal*); Veiga, Diana (*Neadvance Machine Vision SA*); Ferreira, Manuel Joao (*University of Minho*); Sandra, Mattos (*Cículo do Coração de Pernambuco, Recife PE, Brazil*); Coimbra, Miguel* (*Instituto de Telecomunicações / Universidade do Porto*)

10:15-10:30 FrBT10.2
B-Mode Ultrasound based Diagnosis of Liver Cancer with CEUS Images as Privileged Information 3124-3127
 Meng, Fanqing (Shanghai University); Shi, Jun* (Shanghai University); Gong, Bangming (Shanghai University); Zhang, Qi (Shanghai University); Lehang, Guo (Shanghai Tenth People's Hospital); Dan, Wang (Shanghai Tenth People's Hospital); Huixiong, Xu (Shanghai Tenth People's Hospital)

10:30-10:45 FrBT10.3
Contrast-Enhanced Ultrasound to Quantify Perfusion in a Machine-Perfused Pig Liver 3128-3131
 Chen, Melinda (Massachusetts Institute of Technology); Li, Qian (Massachusetts General Hospital); Karimian, Negin (Center for Engineering in Medicine, Dept. of Surgery, Division of Transplantation, Massachusetts General Hospital); Yeh, Heidi (Massachusetts General Hospital); Duan, Yu (The First Affiliated Hospital, Sun Yat-sen University); Fontan, Fermin (Massachusetts General Hospital); Aburawi, Mohamed (Harvard Medical School, Massachusetts General Hospital); Anthony, Brian W.* (Massachusetts Institute of Technology); Uygun, Korkut (Massachusetts General Hospital/Harvard Medical School); Samir, Anthony Edward (Harvard Medical School, Massachusetts General Hospital)

10:45-11:00 FrBT10.4
Multiple Empirical Kernel Mapping based Broad Learning System for Classification of Parkinson's Disease with Transcranial Sonography 3132-3135
 Shen, Lu (Shanghai University); Shi, Jun* (Shanghai University); Gong, Bangming (Shanghai University); Zhang, Yingchun (The Second Affiliated Hospital of Soochow University); Dong, Yun (Shanghai East Hospital of Tongji University); Zhang, Qi (Shanghai University); An, Hedi (Shanghai East Hospital of Tongji University)

11:00-11:15 FrBT10.5
Automatic Segmentation of Neonatal Ventricles from Cranial Ultrasound for Prediction of Intraventricular Hemorrhage Outcome 3136-3139
 Roshanibrizi, Pooneh* (Children's National Health System); Obeid, Rawad (Children's National Health System); Cerrolaza, Juan J. (Imperial College London); Penn, Anna (Children's National Medical Center); Mansoor, Awais (Children's National Health System); Linguraru, Marius George (Children's National Health System)

11:15-11:30 FrBT10.6
Automated Myocardial Wall Motion Classification using Handcrafted Features vs a Deep CNN-Based Mapping 3140-3143
 Omar, Hasmila* (Oxford University); Patra, Arijit (Oxford University); Domingos, Joao (University of Oxford); Leeson, Paul (John Radcliffe Hospital); Noble, J Alison (University of Oxford)

FrBT11: 10:00-11:30	Meeting Room 319B
Neurological Disorders (II) (Theme 6) (Oral Session)	
Chair: Zouridakis, George (University of Houston)	

10:00-10:15 FrBT11.1
A Deep Learning Framework for the Remote Detection of Parkinson's Disease using Smart-Phone Sensor Data 3144-3147
 Prince, John* (University of Oxford); De Vos, Maarten (University of Oxford)

10:15-10:30 FrBT11.2
EEG Classification via Convolutional Neural Network-Based Interictal Epileptiform Event Detection 3148-3151
 Thomas, John* (Nanyang Technological University); Comoretto, Luca (Politecnico di Milano); Jing, Jin (Nanyang Technological University); Dauwels, Justin (NTU); Cash, Sydney (Massachusetts General Hospital); Westover, Brandon (Massachusetts General Hospital)

10:30-10:45 FrBT11.3
Seizure Reduction using Model Predictive Control 3152-3155
 Brar, Harleen* (Georgia Institute of Tech.); Exarchos, Ioannis (Emory Univ.); Pan, Yunpeng (Georgia Institute of Tech.); Theodorou, Evangelos (Georgia Institute of Technology); Mahmoudi, Babak (Emory Univ.)

10:45-11:00 FrBT11.4
Supra-Spinal Modulation of Walking in Healthy Individuals and Persons with Multiple Sclerosis: An fNIRS Mobile Imaging Study 3156-3159
 Saleh, Soha* (Kessler Foundation); Sandroff, Brian (University of Alabama); Owioye, Oyindamola (New Jersey City Institute of Technology); Vitiello, Tyler (Kessler Foundation); Hoxha, Armand (Kessler Foundation); Yue, Guang (Kessler Foundation); DeLuca, John (Kessler Foundation)

11:00-11:15 FrBT11.5
Development of Sensor-Based Measures of Upper Extremity Interlimb Coordination 3160-3164
 Miller, Aaron* (*University of Tennessee*); Duff, Susan (*Chapman University, Physical Therapy*); Quinn, Lori (*Teachers College, Columbia University*); Bishop, Lauri (*Teachers College, Columbia University*); Youdan Jr., Gregory (*Teachers College, Columbia University*); Ruthrauff, Heather (*Children's Hospital of Philadelphia*); Wade, Eric (*University of Tennessee*)

11:15-11:30 FrBT11.6
Source Connectivity Analysis can Assess Recovery of Acute Mild Traumatic Brain Injury Patients 3165-3168
 Li, Lianyang (*University of Houston*); Arakaki, Xianghong (*Huntington Medical Research Institutes*); Harrington, Michael (*Huntington Medical Research Institutes*); Zouridakis, George* (*University of Houston*)

FrBT12: 10:00-11:30 Meeting Room 321A
Blood Flow (Theme 5) (Oral Session)
Chair: Avolio, Alberto P. (*Macquarie University*)

10:00-10:15 FrBT12.1
Transfer Function between Intracranial Pressure and Aortic Blood Pressure and Carotid Blood Flow 3169-3172
 Lara Hernandez, Julio Antonio (*Macquarie University*); Kim, Mi Ok (*Macquarie University*); Avolio, Alberto P* (*Macquarie University*); Butlin, Mark (*Macquarie University*)

10:15-10:30 FrBT12.2
Estimation of Three-Dimensional Blood Flow with Ultrasound – Continuity Equation on Multiplane Dual-Angle Doppler Imaging 3173-3176
 Yaegashi, So (*Tohoku University*); Maeda, Moe (*Tohoku University*); Nagaoka, Ryo (*Tohoku University*); Saijo, Yoshifumi* (*Tohoku University*)

10:30-10:45 FrBT12.3
Left Ventricular Blood Flow Dynamics in Aortic Stenosis before and after Aortic Valve Replacement 3177-3180
 Minagawa, Tadanori* (*Tohoku Medical and Pharmaceutical University Hospital*); Saijo, Yoshifumi (*Tohoku University*); Oktamuliani, Sri (*Graduate School of BioMedical Engineering, Tohoku University*); Kurokawa, Takafumi (*Tohoku Welfare Pension Hospital*); Nakajima, Hiroyuki (*Tohoku Welfare Pension Hospital*); Hasegawa, Kaoru (*Tohoku University*); Matsuoka, Takayuki (*Tohoku Medical and Pharmaceutical University Hospital*); Shimizu, Takuya (*Dept. of Cardiovascular Surgery, Tohoku Medical and Pharmaceutical University Hospital*); Miura, Makoto (*Dept. of Cardiovascular Surgery, Tohoku Medical and Pharmaceutical University Hospital*); Takahiro, Ohara (*Tohoku Medical and Pharmaceutical University Hospital*); Kawamoto, Shunsuke (*Dept. of Cardiovascular Surgery, Tohoku Medical and Pharmaceutical University Hospital*)

10:45-11:00 FrBT12.4
Valuation of Implanted-Stent Impact on Coronary Artery Trifurcation Blood Flow by using CFD 3181-3184
 Fujimoto, Kazushi* (*Tokyo University of Science*); Tsukahara, Takahiro (*Tokyo University of Science*); Yamada, Yuya (*Tokyo University of Science*); Yamamoto, Ken (*Tokyo University of Science*); Motosuke, Masahiro (*Tokyo University of Science*); Tanaka, Kentaro (*University Hospitals*); Tahara, Satoko (*New Tokyo Hospital*); Tani, Kenjiro (*New Tokyo Hospital*); Nakamura, Sunao (*New Tokyo Hospital*); Fujino, Yusuke (*New Tokyo Hospital*)

11:00-11:15 FrBT12.5
Different Blood Flow Models in Coronary Artery Diseases: Effects on Hemodynamic Parameters 3185-3188
 Gaudio, Lina Teresa (*Magna Graecia University of Catanzaro*); Caruso, Maria Vittoria (*Magna Graecia University*); De Rosa, Salvatore (*Magna Graecia University*); Indolfi, Ciro (*Magna Graecia University*); Fragomeni, Gionata* (*Magna Graecia University of Catanzaro*)

FrBT13: 10:00-11:30 Meeting Room 321B
Prosthetics and Orthotics (Theme 8) (Oral Session)
Chair: Kosuge, Kazuhiro (*Tohoku University*)

10:00-10:15 FrBT13.1
Natural Gait Event-Based Level Walking Assistance with a Robotic Hip Exoskeleton 3189-3193
 Jang, Junwon* (*Samsung Electronics*); Lee, Jusuk (*Samsung Advanced Institute of Technology*); Lim, Bokman (*Samsung Electronics Co., Ltd.*); Shim, Youngbo (*Samsung Advanced Institute of Technology*)

10:15-10:30	FrBT13.2
On the Relationship between Human Motor Control Performance and Kinematic Synergies in Upper Limb Prosthetics	3194-3197
Garcia-Rosas, Ricardo* (<i>University of Melbourne</i>); Oetomo, Denny (<i>University of Melbourne</i>); Manzie, Chris (<i>University of Melbourne</i>); Tan, Ying (<i>University of Melbourne</i>); Choong, Peter (<i>University of Melbourne</i>)	
10:30-10:45	FrBT13.3
Design and Preliminary Assessment of Lightweight Swing-Assist Knee Prosthesis	3198-3201
Baimyshev, Almaskhan* (<i>Vanderbilt University</i>); Lawson, Brian (<i>Vanderbilt University</i>); Goldfarb, Michael (<i>Vanderbilt University</i>)	
10:45-11:00	FrBT13.4
Real-Time Onboard Recognition of Gait Transitions for a Bionic Knee Exoskeleton in Transparent Mode	3202-3205
Liu, Xiuhua (<i>Peking University</i>); Zhou, Zhihao (<i>Peking University</i>); Wang, Qining* (<i>Peking University</i>)	
11:00-11:15	FrBT13.5
Cycling-Enhanced Knee Exoskeleton using Planar Spiral Spring	3206-3211
Chaichaowarat, Ronnapee* (<i>Tohoku University</i>); Kinugawa, Jun (<i>Tohoku University</i>); Kosuge, Kazuhiro (<i>Tohoku University</i>)	
11:15-11:30	FrBT13.6
Assist-as-Needed Controller to a Task-Based Knee Rehabilitation Exoskeleton	3212-3215
Adhikari, Visharath (<i>Wichita State University</i>); MajidiRad, AmirHossein (<i>Wichita State University</i>); Yihun, Yimesker* (<i>Wichita State University</i>); Desai, Jaydip (<i>Wichita State University</i>)	
FrBT14: 10:00-11:30 Meeting Room 322AB	
Thermal Ablation and Hyperthermia (Theme 9) (Oral Session)	
Chair: Prakash, Punit (<i>Kansas State University</i>)	
Co-Chair: Panescu, Dorin (<i>Advanced Cardiac Therapeutics</i>)	
10:00-10:15	FrBT14.1
In vitro Measurement of Release Kinetics of Temperature Sensitive Liposomes with a Fluorescence Imaging System	3216-3219
Asemani, Davud (<i>Medical University of South Carolina</i>); Motamarry, Anjan (<i>Medical University of South Carolina</i>); Haemmerich, Dieter* (<i>Medical University of South Carolina</i>)	
10:15-10:30	FrBT14.2
Evaluation of Deep Thermal Rehabilitation System using Resonant Cavity Applicator during Knee Experiments	3220-3223
Shindo, Yasuhiro* (<i>Toyo University</i>); Kato, Kazuo (<i>Meiji University</i>); Ichishima, Yasuhito (<i>Meiji University, Graduate School of Science Technology</i>); Iseki, Yuya (<i>Meiji University</i>)	
10:30-10:45	FrBT14.3
An Intelligent Theranostics Method using Optical Coherence Tomography Guided Automatic Laser Ablation for Neurosurgery	3224-3227
Chang, Wei (<i>Tsinghua University</i>); Yingwei, Fan (<i>Tsinghua University</i>); Zhang, Xinran (<i>Tsinghua University</i>); Liao, Hongen* (<i>Tsinghua University</i>);	
10:45-11:00	FrBT14.4
Intuitive Hand-Held Instrument for Loose Body Removal in Arthroscopic Synovial Chondromatosis Surgery	3228-3231
Ryu, Geunwoong (<i>Korea Institute of Science and Technology, Korea University of Science and Technology</i>); Kim, Dongyoung (<i>Korea Institute of Science and Technology, Seoul National University of Science and Technology</i>); Park, Chul Min (<i>Korea Institute of Science and Technology (KIST)</i>); Kim, Keri* (<i>Korea Institute of Science and Technology</i>)	
11:00-11:15	FrBT14.5
A New Model for RF Ablation Planning in Clinic	3232-3235
Qin, Fangyu (<i>Shanghai Jiao Tong University</i>); Zhang, Kangwei (<i>Shanghai Jiao Tong University</i>); Zou, Jincheng (<i>Shanghai Jiao Tong University</i>); Zhang, Aili* (<i>Shanghai Jiao Tong University</i>); Xu, Lisa Xuemin (<i>Shanghai Jiao Tong University</i>); Sun, Jianqi (<i>Shanghai Jiao Tong University</i>)	

11:15-11:30 FrBT14.6
Evaluation of the Effect of Uterine Fibroids on Microwave Endometrial Ablation Profiles 3236-3239
 Faridi, Pegah (*Kansas State Univ.*); Fallahi, Hojjatollah (*Kansas State Univ.*); Prakash, Punit* (*Kansas State Univ.*)

FrBT16: 10:00-11:30 Meeting Room 323B
General and Theoretical Informatics – Decision Support Systems (Theme 10) (Oral Session)

10:00-10:15 FrBT16.1
A Novel Sleep Stage Scoring System: Combining Expert-Based Rules with a Decision Tree Classifier 3240-3243
 Gunnarsdottir, Kristin* (*Johns Hopkins University*); Gamaldo, Charlene (*Johns Hopkins University, School of Medicine*); Salas, Rachel (*Johns Hopkins University, School of Medicine*); Ewen, Joshua (*Kennedy Krieger Institute*); Allen, Richard (*Johns Hopkins*); Sarma, Sridevi V. (*Johns Hopkins University*)

10:15-10:30 FrBT16.2
Cognitive DDx Assistant in Rare Diseases 3244-3247
 Reumann, Matthias* (*IBM Research - Zurich*); Giovannini, Andrea (*IBM Switzerland*); Nadworny, Bartosz (*IBM Switzerland*); Auer, Christoph (*IBM Research, Rüschlikon*); Girardi, Ivan (*IBM Research - Zurich*); Marchiori, Chiara (*IBM Research - Zurich*)

10:30-10:45 FrBT16.3
Sparse Modeling of Mandibular Reconstruction Procedures using Statistical Geometric Features 3248-3251
 Nakao, Megumi* (*Kyoto University*); Matsuda, Tetsuya (*Kyoto University*)

10:45-11:00 FrBT16.4
A Clinical Interpretable Approach Applied to Cardiovascular Risk Assessment 3252-3255
 Paredes, Simao* (*Instituto Politécnico de Coimbra*); Henriques, Jorge (*University of Coimbra*); Rocha, Teresa (*Inst Superior de Eng de Coimbra*); Mendes, Diana (*Universidade de Coimbra*); de Carvalho, Paulo (*University of Coimbra*); Morais, João (*Hospital de Santo André, Leiria*); Bianchi, Anna Maria (*Politecnico di Milano*); Traver, Vicente (*ITACA - Universitat Politècnica de València*)

11:00-11:15 FrBT16.5
Doubly-Robust Estimation of Effect of Imaging Resource Utilization on Discharge Decisions in Emergency Depts. 3256-3259
 Tabaie, Azade (*Emory*); Chokshi, Falgun (*Emory University School of Medicine*); Holder, Andre (*Emory University School of Medicine*); Nemati, Shamim* (*Emory University School of Medicine*)

11:15-11:30 FrBT16.6
Deriving High Performance Alerts from Reduced Sensor Data for Timely Intervention in Acute Hypotensive Episodes 3260-3263
 Pathinarupothi, Rahul Krishnan* (*Amrita Vishwa Vidyapeetham*); Rangan, Ekanath (*Amrita Vishwa Vidyapeetham*); Durga, P (*Amrita University*)

FrBT17: 10:00-11:30 Meeting Room 323C
Activity Monitoring (Theme 7) (Oral Session)
Chair: Wang, Xuelin (*Tsinghua University*)

10:00-10:15 FrBT17.1
Detecting Reach to Grasp Activities using Motion and Muscle Activation Data 3264-3267
 Hauser, Nathaniel (*University of Tennessee Knoxville*); Wade, Eric* (*University of Tennessee*)

10:15-10:30 FrBT17.2
Classification of Human Posture from Radar Returns using Ultra-Wideband Radar 3268-3271
 Baird, Zachary* (*Carleton University*); Rajan, Sreeraman (*School of Information Technology and Engineering (SITE), University of Ottawa, Ottawa, Canada*); Bolic, Miodrag (*University of Ottawa*)

10:30-10:45 FrBT17.3
Combined Regression and Classification Models for Accurate Estimation of Walking Speed using a Wrist-Worn IMU 3272-3275
 Zihajehzadeh, Shaghayegh (*Simon Fraser University*); Aziz, Omar (*Simon Fraser University*); Tae, Chul-Gyu (*Bigmotion Technologies*); Park, Edward J.* (*Simon Fraser University*)

10:45-11:00	FrBT17.4
Ni-Doped Liquid Metal Printed Highly Stretchable and Conformable Strain Sensor for Multifunctional Human-Motion Monitoring	3276-3279
Wang, Xuelin (<i>Tsinghua University</i>); Guo, Rui (<i>Tsinghua University</i>); Yuan, Bo (<i>Tsinghua University</i>); Yao, Youyou (<i>Tsinghua University</i>); Wang, Feng (<i>Tsinghua University</i>); Liu, Jing* (<i>Tsinghua University</i>)	
11:00-11:15	FrBT17.5
An Intelligent Wearable Device for Human's Cervical Vertebra Posture Monitoring	3280-3283
Wang, Yingying (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Zhou, Hui (<i>Shenzhen Institutes of Advanced Technology</i>); Yang, Zijian (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Samuel, Oluwarotimi Williams (<i>Shenzhen Institutes of Advanced Technology</i>); Liu, Weidong (<i>Shenzhen Traditional Chinese Medicine Hospital</i>); Cao, yafei (<i>Shenzhen Traditional Chinese Medicine Hospital</i>); Li, Guanglin* (<i>Shenzhen Institutes of Advanced Technology</i>)	
11:15-11:30	FrBT17.6
Personalized Markerless Upper-Body Tracking with a Depth Camera and Wrist-Worn Inertial Measurement Units	3284-3289
Jatesiktat, Prayook (<i>NTU</i>); Anopas, Dollaporn* (<i>Nanyang Technological University</i>); Ang, Wei Tech (<i>Nanyang Technological University</i>)	
FrBT18: 10:00-11:30	Meeting Room 324
Neurological Applications (Theme 7) (Oral Session)	
10:00-10:15	FrBT18.1
Confusion State Induction and EEG-Based Detection in Learning	3290-3293
Zhou, Yun* (<i>Shaanxi Normal University</i>); Xu, Tao (<i>Northwestern Polytechnical University</i>); Li, Shiqian (<i>Shaanxi Normal University</i>); Li, Shaoqi (<i>Northwestern Polytechnical University</i>)	
10:15-10:30	FrBT18.2
Hardware Implementation of an Adaptive Data Acquisition System for Real-World EEG	3294-3297
Poirier, Catherine (<i>Army Research Lab</i>); Dixon, Anna Marie Rogers (<i>Army Research Lab</i>); Gadfort, Peter (<i>U.S. Army Research Lab</i>); Conroy, Joseph K. (<i>U.S. Army Research Lab</i>); Hairston, W. David* (<i>U.S. Army Research Lab</i>); Nonte, Michael (<i>DCS Corp.</i>)	
10:30-10:45	FrBT18.3
Effect of Epoch Length on Compressed Sensing of EEG	3298-3301
Li, Xue Jun* (<i>Auckland University of Technology</i>); Dao, Phuong Thi (<i>Auckland University of Technology</i>); Griffin, Anthony (<i>Auckland University of Technology</i>)	
10:45-11:00	FrBT18.4
Cancellation Method of Signal Fluctuations in Brain Function Measurements using Near-Infrared Spectroscop	3302-3305
Fukuda, Keiko* (<i>Tokyo Metropolitan College of Industrial Technology</i>); Sato, Daisuke (<i>Tokyo Metropolitan College of Industrial Technology</i>)	
11:00-11:15	FrBT18.5
Vocal Stereotypy Detection: An Initial Step to Understanding Emotions of Children with Autism Spectrum Disorder	3306-3309
Min, Cheol-Hong* (<i>University of St. Thomas</i>); Fetzner, John (<i>University of St. Thomas</i>)	
11:15-11:30	FrBT18.6
Simultaneous Measurement of Swallowing Sound and Mechanomyogram of Submental Muscle with PVDF Film	3310-3313
Tsukagoshi, Keita* (<i>Tokyo University of Science</i>); Hashimoto, Takuya (<i>Tokyo University of Science</i>); Koike, Takuji (<i>The University of Electro-Communications</i>)	

FrBT19: 10:00-11:30	Meeting Room 325A
Health Informatics – Technology and Services for Home Care (Theme 10) (Oral Session)	
Chair: Shi, Wen (<i>Nanyang Technological University</i>)	
Co-Chair: Xue, Bing (<i>National University of Singapore</i>)	

10:00-10:15	FrBT19.1
Evaluation of ReminX as a Behavioral Intervention for Mild to Moderate Dementia	3314-3317
Vincent, Filoteo* (<i>UCSD</i>); Cox, Edward (<i>Dthera Sciences</i>); Molly, Split (<i>UCSD</i>); Gross, Martyn (<i>Dthera Sciences</i>); Culjat, Martin (<i>Dthera Sciences</i>); Keene, David (<i>Dthera Sciences</i>)	
10:15-10:30	FrBT19.2
Ontology-Based Dementia Care Support System	3318-3321
Jeon, Hwawoo (<i>Korea Institute of Science and Technology</i>); Park, Sungkee (<i>Korea Institute of Science and Technology</i>); Choi, JongSuk (<i>Korea Institute of Science and Technology</i>); Lim, Yoonseob* (<i>Korea Institute of Science and Technology</i>)	
10:30-10:45	FrBT19.3
Obstructive Sleep Apnea Detection using Difference in Feature and Modified Minimum Distance Classifier	3322-3325
Shi, Wen (<i>Nanyang Technological University</i>); Xue, Bing (<i>Singapore MIT Alliance for Research and Technology</i>); Guo, shuli (<i>Nanyang Technological University</i>); Goh, Daniel (<i>National University Hospital</i>); Ser, Wee* (<i>Nanyang Technological University</i>)	
10:45-11:00	FrBT19.4
Ballistocardiogram based Identity Recognition: Towards Zero-Effort Health Monitoring in an Internet-of-Things (IoT) Environment	3326-3329
Javaid, Abdul Qadir (<i>University of Toronto</i>); Chang, Isaac Sungjae* (<i>University of Toronto</i>); Mihailidis, Alex (<i>University of Toronto</i>)	
11:00-11:15	FrBT19.5
A Multimodal Virtual Keyboard using Eye-Tracking and Hand Gesture Detection	3330-3333
Cecotti, Hubert* (<i>California State University Fresno</i>); Meena, Yogesh Kumar (<i>Ulster University</i>); Prasad, Girijesh (<i>University of Ulster</i>)	
11:15-11:30	FrBT19.6
A Gaze-Based Virtual Keyboard using a Mouth Switch for Command Selection	3334-3337
Sanjay, Soundarajan (<i>California State University Fresno</i>); Cecotti, Hubert* (<i>California State University Fresno</i>)	

FrBT20: 10:00-11:30	Meeting Room 325B
Smart Cardiorespiratory Devices and Sensors (Theme 5) (Oral Session)	
Chair: Chbat, Nicolas W. (<i>Quadrus Medical Technologies</i>)	
Co-Chair: Sunagawa, Kenji (<i>Kyushu University</i>)	

10:00-10:15	FrBT20.1
A 0.9m Long 0.5gf Resolution Catheter-based Force Sensor for Real-Time Force Monitoring of Cardiovascular Surgery	3338-3341
Jeon, Sangkuk* (<i>Yonsei University</i>); Lee, JiYong (<i>Yonsei University</i>); Ryu, WonHyoung (<i>Yonsei University</i>); Chae, Youngcheol (<i>Yonsei University</i>)	
10:15-10:30	FrBT20.2
Assessment of Inspiratory Muscle Activation using Surface Diaphragm Mechanomyography and Crural Diaphragm Electromyography	3342-3345
Lozano-García, Manuel (<i>Institute for Bioengineering of Catalonia (IBEC), The Barcelona Institute of Science and Technology (BIST)</i>); Sarlabous, Leonardo (<i>Institute for Bioengineering of Catalonia (IBEC)</i>); Moxham, John (<i>King's College London</i>); F Rafferty, Gerrard (<i>King's College Hospital NHS Foundation Trust, King's Health Partners</i>); Torres, Abel (<i>Institute for Bioengineering of Catalonia (IBEC) - BarcelonaTech (UPC)</i>); J Jolley, Caroline (<i>King's College Hospital NHS Foundation Trust, King's Health Partners</i>); Jané, Raimon* (<i>Institut de Bioenginyeria de Catalunya (IBEC)</i>)	

10:30-10:45	FrBT20.3
Comparison of Automated and Manual Peripheral Oxygen Saturation Control Applied to One Human Subject at a High Target Range	3346-3349
Faqeeh, Akram (<i>University of Missouri-Columbia</i>); Hou, Xuefeng (<i>University of Missouri</i>); Zaniletti, Isabella (<i>University of Missouri</i>); Pardalos, John (<i>University of Missouri</i>); Amjad, Ramak (<i>University of Missouri</i>); Fales, Roger* (<i>University of Missouri</i>)	
10:45-11:00	FrBT20.4
Assessment of Respiratory Muscle Activity with Surface Electromyographic Signals Acquired by Concentric Ring Electrodes	3350-3353
Ràfols-de-Urquía, Magda (<i>Institut de Bioenginyeria de Catalunya (IBEC)</i>); Estévez-Piorno, Josep (<i>Institut de Bioenginyeria de Catalunya (IBEC)</i>); Estrada, Luis (<i>Institut de Bioenginyeria de Catalunya</i>); Garcia-Casado, Javier (<i>Universitat Politècnica de València</i>); Prats-Boluda, Gema (<i>Universitat Politècnica de València</i>); Sarlabous, Leonardo (<i>Institute for Bioengineering of Catalonia (IBEC)</i>); Jané, Raimon (<i>Institut de Bioenginyeria de Catalunya (IBEC)</i>); Torres, Abel* (<i>Institute for Bioengineering of Catalonia (IBEC) - BarcelonaTech (UPC)</i>)	
11:00-11:15	FrBT20.5
A Fiducial Scaffold for ECG Compression in Low-Powered Devices	3354-3357
Birjiniuk, Jonathan* (<i>Massachusetts Institute of Technology</i>); Gordhandas, Ankit (<i>Massachusetts Institute of Technology</i>); Verghese, George (<i>Massachusetts Institute of Technology</i>); Heldt, Thomas (<i>Massachusetts Institute of Technology</i>)	
11:15-11:30	FrBT20.6
Anti-Windup and Disturbance Rejection Controller Design of an Automated Oxygen Control System for Premature Infants	3358-3361
Hou, Xuefeng (<i>University of Missouri</i>); Faqeeh, Akram (<i>University of Missouri-Columbia</i>); Shinn, Tyler (<i>University of Missouri</i>); Fales, Roger* (<i>University of Missouri</i>)	
FrCT1: 13:30-15:00	Meeting Room 311
Neural Interfaces (II) (Theme 6) (Oral Session)	
13:30-13:45	FrCT1.1
A Modular Implant System for Multimodal Recording and Manipulation of the Primate Brain	3362-3365
Kleinbart, Jessica (<i>New York University</i>); Orsborn, Amy (<i>University of California Berkeley</i>); Choi, John (<i>New York University</i>); Qiao, Shaoyu (<i>New York University</i>); Wang, Charles (<i>Duke University</i>); Viventi, Jonathan (<i>Duke University</i>); Pesaran, Bijan* (<i>New York University</i>)	
13:45-14:00	FrCT1.2
A Wireless Smartphone Controlled, Battery Powered, Head Mounted Light Delivery System for Optogenetic Stimulation	3366-3369
Mazaheri Kouhani, Mohammad Hossein* (<i>Michigan State Univ.</i>); Luo, Rui (<i>Tsinghua Univ.</i>); Madi, Fatma (<i>Michigan State Univ.</i>); Weber, Arthur (<i>Michigan State Univ.</i>); Li, Wen (<i>Michigan State Univ.</i>)	
14:00-14:15	FrCT1.3
Effect of Asymmetric, Charge Balanced Stimuli on Elicited Compound Neural Action Potentials	3370-3373
Delgado, Francisco (<i>Dr.</i>); Currin, Seth (<i>University of Florida</i>); Kundu, Aritra (<i>University of Florida</i>); Patrick, Erin (<i>University of Florida</i>); Otto, Kevin* (<i>University of Florida</i>)	
14:15-14:30	FrCT1.4
Parylene Neural Probe with Embedded CMOS Multiplexing Amplifier	3374-3377
Forssell, Mats* (<i>Carnegie Mellon University</i>); Fedder, Gary K. (<i>Carnegie Mellon University</i>)	
14:30-14:45	FrCT1.5
Magnetically Balanced Power and Data Telemetry for Mm-Scale Neural Implants	3378-3381
Mandloi, Neeraj Kumar* (<i>NYU Abu Dhabi</i>); Ha, Sohmyung (<i>New York University Abu Dhabi</i>)	

14:45-15:00	FrCT1.6
Chronically Implantable Package based on Alumina Ceramics and Titanium with High-Density Feedthroughs for Medical Implants	3382-3385
Yang, Hangao (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Wu, Tianzhun* (<i>Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences (CAS)</i>); Zhao, Saisai (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Xiong, Shanshan (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Peng, Bo (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Humayun, Mark (<i>USC / Doheny Eye Institute</i>)	

FrCT2: 13:30-15:00	Meeting Room 312
Novel Methods for the Detection and Prediction of Epileptic Seizures (Theme 1) (Oral Session)	

13:30-13:45	FrCT2.1
A Distributed Descriptor Characterizing Structural Irregularity of EEG Time Series for Epileptic Seizure Detection	3386-3389
Mei, Zhenning (<i>Fudan University</i>); Zhao, Xian (<i>Fudan University</i>); Chen, Hongyu (<i>Technische Universiteit Eindhoven - TU/e</i>); Chen, Wei* (<i>Fudan University</i>)	

13:45-14:00	FrCT2.2
An Unsupervised Methodology for the Detection of Epileptic Seizures using EEG Signals: A Multi-Dataset Evaluation	3390-3393
Tsiouris, Kostas (<i>BioMedical Engineering Lab, School of Electrical and Computer Engineering, National Technical University of Athens</i>); Konitsiotis, Spiros (<i>Medical School, University of Ioannina</i>); Markoula, Sofia (<i>University of Ioannina</i>); Koutsouris, Dimitrios (<i>BioMedical Engineering Lab, School of Electrical and Computer Engineering, National Technical University of Athens</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	

14:00-14:15	FrCT2.3
Rapid Annotation of Seizures and Interictal-Ictal Continuum EEG Patterns	3394-3397
Jing, Jin (<i>Massachusetts General Hospital</i>); d'Angremont, Emile (<i>University of Twente, Enschede, The Netherlands</i>); Zafar, Sahar (<i>Massachusetts General Hospital, Boston, MA</i>); Rosenthal, Eric (<i>MGH</i>); Tabaeizadeh, Mohammad (<i>Massachusetts General Hospital, Boston, MA</i>); Ebrahim, Senan (<i>Massachusetts General Hospital, Boston, MA</i>); Dauwels, Justin (<i>NTU</i>); Westover, Brandon* (<i>MGH / Harvard Medical School</i>)	

14:15-14:30	FrCT2.4
MCA based Epilepsy EEG Classification using Time Frequency Domain Features	3398-3401
Mahapatra, Arindam Gajendra (<i>Graduate School of Medicine, Yamaguchi University, Ube</i>); Singh, Balbir (<i>National Institute of Physiological Sciences</i>); Horio, Keiichi* (<i>Kyushu Institute of Technology</i>); Wagatsuma, Hiroaki (<i>Kyushu Institute of Technology</i>)	

14:30-14:45	FrCT2.5
Improved Detection and Classification of Convulsive Epileptic and Psychogenic Non-Epileptic Seizures using FLDA and Bayesian Inference	3402-3405
Kusmakar, Shitanshu* (<i>University of Melbourne</i>); Karmakar, Chandan (<i>Deakin University</i>); Yan, Bernard (<i>The Royal Melbourne Hospital</i>); O'Brien, Terence (<i>The Royal Melbourne Hospital</i>); Palaniswami, Marimuthu (<i>University of Melbourne</i>); Muthuganapathy, Ramanathan (<i>Indian Institute of Technology Madras</i>)	

FrCT3: 13:30-15:00	Meeting Room 314
Image Segmentation (Theme 2) (Oral Session)	

13:30-13:45	FrCT3.1
Fully Automatic Finger Extensor Tendon Segmentation in Ultrasound Images of the Metacarpophalangeal Joint	3406-3409
Martins, Nelson (<i>Neadvance, Machine Vision, SA; Universidade do Porto</i>); Sultan, Malik Saad (<i>University of Porto</i>); Veiga, Diana (<i>Neadvance Machine Vision SA</i>); Ferreira, Manuel Joao (<i>University of Minho</i>); Coimbra, Miguel* (<i>Instituto de Telecomunicações / Universidade do Porto</i>)	

13:45-14:00	FrCT3.2
Clumped Nuclei Segmentation with Adjacent Point Match and Local Shape-Based Intensity Analysis in Fluorescence Microscopy Images	3410-3413
Guo, Xiaoyuan* (<i>Emory University</i>); Yu, Hanyi (<i>Emory University</i>); Rossetti, Blair (<i>Emory University</i>); Teodoro, George (<i>University of Brasilia</i>); Brat, Daniel (<i>Emory University</i>); Kong, Jun (<i>Emory University</i>)	

14:00-14:15	FrCT3.3
Segmentation of Both Diseased and Healthy Skin from Clinical Photographs in a Primary Care Setting 3414-3417	
Codella, Noel* (<i>IBM T.J. Watson Research Center</i>); Anderson, Daren (<i>Community Health Center, Inc.</i>); Philips, Tyler (<i>Community Health Center, Inc.</i>); Porto, Anthony (<i>Community Health Center, Inc.</i>); Massey, Kevin (<i>Community Health Center, Inc.</i>); Snowden, Jane (<i>IBM Watson Health</i>); Feris, Rogerio (<i>IBM T. J. Watson Research Center</i>); R Smith, John (<i>IBM T.J. Watson Research Center</i>)	
14:15-14:30	FrCT3.4
Automated Kidney Segmentation for Traumatic Injured Patients through Ensemble Learning and Active Contour Modeling 3418-3421	
Farzaneh, Negar* (<i>University of Michigan</i>); Soroushmehr, S.M.Reza (<i>University of Michigan, Ann Arbor</i>); Patel, Hirenkumar (<i>University of Michigan</i>); Wood, Alexander (<i>University of Michigan</i>); Gryak, Jonathan (<i>University of Michigan</i>); Fessell, David (<i>University of Michigan</i>); Najarian, Kayvan (<i>University of Michigan - Ann Arbor</i>)	
14:30-14:45	FrCT3.5
Segmentation of Cervical Nuclei using SLIC and Pairwise Regional Contrast 3422-3425	
Saha, Ratna (<i>Flinders University</i>); Bajger, Mariusz (<i>Flinders University</i>); Lee, Gobert* (<i>Flinders University</i>)	
14:45-15:00	FrCT3.6
OCT Fluid Segmentation using Graph Shortest Path and Convolutional Neural Network 3426-3429	
Rashno, Abdolreza* (<i>Lorestan University</i>); Koozekanani, Dara (<i>University of Minnesota</i>); Parhi, Keshab (<i>University of Minnesota</i>)	
FrCT4: 13:30-15:00 Meeting Room 315	
Implantable Sensors (II) (Theme 7) (Oral Session)	
Chair: Kirchner, Jens (<i>University of Erlangen-Nuremberg</i>)	
13:30-13:45	FrCT4.1
Temperature Compensated Fibre Bragg Grating Pressure Sensor for Ventricular Assist Devices 3430-3433	
Stephens, Andrew* (<i>Innovative Cardiovascular Engineering and Technology Lab</i>); Busch, Andrew (<i>Griffith University</i>); Gregory, Shaun David (<i>Queensland University of Technology</i>); Salomonsen, Robert F (<i>Alfred Hospital</i>); Tansley, Geoff (<i>Griffith University, Queensland, Australia</i>)	
13:45-14:00	FrCT4.2
A Multi-Site Heart Pacing Study using Wirelessly Powered Leadless Pacemakers 3434-3437	
Lyu, Hongming* (<i>UCLA</i>); John, Mathews (<i>Texas Heart Institute</i>); Burkland, David (<i>Baylor College of Medicine</i>); Greet, Brian (<i>Baylor College of Medicine</i>); Xi, Yutao (<i>Texas Heart Institute</i>); Sampaio, Luiz C. (<i>Texas Heart Institute</i>); Taylor, Doris (<i>Texas Heart Institute</i>); Razavi, Mehdi (<i>Texas Heart Institute</i>); Babakhani, Aydin (<i>UCLA</i>)	
14:00-14:15	FrCT4.3
Abnormal Spontaneous Neuronal Discharge and Local Field Potential Both in Cortex and Striatum of a Non-Human Primate of Parkinson's Disease using Implantable Microelectrode Arrays 3438-3441	
Wang, Mixia (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Song, Yilin (<i>State Key Lab of Transducer Technology, Institute of Electronics, Chinese Academy of Sciences</i>); Zhang, Song (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Xu, Shengwei (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Xiao, Guihua (<i>University of Chinese Academy of Sciences</i>); Li, Ziyue (<i>Chinese Academy of Sciences, Institutes of Electronics</i>); Gao, Fei (<i>Chinese Academy of Sciences, Institutes of Electronics</i>); Zhang, Yu (<i>Chinese Academy of Sciences, Institutes of Electronics</i>); Yue, Feng (<i>Xuanwu Hospital, Capital Medical University</i>); Chan, Piu (<i>Xuanwu Hospital, Capital Medical University</i>); Cai, Xinxia* (<i>Institute of Electronics, Chinese Academy of Sciences</i>)	
14:15-14:30	FrCT4.4
Intracranial Pressure Sensor and Valve to Control Hydrocephalus 3442-3448	
Webster, John G* (<i>University of Wisconsin-Madison</i>); Iskandar, Bermans (<i>University of Wisconsin-Madison</i>); Medow, Joshua (<i>University of Wisconsin-Madison</i>); Zhang, Xuan (<i>University of Wisconsin-Madison</i>); Guan, Chenxiao (<i>University of Wisconsin-Madison</i>); Yang, Zhe (<i>University of Wisconsin-Madison</i>)	
14:30-14:45	FrCT4.5
Analysis of the Movement of ICD Leads during Cardiac Contraction as Determinant of Intracardiac Impedance 3449-3452	
Kirchner, Jens* (<i>University of Erlangen-Nuremberg</i>); Arnold, Martin (<i>Dept. of Cardiology, University Hospital Erlangen, Erlangen, Germany</i>); Fischer, Georg (<i>University of Erlangen-Nuremberg</i>)	

14:45-15:00 FrCT4.6
A Super-Capacitive Pressure Sensor for a Urethral Catheter 3453-3455
 Ahmadi, Mahdi* (*University of Minnesota*); Zhang, Ye (*University of Minnesota*); Rajamani, Rajesh (*University of Minnesota*); Timm, Gerald W. (*University of Minnesota*); Sezen, A. Serdar (*St. Cloud State University*)

FrCT5: 13:30-15:00 Meeting Room 316A
Ultrasound Imaging – Elastography (Theme 2) (Oral Session)
Chair: Cerrolaza, Juan J. (*Imperial College London*)
Co-Chair: Deeba, Farah (*University of British Columbia*)

13:30-13:45 FrCT5.1
In Vivo Estimation of the Young's Modulus in Normal Human Dermis 3456-3459
 Saavedra, Ana Cecilia (*Pontificia Universidad Católica del Perú*); Arroyo, Junior (*Pontificia Universidad Católica del Perú*); Zvietcovich, Fernando (*University of Rochester*); Lavarello, Roberto (*Pontificia Universidad Católica del Perú*); Castañeda, Benjamín* (*Pontificia Universidad Católica del Perú*)

13:45-14:00 FrCT5.2
The Structure of Human Sebaceous Glands and Its Relation to Skin Viscoelasticity 3460-3463
 Kumagai, Kazutoshi (*Tohoku University*); Yokoshiki, Saaya (*Tohoku University*); Kobayashi, Kazuto (*Honda Electronics Co., Ltd.*); Saijo, Yoshifumi* (*Tohoku University*)

14:00-14:15 FrCT5.3
Miniaturization of External Mechanical Vibration for Shear Wave Elastography Imaging 3464-3467
 Donk, Felix (*Eindhoven University of Technology*); Yang, Heng (*Massachusetts Institute of Technology*); Anthony, Brian W.* (*Massachusetts Institute of Technology*)

14:15-14:30 FrCT5.4
A Row-Column (RC) Addressed 2D Capacitive Micromachined Ultrasonic Transducer (CMUT) Array on a Glass Substrate: Preliminary Results 3468-3471
 Sanders, Jean Lunsford* (*North Carolina State University*); Wu, Xun (*North Carolina State University*); Adelegan, Oluwafemi J. (*North Carolina State University*); Mahmud, Marzana M. (*North Carolina State University*); Yamaner, Feysel Yalcin (*North Carolina State University*); Gallippi, Caterina (*The University of North Carolina at Chapel Hill*); Oralkan, Omer (*North Carolina State University*)

14:30-14:45 FrCT5.5
Objective Liver Fibrosis Estimation from Shear Wave Elastography 3472-3476
 Brattain, Laura* (*MIT Lincoln Lab*); Telfer, Brian (*MIT Lincoln Lab*); Dhyani, Manish (*Massachusetts General Hospital*); Grajo, Joseph (*University of Florida College of Medicine*); Samir, Anthony Edward (*Harvard Medical School, Massachusetts General Hospital*)

14:45-15:00 FrCT5.6
Multiparametric QUS Analysis for Placental Tissue Characterization 3477-3480
 Deeba, Farah* (*University of British Columbia*); Ma, Manyou (*University of British Columbia*); Pesteie, Mehran (*University of British Columbia*); Terry, Jefferson (*University of British Columbia*); Pugash, Denise (*University of British Columbia*); Hutcheon, Jennifer A. (*University of British Columbia*); Mayer, Chantal (*University of British Columbia*); Salcudean, Septimiu E. (*University of British Columbia*); Rohling, Robert (*University of British Columbia*)

FrCT6: 13:30-15:00 Meeting Room 316B
Human Performance (II) (Theme 6) (Oral Session)
Chair: Petroff, Neil (*Tarleton State University*)

13:30-13:45 FrCT6.1
Research of the Regulation Effect of Transcranial Alternating Current Stimulation on Vigilant Attention 3481-3484
 Cui, Huanhuan (*Tianjin University*); Wei, Jinwen (*Tianjin University*); Ke, Yufeng (*Tianjin University*); An, Xingwei (*Tianjin University*); Sun, Chang (*Tianjin University*); Xu, Minpeng (*Tianjin University*); Qi, Hongzhi (*Tianjin University*); Ming, Dong (*Tianjin University*); Zhou, Peng* (*Tianjin University*)

13:45-14:00	FrCT6.2
A New Mathematical Force Model that Predicts the Force-Pulse Amplitude Relationship of Human Skeletal Muscle	
Ben Hmed, Abdennacer* (<i>Lab Le2i, FRE CNRS 2005, University de Bourgogne</i>); Bakir, Toufik (<i>LE2I UMR CNRS 5158 Université de Bourgogne</i>); Sakly, Anis (<i>Unit ESIER in the National School of Engineers of Monastir, University of Monastir</i>); Binczak, Stéphane (<i>Université de Bourgogne</i>)	
14:00-14:15	FrCT6.3
Virtual Reality for Activities of Daily Living Training in Neurorehabilitation: A Usability and Feasibility Study in Healthy Participants	
Gerber, Stephan Moreno* (<i>University of Bern</i>); Müri, René (<i>Gerontechnology and Rehabilitation Group, University Hospital of Neurology, University of Bern</i>); Mosimann, Urs Peter (<i>Gerontechnology and Rehabilitation Group, University Hospital of Old Age Psychiatry, University of Bern</i>); Nef, Tobias (<i>Gerontechnology and Rehabilitation, ARTORG Center for Bioemical Engineering Research, University of Bern, Switzerland</i>); Urwyler, Prabitha (<i>University of Bern, ARTORG</i>)	
14:15-14:30	FrCT6.4
Visually Impaired Users can Locate and Grasp Objects under the Guidance of Computer Vision and Non-Visual Feedback	
Mante, Nii Tete (<i>BuzzFeed</i>); Weiland, James* (<i>University of Michigan</i>)	
14:30-14:45	FrCT6.5
A Sensor Fusion Approach for Inertial Sensors based 3D Kinematics and Pathological Gait Assessments: Toward an Adaptive Control of Stimulation in Post-Stroke Subjects	
Sijobert, Benoît* (<i>INRIA</i>); Feuvrier, Francois (<i>CHU NIMES</i>); Froger, Jérôme (<i>CHU Nîmes</i>); Guiraud, David (<i>INRIA</i>); Azevedo-Coste, Christine (<i>INRIA/LIRMM</i>)	
14:45-15:00	FrCT6.6
Sleep Posture Classification using a Convolutional Neural Network	
Mahvash Mohammadi, Sara* (<i>Univ. of Surrey</i>); Alnowami, Majdi (<i>Univ. of Surrey</i>); Khan, Sofia (<i>Univ. of Surrey</i>); Dijk, Derk-Jan (<i>Univ. of Surrey</i>); Hilton, Adrian (<i>Univ. of Surrey</i>); Wells, Kevin (<i>Univ. of Surrey</i>)	
FrCT7: 13:30-15:00 Meeting Room 316C	
Signal Processing and Classification of Movement-Related Signals (Theme 1) (Oral Session)	
Chair: Li, Guanglin (<i>Shenzhen Institutes of Advanced Technology</i>)	
13:30-13:45	FrCT7.1
Movement Speed Estimation based on Foot Acceleration Patterns	
Gradl, Stefan* (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)</i>); Zrenner, Markus (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg</i>); Schuldhaus, Dominik (<i>University of Erlangen-Nuremberg</i>); Wirth, Markus (<i>Friedrich Alexander University Erlangen-Nuremberg</i>); Cegielný, Tomek (<i>adidas AG</i>); Zwick, Constantin (<i>adidas AG</i>); Eskofier, Bjoern M (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg</i>)	
13:45-14:00	FrCT7.2
Transfer Learning Approach for Fall Detection with the FARSEEING Real-World Dataset	
Silva, Joana Raquel* (<i>Fraunhofer Portugal AICOS</i>); Sousa, Inês (<i>Fraunhofer Portugal AICOS</i>); Cardoso, Jaime S. (<i>INESC TEC and University of Porto</i>)	
14:00-14:15	FrCT7.3
A Novel Time-Domain Descriptor for Improved Prediction of Upper Limb Movement Intent in EMG-PR System	
Samuel, Oluwarotimi Williams (<i>Shenzhen Institutes of Advanced Technology</i>); Asogbon, Mojisola Grace (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Geng, Yanjuan (<i>Shenzhen Institutes of Advanced Technology</i>); Chen, Shixiong (<i>Shenzhen Institutes of Advanced Technology</i>); Fang, Peng (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Lin, Chuang (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Wang, Lin (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Li, Guanglin* (<i>Shenzhen Institutes of Advanced Technology</i>)	
14:15-14:30	FrCT7.4
Hand Gesture Recognition with Inertial Sensors	
Teachasrisaksakul, Krittameth* (<i>Imperial College London</i>); Wu, Li-Qun (<i>Imperial College London</i>); Yang, Guang-Zhong (<i>Imperial College London</i>); Lo, Benny (<i>Imperial College London</i>)	

14:30-14:45 FrCT7.5
Automated Finger Chase (ballistic Tracking) in the Assessment of Cerebellar Ataxia 3521-3524
 Tran, Ha* (*Deakin University*); Pathirana, Pubudu N. (*Deakin University*); Horne, Malcolm (*Florey Institute of Neuroscience and Mental Health*); Power, Laura (*Royal Victorian Eye and Ear Hospital*); Szmulewicz, David (*Victorian Eye and Ear Hospital*)

FrCT8: 13:30-15:00 Meeting Room 318A
Neural Stimulation (III) (Theme 6) (Oral Session)
Chair: Zouridakis, George (*University of Houston*)

13:30-13:45 FrCT8.1
Studying the Interactions in a Mammalian Nerve Fiber: A Functional Modeling Approach 3525-3528
 Sadashivaiah, Vijay (*Johns Hopkins University*); Sacré, Pierre (*Johns Hopkins University*); Guan, Yun (*Johns Hopkins University School of Medicine*); Anderson, William S. (*Johns Hopkins School of Medicine, Dept. of Neurosurgery*); Sarma, Sridevi V.* (*Johns Hopkins University*)

13:45-14:00 FrCT8.2
Correction of Toe-Walking Gait in Children with Spastic Cerebral Palsy by using Electrical Stimulation Therapy 3529-3532
 Mukhopadhyay, Rupsha (*Indian Institute of Technology, Kharagpur*); Mahadevappa, Manjunatha* (*Indian Institute of Technology Kharagpur*); Prasanna, Lenka (*National Institute for the Orthopaedically Handicapped*); Biswas, Abhishek (*National Institute for the Orthopaedically Handicapped*)

14:00-14:15 FrCT8.3
Features of Referred Sensation Areas for Artificially Generated Sensory Feedback – A Case Study 3533-3536
 Lontis, Eugen Romulus* (*Aalborg University*); Yoshida, Ken (*Indiana University-Purdue University Indianapolis*); Jensen, Winnie (*Center for Sensory-Motor Interaction*)

14:15-14:30 FrCT8.4
The Influence of Environment Stimulation on Learning and Memory Function in Rats with Medication Chemotherapy 3537-3540
 Li, Jian-ping (*Zunyi Medical University Zhuhai Campus*); Li, Yuan-heng (*The Zhuhai campus of the Zunyi Medical University*); Su, Huan (*Zunyi Medical University Zhuhai Campus*); Zhao, Lei (*Zunyi Medical University*); Yu, Qianhengyuan (*Zunyi Medical University*); Lu, Wei (*Zunyi Medical University, Zhuhai Campuss*); Yang, Lin* (*Zhuhai campus, Zunyi Medical University*)

14:30-14:45 FrCT8.5
Customization of Synergy-Based FES for Post-Stroke Rehabilitation of Upper-Limb Motor Functions 3541-3544
 Wang, Tong (*Shanghai Jiao Tong University, School of BioMedical Engineering*); Bao, Yong (*Dept. of Rehabilitation Medicine, Ruijin Rehabilitation Hospital*); Hao, Huaqing (*Shanghai Jiao Tong University*); Zhang, Xiao (*Ruijin Rehabilitation Hospital*); Li, Si (*Shanghai Jiao Tong University*); Xie, Qing (*Ruijin Hospital Shanghai Jiao Tong University School of Medicine*); Lan, Ning (*Shanghai Jiao Tong University*); Niu, Chuanxin M.* (*Ruijin Hospital, School of Medicine, Shanghai Jiao Tong University*)

14:45-15:00 FrCT8.6
Optimized tDCS for Targeting Multiple Brain Regions: An Integrated Implementation 3545-3548
 Huang, Yu* (*City College of New York*); Thomas, Chris (*Soterix Medical, Inc.*); Datta, Abhishek (*Soterix Medical, Inc.*); Parra, Lucas C. (*City College of New York*)

FrCT9: 13:30-15:00 Meeting Room 318B
Adaptive and Kalman Filtering (Theme 1) (Oral Session)
Chair: Yana, Kazuo (*Hosei University*)
Co-Chair: Leonhardt, Steffen (*RWTH Aachen University*)

13:30-13:45 FrCT9.1
Efficient Modeling of Acoustic Feedback Path in Hearing Aids by Voice Activity Detector-Supervised Multiple Noise Injections 3549-3552
 Mishra, Parth* (*University of Texas at Dallas*); Tokgoz, Serkan (*University of Texas at Dallas*); Panahi, Issa (*University of Texas at Dallas*)

13:45-14:00	FrCT9.2
A Simple Preprocessing Technique for ESPRIT Suitable for Non-Contact Vital Sensing using a Doppler Sensor	3553-3557
Kamiya, Yukihiro* (<i>Aichi Prefectural University</i>)	
14:00-14:15	FrCT9.3
Local Interval Estimation Improves Accuracy and Robustness of Heart Rate Variability Derivation from Photoplethysmography	3558-3561
Hoog Antink, Christoph* (<i>RWTH Aachen University, Aachen, Germany</i>); Leonhardt, Steffen (<i>RWTH Aachen University</i>); Walter, Marian (<i>RWTH Aachen University</i>)	
14:15-14:30	FrCT9.4
A State-Space Approach for Detecting Stress from Electrodermal Activity	3562-3567
Wickramasuriya, Dilranjan (<i>University of Houston</i>); Qi, Chaoxian (<i>University of Houston</i>); Faghih, Rose T.* (<i>University of Houston</i>)	
14:30-14:45	FrCT9.5
Combining Adaptive Filter and Phase Vocoder for Heart Rate Monitoring using Photoplethysmography during Physical Exercise	3568-3571
Xie, Qingsong (<i>Shanghai Jiao Tong University</i>); Zhang, Qirui (<i>Shanghai Jiao Tong University</i>); Wang, Guoxing* (<i>Shanghai Jiao Tong University</i>); Lian, Yong (<i>York University</i>)	
14:45-15:00	FrCT9.6
A Heart Rate Driven Kalman Filter for Continuous Arousal Trend Monitoring	3572-3577
Bhattacharjee, Tanuka* (<i>Research & Innovation, Tata Consultancy Services, India</i>); Datta, Shreyasi (<i>Tata Consultancy Services</i>); Das, Deepan (<i>Tata Consultancy Services</i>); Dutta Choudhury, Anirban (<i>Tata Consultancy Services Ltd.</i>); Pal, Arpan (<i>Tata Consultancy Services</i>); Ghosh, Prasanta (<i>Indian Institute of Science</i>)	
FrCT10: 13:30-15:00 Meeting Room 319A	
Video Imaging (Theme 2) (Oral Session)	
Chair: Flotho, Philipp (<i>Saarland University Faculty of Medicine</i>)	
13:30-13:45	FrCT10.1
Deep Motion Analysis for Epileptic Seizure Classification	3578-3581
Ahmedt-Aristizabal, David* (<i>Queensland University of Technology</i>); Nguyen, Kien (<i>Queensland University of Technology</i>); Denman, Simon (<i>Queensland University of Technology</i>); Sridharan, Sridha (<i>Queensland University of Technology</i>); Dionisio, Sasha (<i>Mater Hospital</i>); Fookes, Clinton (<i>Queensland University of Technology</i>)	
13:45-14:00	FrCT10.2
Extracting Thickness Profiles of Anterior Mitral Leaflets in Echocardiography Videos	3582-3585
Pires, Luiz (<i>Universidade do Porto</i>); Sultan, Malik Saad (<i>University of Porto</i>); Martins, Nelson (<i>Neadvance, Machine Vision, SA; Universidade do Porto</i>); Costa, Eva (<i>Neadvance</i>); Veiga, Diana (<i>Neadvance Machine Vision SA</i>); Ferreira, Manuel Joao (<i>University of Minho</i>); Mattos, Sandra (<i>UCMF - Unidade de Cardiologia e Medicina Fetal</i>); Coimbra, Miguel* (<i>Instituto de Telecomunicações / Universidade do Porto</i>)	
14:00-14:15	FrCT10.3
Lagrangian Motion Magnification Revisited: Continuous, Magnitude Driven Motion Scaling for Psychophysiological Experiments	3586-3589
Flotho, Philipp* (<i>Saarland University Faculty of Medicine</i>); Bhamborae, Mayur J. (<i>Saarland University Faculty of Medicine</i>); Haab, Lars (<i>Saarland University Hospital</i>); Strauss, Daniel J. (<i>Saarland University, Medical Faculty</i>)	
14:15-14:30	FrCT10.4
A System for Accurate Tracking and Video Recordings of Rodent Eye Movements using Convolutional Neural Networks for Biomedical Image Segmentation	3590-3593
Puri, Isha* (<i>Harvard University</i>); Cox, David (<i>Harvard University</i>)	
14:30-14:45	FrCT10.5
Bleeding Detection in Wireless Capsule Endoscopy Image Video using Superpixel-Color Histogram and a Subspace KNN Classifier	3594-3597
Xing, Xiaohan* (<i>Chinese University of Hong Kong</i>); Jia, Xiao (<i>Chinese University of Hong Kong</i>); Meng, Max Q.-H. (<i>Chinese University of Hong Kong</i>)	

14:45-15:00 FrCT10.6
Detection of Atypical and Typical Infant Movements using Computer-Based Video Analysis 3598-3601
 Orlandi, Silvia* (*Holland Bloorview Kids Rehabilitation Hospital*); Raghuram, Kamini (*The Hospital for Sick Children*); Smith, Corinna (*University of Waterloo*); Mansueto, David (*Flinders University*); Church, Paige (*Sunnybrook Health Sciences Centre*); Shah, Vibhuti (*Mount Sinai Hospital*); Luther, Maureen (*Sunnybrook Health Sciences Centre*); Chau, Tom (*University of Toronto*)

FrCT11: 13:30-15:00 Meeting Room 319B
Neurorehabilitation (Theme 6) (Oral Session)

13:30-13:45 FrCT11.1
Cooperative Cooking: A Novel Virtual Environment for Upper Limb Rehabilitation 3602-3605
 Gorsic, Maja (*University of Wyoming*); Tran, Minh Ha (*University of Wyoming*); Novak, Domen* (*University of Wyoming*)

13:45-14:00 FrCT11.2
Selective Relay of Afferent Sensory Induced Action Potentials from Peripheral Nerve to Brain and the Effects of Electrical Stimulation 3606-3609
 Sadashivaiah, Vijay (*Johns Hopkins University*); Sacré, Pierre (*Johns Hopkins University*); Guan, Yun (*Johns Hopkins University School of Medicine*); Anderson, William S. (*Johns Hopkins School of Medicine, Dept. of Neurosurgery*); Sarma, Sridevi V.* (*Johns Hopkins University*)

14:00-14:15 FrCT11.3
Quantitative EEG as Biomarkers for the Monitoring of Post-Stroke Motor Recovery in BCI and tDCS Rehabilitation 3610-3613
 Mane, Ravikiran* (*Nanyang Technological University*); Chew, Effie (*National University Health System*); Phua, Kok Soon (*Institute for Infocomm Research*); Ang, Kai Keng (*Institute for Infocomm Research*); A. P., Vinod (*Indian Institute of Technology Palakkad*); Guan, Cuntai (*Nanyang Technological University*)

14:15-14:30 FrCT11.4
Elbow Training Device using the Mechanically Adjustable Stiffness Actuator (MASA) 3614-3617
 Choi, Junho* (*Korea Institute of Science and Technology*); Son, Choonghyun (*Korea Institute of Science and Technology*); Park, Seunghan (*Korea Institute of Science and Technology*); Jung, Euiwook (*Rainbow Co.*); Yu, Dongyoup (*Korea Institute of Science and Technology*)

14:30-14:45 FrCT11.5
Towards Robot-Based Cognitive and Motor Assessment across the HIV-Stroke Spectrum 3618-3621
 Bui, Kevin* (*University of Pennsylvania*); Johnson, Michelle (*University of Pennsylvania*)

14:45-15:00 FrCT11.6
Electrocorticographic Activity of the Brain during Micturition 3622-3625
 Tran, Tracie (*Univ. of California Irvine*); Wang, Po T. (*Univ. of California Irvine*); Lee, Brian (*Univ. of Southern California*); Liu, Charles Y. (*Keck Hospital of the Univ. of Southern California*); Kreydin, Evgeniy (*Univ. of Southern California*); Nenadic, Zoran (*Univ. of California Irvine*); Do, An H.* (*Univ. of California Irvine*)

FrCT12: 13:30-15:00 Meeting Room 321A
Blood Pressure Measurement (Theme 5) (Oral Session)
Chair: Mukkamala, Ramakrishna (*Michigan State University*)

13:30-13:45 FrCT12.1
Power Spectral Analysis of Short-Term Blood Pressure Recordings for Assessing Daily Variations of Blood Pressure in Human 3626-3629
 Kinoshita, Hiroyuki (*Omron Healthcare Co., Ltd.*); Mannoji, Hiroshi (*Kyushu University*); Saku, Keita* (*Kyushu University*); Mano, Jumpei (*Omron Healthcare Co., Ltd.*); Miyamoto, Tadayoshi (*Morinomiya University of Medical Sciences*); Todaka, Koji (*Kyushu University*); Kishi, Takuya (*Kyushu University Graduate School of Medical Sciences*); Kanaya, Shigehiko (*Nara Institute of Science and Technology*); Sunagawa, Kenji (*Kyushu University*)

13:45-14:00	FrCT12.2
Non-Invasive Continuous-Time Blood Pressure Estimation from a Single Channel PPG Signal using Regularized ARX Models	
Acciaroli, Giada* (<i>University of Padova</i>); Facchinetti, Andrea (<i>University of Padova</i>); Pillonetto, Gianluigi (<i>University of Padova</i>); Sparacino, Giovanni (<i>University of Padova</i>)	3630-3633
14:00-14:15	FrCT12.3
Continuous Blood Pressure Monitoring Algorithm using Laser Doppler Flowmetry	
Kim, Insoo* (<i>University of Connecticut Health Center</i>); Hossain, Md Faruk (<i>University of Connecticut Health Center</i>); Bhagat, Yusuf (<i>Jabil Inc.</i>)	3634-3637
14:15-14:30	FrCT12.4
Sensitivity of Video-Based Pulse Arrival Time to Dynamic Blood Pressure Changes	
Shirbani, Fatemeh (<i>Macquarie University, Faculty of Medicine and Health Sciences</i>); Blackmore, Conner (<i>Macquarie University</i>); Kazzi, Christina (<i>Macquarie University</i>); Tan, Isabella (<i>Macquarie University</i>); Butlin, Mark (<i>Macquarie University</i>); Avolio, Alberto P* (<i>Macquarie University</i>)	3638-3641
14:30-14:45	FrCT12.5
The Calibration Method for Blood Pressure Pulse Wave Measurement based on Arterial Tonometry Method	
Shimura, Koichi* (<i>Chuo University</i>); Hori, Masataka (<i>Chuo University</i>); Dohi, Tetsuji (<i>University of Tokyo</i>); Takao, Hiroyuki (<i>Jikei University School of Medicine</i>)	3642-3645
14:45-15:00	FrCT12.6
Effect of Respiration on the Characteristic Ratios of Oscillometric Pulse Amplitude Envelope in Blood Pressure Measurement	
Gui, Yihan (<i>Southern University of Science and Technology</i>); Chen, Fei* (<i>Southern University of Science and Technology</i>); Murray, Alan (<i>Newcastle University</i>); Zheng, Dingchang (<i>Anglia Ruskin University</i>)	3646-3649
FrCT13: 13:30-15:00	Meeting Room 321B
Surgical Robotics (Theme 8) (Oral Session)	
Chair: Mattos, Leonardo (<i>Istituto Italiano di Tecnologia</i>)	
13:30-13:45	FrCT13.1
Real-Time Sclera Force Feedback for Enabling Safe Robot-Assisted Vitreoretinal Surgery	
Ebrahimi, Ali* (<i>Johns Hopkins University</i>); He, Changyan (<i>Beihang University</i>); Roizenblatt, Marina (<i>Johns Hopkins University</i>); Patel, Niravkumar (<i>Johns Hopkins University</i>); Sefati, Shahriar (<i>Johns Hopkins University</i>); Gehlbach, Peter (<i>Johns Hopkins Medical Institute</i>); Iordachita, Iulian (<i>Johns Hopkins University</i>)	3650-3655
13:45-14:00	FrCT13.2
Novel Robotic Approach for Minimally Invasive Aortic Heart Valve Surgery	
Tamadon, Izadyar (<i>Scuola Superiore Sant'Anna</i>); Soldani, Giorgio (<i>Consiglio Nazionale delle Ricerche, Istituto di Fisiologia Clinica (CNR)</i>); Dario, Paolo (<i>Scuola Superiore Sant'Anna</i>); Menciassi, Arianna* (<i>Scuola Superiore Sant'Anna</i>)	3656-3659
14:00-14:15	FrCT13.3
Non-Contact Tissue Ablations with High-Speed Laser Scanning in Endoscopic Laser Microsurgery	
Acemoglu, Alperen* (<i>Istituto Italiano di Tecnologia</i>); Mattos, Leonardo (<i>Istituto Italiano di Tecnologia</i>)	3660-3663
14:15-14:30	FrCT13.4
Evaluation of a Force-Sensing Handheld Robot for Assisted Retinal Vein Cannulation	
Gonenc, Berk* (<i>Johns Hopkins University</i>); Patel, Niravkumar (<i>Johns Hopkins University</i>); Iordachita, Iulian (<i>Johns Hopkins University</i>)	3664-3668
14:30-14:45	FrCT13.5
Adaptation of Translated Frame-Based Approach for Forward Kinematics in a Radiosurgical Snake-Like Robot	
Omisore, Olatunji Mumini* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Shipeng, Han (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Ren, Lingxue (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Zhao, Zhichun (<i>Chengdu University of Technology, Chengdu</i>); Wang, Lei (<i>Shenzhen Institutes of Advanced Technology</i>)	3669-3672

14:45-15:00 FrCT13.6
Robotics-Assisted Surgical Skills Evaluation based on Electrocortical Activities 3673-3676
 Shahbazi, Mahya* (*The University of Western Ontario, Canadian Surgical Technologies and Advanced Robotics (CSTAR)*); Poursartip, Behnaz (*Western University*); Siroen, Karen (*London Health Sciences Centre*); Schlachta, Christopher (*Western University*); Patel, Rajni (*London Health Sciences Centre*)

FrCT14: 13:30-15:00 Meeting Room 322AB
Stimulation and Neuromodulation (I) (Theme 9) (Oral Session)
Chair: KenKnight, Bruce (*University of Minnesota*)
Co-Chair: Srimathveeravalli, Govindarajan (*Memorial Sloan-Kettering Cancer Center*)

13:30-13:45 FrCT14.1
Estimating the Quality of Electroconvulsive Therapy Induced Seizures using Decision Tree and Fuzzy Inference System Classifiers 3677-3680
 Al-kaysi, Alaa* (*University of Technology Sydney*); Al-Ani, Ahmed (*University of Technology, Sydney*); Galvez, Veronica (*University of NSW*); Loo, Colleen (*School of Psychiatry, University of New South Wales*); Ling, Sai Ho, Steve (*University of Technology Sydney*); Boonstra, Tjeerd W. (*University of New South Wales*)

13:45-14:00 FrCT14.2
Electrical Interaction between Implantable Vagus Nerve Stimulation Device and Implantable Cardiac Rhythm Management Device 3681-3684
 Libbus, Imad* (*LivaNova*); Mazar, Scott (*LivaNova*); Stubbs, Scott (*LivaNova PLC*); KenKnight, Bruce (*University of Minnesota*)

14:00-14:15 FrCT14.3
Acute Hemodynamic Effects of Vagus Nerve Stimulation in Conscious Hypertensive Rats 3685-3688
 Annoni, Elizabeth (*University of Minnesota*); Tolkacheva, Elena* (*University of Minnesota*)

14:15-14:30 FrCT14.4
Neurophysiologic and Chronic Safety Testing of a Miniaturized Active Implanted Device with Integrated Electrodes for Bioelectronic Medicine Applications 3689-3692
 Levine, Yaakov* (*SetPoint Medical, Inc.*); Simon, Jesse (*SetPoint Medical, Inc.*); Faltys, Michael (*SetPoint Medical, Inc.*)

14:30-14:45 FrCT14.5
A 41.2 nJ/class, 32-Channel On-Chip Machine Learning Classifier for Epileptic Seizure Detection 3693-3696
 Taghavi, Milad* (*California Institute of Technology*); Allahgholizade Haghi, Benyamin (*California Institute of Technology*); Farivar, Masoud (*Google*); Shoaran, Mahsa (*Cornell University*); Emami, Azita (*Caltech*)

14:45-15:00 FrCT14.6
A Novel Numerical Approach to Stimulation of a Specific Brain Region using Transcranial Focused Ultrasound 3697-3700
 Park, Tae Young (*Korea Institute of Science and Technology (KIST)*); Pahk, Ki Joo (*Center for Bionics, BioMedical Research Institute, Korea Institute of Science and Technology KIST*); Kim, Hyungmin* (*Korea Institute of Science and Technology*)

FrCT16: 13:30-15:00 Meeting Room 323B
General and Theoretical Informatics – Deep Learning and Big Data to Knowledge (Theme 10) (Oral Session)

13:30-13:45 FrCT16.1
Deep Learning for Medication Assessment of Individuals with Parkinson's Disease using Wearable Sensors 3701-3704
 Hssayeni, Murtadha Dawood (*University of Technology-Baghdad*); Adams, Jamie (*University of Rochester and Center for Health + Technology (CHeT)*); Ghoraani, Behnaz* (*Florida Atlantic University*)

13:45-14:00 FrCT16.2
Fusion of Deep Convolutional Neural Networks for Microaneurysm Detection in Color Fundus Images 3705-3708
 Harangi, Balazs* (*University of Debrecen*); Toth, Janos (*University of Debrecen, Faculty of Informatics*); Hajdu, Andras (*University of Debrecen*)

14:00-14:15	FrCT16.3
Predicting Lymph Node Metastasis in Head and Neck Cancer by Combining Many-Objective Radiomics and 3-Dimensional Convolutional Neural Network through Evidential Reasoning	3709-3712
Zhou, Zhiguo* (UT Southwestern Medical Center); Liyuan, Chen (UT Southwestern Medical Center); Sher, David (UT Southwestern Medical Center); Qiongwen, Zhang (UT Southwestern Medical Center); Jeener, Shah (UT Southwestern Medical Center); Nhat-Long, Pham (UT Southwestern Medical Center); Steve, Jiang (UT Southwestern Medical Center); Wang, Jing (University of Texas Southwestern Medical Center)	
14:15-14:30	FrCT16.4
Deep Residual Networks for Automatic Sleep Stage Classification of Raw Polysomnographic Waveforms ..	3713-3716
Olesen, Alexander Neergaard* (Technical University of Denmark); Jennum, Poul (University of Copenhagen, Demnar); Peppard, Paul (University of Wisconsin School of Medicine and Public Health); Mignot, Emmanuel (Stanford University); Sorensen, Helge B D (Technical University of Denmark)	
14:30-14:45	FrCT16.5
Predict In-Hospital Code Blue Events using Monitor Alarms through Deep Learning Approach	3717-3720
Xiao, Ran* (University of California San Francisco); King, Johnathan (University of California, San Francisco); Villaroman, Andrea (University of California, San Francisco); Do, Duc H. (University of California Los Angeles); Boyle, Noel G. (University of California Los Angeles); Hu, Xiao (University of California, San Francisco)	
14:45-15:00	FrCT16.6
Personalized Prediction of Asthma Severity and Asthma Attack for a Personalized Treatment Regimen	3721-3725
Do, Quan* (New Mexico State University); Doig, Alexa (New Mexico State University); Tran, Son (New Mexico State University); Chaudri, Jamil (Marshall University)	

FrCT17: 13:30-15:00	Meeting Room 323C
Optical and Photonic Sensors (Theme 7) (Oral Session)	

13:30-13:45	FrCT17.1
Temperature Profiling of Ex-Vivo Organs during Ferromagnetic Nanoparticles-Enhanced Radiofrequency Ablation by Fiber Bragg Grating Arrays	3726-3729
Jelbuldina, Madina* (Nazarbayev University); Korganbayev, Sanzhar (Nazarbayev University); Korobeinyk, Alina (Nazarbayev University); Inglezakis, Vassilis (Nazarbayev University); Tosi, Daniele (Nazarbayev University)	
13:45-14:00	FrCT17.2
Doubling the Signal Quality of Smartphone Camera Pulse Oximetry using the Display Screen as a Controllable Selective Light Source	3730-3733
Holz, Christian* (Microsoft Research); Ofek, Eyal (Microsoft Research)	
14:00-14:15	FrCT17.3
Towards Finger Motion Capture System using FBG Sensors	3734-3737
Jang, Minsu (Korea Institute of Science and Technology); Kim, Junsik (Korea Institute of Science and Technology); Kang, Kyumin (Korea Institute of Science and Technology); Kim, Jinseok (Korea Institute of Science and Technology); Yang, Sungwook* (Korea Institute of Science and Technology)	
14:15-14:30	FrCT17.4
Dental pH Opti-Wand (DpOW): Measuring Oral Acidity to Guide Enamel Preservation	3738-3741
Sharma, Manuja* (University of Washington); Carson, Matthew D. (University of Washington); Graham, Jasmine Y. (University of Washington); Nelson, Leonard Y. (University of Washington); Patel, Shwetak (University of Washington); Seibel, Eric (University of Washington)	

FrCT18: 13:30-15:00	Meeting Room 324
Wearable Body Sensor Networks (Theme 7) (Oral Session)	
Chair: Bose, Pritam (University of Oslo and Oslo University Hospital)	

13:30-13:45	FrCT18.1
Performance Evaluation and Improvement of PER and Throughput in Galvanic-Coupling Intra-Body Communication Systems	3742-3745
Ito, Kenichi* (Niigata Institute of Technology)	

13:45-14:00	FrCT18.2
Wireless Channel Modeling for Leadless Cardiac Pacemaker: Effects of Ventricular Blood Volume	3746-3749
Bose, Pritam* (<i>University of Oslo and Oslo University Hospital</i>); Khaleghi, Ali (<i>Oslo University Hospital</i>); Balasingham, Ilango (<i>Oslo University Hospital and Norwegian University of Science and Technology</i>)	
14:00-14:15	FrCT18.3
Development of a Novel Wearable Ring-Shaped Biosensor	3750-3753
Santarelli, Luca (<i>Scuola Superiore Sant'Anna</i>); Diyakonova, Olga (<i>Scuola Superiore Sant'Anna</i>); Betti, Stefano (<i>Scuola Superiore Sant'Anna</i>); Esposito, Dario (<i>Scuola Superiore Sant'Anna</i>); Castro, Emanuela (<i>Scuola Superiore Sant'Anna</i>); Cavallo, Filippo* (<i>Scuola Superiore Sant'Anna</i>)	
14:15-14:30	FrCT18.4
Characterization and Classification of Human Body Channel as a Function of Excitation and Termination Modalities	3754-3757
Maity, Shovan* (<i>Purdue University</i>); Das, Debayan (<i>Purdue University</i>); Chatterjee, Baibhab (<i>Purdue University</i>); Sen, Shreyas (<i>Purdue University</i>)	
14:30-14:45	FrCT18.5
A Method of Secure Compressed Sensing for Physiological Signals in Healthcare Internet-of-Things Applications	3758-3761
Chen, Zeqi (<i>Ningbo University of Technology</i>); Chen, Jiahai (<i>Ningbo University of Technology</i>); Chen, Meng (<i>Ningbo University of Technology</i>); Bao, Shu-Di* (<i>Ningbo University of Technology</i>)	
14:45-15:00	FrCT18.6
Channel Loss in Contactless Human Body Communication	3762-3765
Mao, Jingna* (<i>Tsinghua University</i>); Yang, Huazhong (<i>Tsinghua University</i>); Lian, Yong (<i>York University</i>); Zhao, Bo (<i>Zhejiang University</i>)	

FrCT20: 13:30-15:00	Meeting Room 325B
Motor Neuroprostheses (I) (Theme 6) (Oral Session)	

13:30-13:45	FrCT20.1
Predicting Beta Bursts from Local Field Potentials to Improve Closed-Loop DBS Paradigms in Parkinson's Patients	3766-3769
Martin Moraud, Eduardo* (<i>University of Oxford</i>); Tinkhauser, Gerd (<i>University of Oxford</i>); Agrawal, Mayank (<i>Swarthmore College</i>); Brown, Peter (<i>Director of the Medical Research Council Brain Network Dynamics Unit at the University of Oxford, and Professor of Experimental</i>); Bogacz, Rafal (<i>University of Oxford</i>)	
13:45-14:00	FrCT20.2
Data Driven Spatial Filtering can Enhance Abstract Myoelectric Control in Amputees	3770-3773
Dyson, Matthew (<i>Newcastle University</i>); Nazarpour, Kianoush* (<i>Newcastle University</i>)	
14:00-14:15	FrCT20.3
Continuous versus Discrete Simultaneous Control of Prosthetic Fingers	3774-3777
Krasoulis, Agamemnon* (<i>Newcastle University</i>); Vijayakumar, Sethu (<i>The University of Edinburgh</i>); Nazarpour, Kianoush (<i>Newcastle University</i>)	
14:15-14:30	FrCT20.4
Identifying Multiscale Hidden States to Decode Behavior	3778-3781
Abbaspourazad, Hamidreza* (<i>University of Southern California</i>); Wong, Yan Tat (<i>Monash University</i>); Pesaran, Bijan (<i>New York University</i>); Shanechi, Maryam (<i>University of Southern California</i>)	
14:30-14:45	FrCT20.5
Improved Training Paradigms and Motor-Decode Algorithms: Results from Intact Individuals and a Recent Transradial Amputee with Prior Complex Regional Pain Syndrome	3782-3787
George, Jacob A.* (<i>University of Utah</i>); Brinton, Mark (<i>University of Utah</i>); Duncan, Christopher (<i>University of Utah</i>); Hutchinson, Douglas (<i>University of Utah</i>); Clark, Gregory (<i>University of Utah</i>)	

14:45-15:00

FrCT20.6

A Pilot Study on using Forcemography to Record Upper-Limb Movements for**Human-Machine Interactive Control**

3788-3791

Zhang, Nanxin (*University of Chinese Academy of Sciences*); Li, Xiangxin (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Technology*); Huang, Pin-Gao (*Chinese Academy of Sciences*); Fang, Peng* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)

FrPoS-01: 17:15-19:00

Exhibit Hall 2

Cardiovascular Applications – Poster (Theme 7) (Poster Session)

17:15-19:00

FrPoS-01.1

Finger-Wearable Blood Pressure Monitor

3792-3795

Narasimhan, Ravi* (*Verily Life Sciences LLC*); Parlikar, Tushar (*Massachusetts Institute of Technology*); Verghese, George (*Massachusetts Institute of Technology*); McConnell, Michael V. (*Stanford School of Medicine*)

17:15-19:00

FrPoS-01.2

Using Moving Average Method to Recognize Systole and Diastole on**Seismocardiogram without ECG Signal**

3796-3799

Dinh, Anh* (*University of Saskatchewan*); Luu, Gia Loc (*University of Saskatchewan*)

17:15-19:00

FrPoS-01.3

A Hybrid Hierarchical Framework for Free Weight Exercise Recognition and Intensity**Measurement with Accelerometer and ECG Data Fusion**

3800-3804

Qi, Jun* (*Liverpool John Moores University*); Yang, Po (*Liverpool John Moores University*); Waraich, Atif (*Liverpool John Moores University*); Hanneghan, Martin (*Liverpool John Moores University*); Tang, Stephen (*Liverpool John Moores University*)

17:15-19:00

FrPoS-01.4

A Low-Cost, Smartphone-Only Pulse Transit Time Measurement System using**Cardio-Mechanical Signals and Optical Sensors**

3805-3808

Yang, Chenxi (*Stevens Institute of Technology*); Dong, Yudi (*Stevens Institute of Technology*); Chen, Yingying (*Rutgers University*); Tavassolian, Negar* (*Stevens Institute of Technology*)

17:15-19:00

FrPoS-01.5

Detecting Cardiac Activity by Capacitive Electrodes from a Single Point on the Wrist

3809-3812

He, Shan* (*University of Ottawa*); Li, Xinde (*Liidigital Corp., Toronto, ON Canada*); Batkin, Izmail (*Ottawa University*); Dajani, Hilmi (*University of Ottawa*); Bolic, Miodrag (*University of Ottawa*)

17:15-19:00

FrPoS-01.6

Performance of Graphene ECG Electrodes under Varying Conditions

3813-3816

Beach, Christopher* (*University of Manchester*); Karim, Nazmul (*University of Manchester*); Casson, Alexander James (*University of Manchester*)

17:15-19:00

FrPoS-01.7

Monitoring of Pulse Pressure and Arterial Pressure Waveform Changes during the**Valsalva Maneuver by a Portable Ultrasound System**

3817-3820

Seo, Joohyun* (*Massachusetts Institute of Technology*); Sodini, Charles (*Massachusetts Institute of Technology*); Lee, Hae-Seung (*Massachusetts Institute of Technology*)

17:15-19:00

FrPoS-01.8

Kick LL: A Smartwatch for Monitoring Respiration and Heart Rate using Photoplethysmography

3821-3824

Hoilett, Orlando* (*Purdue University*); Twibell, Ashlyn (*Purdue University*); Srivastav, Rohit (*Purdue University*); Linnes, Jacqueline Callihan (*Purdue University*)

Chemo / Bio Sensing – Poster (Theme 7) (Poster Session)

17:15-19:00

FrPoS-02.1

A Novel Electrochemical Sensor for Non-Invasive Monitoring of Lithium Levels in Mood Disorders 3825-3828Crisuolo, Francesca* (*EPFL*); Taurino, Irene (*EPFL*); Carrara, Sandro (*EPFL - Swiss Federal Institute of Technology - Lausanne*); De Micheli, Giovanni (*EPFL*)

17:15-19:00

FrPoS-02.2

Drinking Water Quality Monitoring: An Alternative Approach to Microbial Contamination Events 3829-3832Simões, João Carlos Gomes (*ChongQing Technology & Business University (CBTU), University College of Southeast Norway (USN)*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*); Yang, Yili (*Nanyang City Center Hospital*); Silva, Carlos Alberto Batista (*Universidade do Minho*)

17:15-19:00

FrPoS-02.3

Design and Fabrication of Graphene-Based Phototransistor for Drinking Water**Monitoring System using Vibrio Fischeri** 3833-3836Zhang, Bo (*Technology and Business University*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*); Simões, João Carlos Gomes (*ChongQing Technology & Business University (CBTU), University College of Southeast Norway (USN)*)

17:15-19:00

FrPoS-02.4

A Precise Sampling Strip with Microstructures 3837-3840Kamiya, Haruka* (*Keio Univ.*); Ota, Takashi (*Keio Univ.*); Yasuga, Hiroki (*Keio Univ.*); Miki, Norihisa (*Univ.*)

17:15-19:00

FrPoS-02.5

Low Power Consumption Device for Biological Stability Monitoring in Drinking Water 3841-3844Grønvold, Fredrik Sommerfelt (*University College of Southeast Norway*); Simões, João Carlos Gomes (*ChongQing Technology & Business University (CBTU), University College of Southeast Norway (USN)*); Berntsen, Helene (*University College of Southeast Norway*); Roseng, Lars Eric (*University College of Southeast Norway*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*)

17:15-19:00

FrPoS-02.6

Detection of Human Chorionic Gonadotropin (hCG) Hormone using Digital Lateral Flow Immunoassay 3845-3848Hamad, Eyad* (*German Jordanian Univ.*); Hawamdeh, Ghadeer (*BioMedical Engineering Dept., German Jordanian Univ.*); Abu Jarad, Noor (*BioMedical Engineering Dept., German Jordanian Univ.*); Yasin, Omar (*BioMedical Engineering Dept., German Jordanian Univ.*); Al-Gharabli, Samer (*Pharmaceutical and Chemical Engineering Dept., German Jordanian Univ.*); Shadfan, Raed (*Atlas Medical Co. Sahab Free Zone Area, Amman*)

17:15-19:00

FrPoS-02.7

Hermetic Packaging for Implantable Microsystems: Effectiveness of**Sequentially Electroplated AuSn Alloy** 3849-3853Szostak, Katarzyna Maria* (*Imperial College London*); Constandinou, Timothy (*Imperial College of Science, Technology and Medicine*)

17:15-19:00

FrPoS-02.8

Microfluidic Spectrophotometer for Neurotransmitter Detection based on**Gold Nanoparticles: Preliminary Results** 3854-3857Niyonambaza, Shimwe Dominique* (*Université Laval*); Boisselier, Elodie (*Université Laval*); Boukadoum, Mounir (*University of Quebec at Montréal*); Miled, Amine (*Laval University*)**Computational Modeling – Poster (Theme 9)** (Poster Session)

17:15-19:00

FrPoS-03.1

Electromagnetic Field Analysis of Low-Magnitude High-Frequency Vibrator with Multiple Plungers 3858-3861Chen, Zhimin (*University of Macau*); Vai, Mang I.* (*University of Macau*); Pun, Sio Hang (*University of Macau*); Mak, Peng Un (*University of Macau*)

17:15-19:00 FrPoS-03.2
Occipital EEG Activity for the Detection of Nocturnal Hypoglycemia 3862-3865
 Ngo, Cuong Q.* (*Swinburne University of Technology*); Truong, Bao C. Q. (*University of Technology Sydney*);
 Jones, Timothy (*Princess Margaret Hospital for Children*); Nguyen, Hung T. (*Swinburne University of Technology*)

17:15-19:00 FrPoS-03.3
Calculating RF-Induced Voltages for Implanted Medical Devices in MRI using Computational Human Models 3866-3869
 Brown, James* (*MSEI*); Qiang, Rui (*Micro System Engineering Inc. (Biotronik)*); Stadnik, Paul (*Micro Systems Engineering, Inc.*); Stotts, Larry (*Biotronik*); Von Arx, Jeffrey (*Micro Systems Engineering, Inc.*)

17:15-19:00 FrPoS-03.4
Computer Aided Clinical Trials for Implantable Cardiac Devices 3870-3873
 Jang, Kuk Jin* (*Univ. of Pennsylvania*); Weimer, James (*Univ. of Pennsylvania*); Abbas, Houssam (*Univ. of Pennsylvania*); Jiang, Zhihao (*Univ. of Pennsylvania*); Liang, Jackson (*Hospital of the Univ. of Pennsylvania*); Dixit, Sanjay (*Hospital of the Univ. of Pennsylvania*); Mangharam, Rahul (*Univ. of Pennsylvania*)

FrPoS-04: 17:15-19:00 Exhibit Hall 2
Diagnostic Devices and Physiological Monitoring (III) – Poster (Theme 9) (Poster Session)

17:15-19:00 FrPoS-04.1
Classification of Therapeutic Hand Poses using Convolutional Neural Networks 3874-3877
 Anaz, Aws Hazim Saber* (*University of Missouri Columbia*); Skubic, Marjorie (*University of Missouri*); Bridgeman, Jay (*Orthopaedic Surgery, University of Missouri Columbia*); Brogan, David M. (*Dept. of Orthopaedic Surgery, Washington University School of Medicine*)

17:15-19:00 FrPoS-04.2
KardiaTool: An Integrated POC Solution for Non-Invasive Diagnosis and Therapy Monitoring of Heart Failure Patients 3878-3881
 Tripoliti, Evanthia (*Univ. of Ioannina*); Karanasiou, Georgia (*Institute of Molecular Biology and Biotechnology, FORTH*); Ioannidou, Pinelopi (*Dept. of BioMedical Research, Institute of Molecular Biology and Biotechnology, FORTH*); Toumpaniaris, Petros (*National Technical Univ. of Athens*); Goletsis, Yorgos (*Univ. of Ioannina*); Bausells, Joan (*Instituto de Microelectrónica de Barcelona, IMB-CNM*); Lomonaco, Tommaso (*Univ. of Pisa, Dept. of Chemistry and Industrial Chemistry*); Pfeiffer, Norman (*Fraunhofer Institute for Integrated Circuits IIS*); Anasthase, Raphaël (*BioTray*); Tsopela, Aliko (*Micronit Microtechnologies B.V.*); Leekens, Boris (*Interuniversitair Microelectronica Centrum (IMEC)*); Naka, Katerina (*Univ. of Ioannina*); Lourme, Jean-Christophe (*ValoTec*); Salvo, Pietro (*National Research Council*); Liakopoulos, Trifon (*EnaChip inc*); Jordan, Jake (*Univ. of Surrey*); Gallagher, Joseph (*Univ. College Dublin, National Univ. of Ireland*); Abdelhamid, Errachid (*Université de Lyon, Institut de Sciences Analytiques (ISA)*); Fotiadis, Dimitrios I.* (*Univ. of Ioannina*)

17:15-19:00 FrPoS-04.3
Analyses of Baropodometry Protocols through Bibliometric Research 3882-3885
 Gimenez, Francieli Vanessa (*Universidade Tecnológica Federal do Paraná*); Stadnik, Adriana Maria Wan* (*UTFPR - Federal Technological University of Paraná*); Maldaner, Marcelo (*Federal University of Technology – Paraná*)

17:15-19:00 FrPoS-04.4
Comparison between Reheating Behavior in Women with Raynaud's Phenomenon and Not Diagnosed Women using Thermography 3886-3889
 Campos, Mariane* (*Federal University Technology - Paraná*); Heimbecher, Catia (*Federal University Technology - Paraná*); Romaneli, Eduardo F. R. (*UTFPR - Federal University of Technology - Paraná*); Ripka, Wagner L. (*UTFPR - Federal Technological University of Paraná*); Ulbricht, Leandra (*UTFPR - Federal University of Technology - Paraná*); Stadnik, Adriana Maria Wan (*UTFPR - Federal Technological University of Paraná*)

17:15-19:00 FrPoS-04.5
Selective Collection and Condensation of Exhaled Breath for Glucose Detection 3890-3893
 Tankasala, Divya* (*Purdue University*); Ng, Gabriel (*Purdue University*); Smith, Michael (*Purdue University*); Bendell, Jessica (*Purdue University*); Linnes, Jacqueline Callihan (*Purdue University*)

17:15-19:00	FrPoS-04.6
Intuitive Visualization of Innervation Zones based on Surface-EMG Signals	3894-3897
Kiese, Constanze* (<i>Dr. von Hauner Children's Hospital, Dept. of Pediatric Surgery, Clinics of the University of Munich</i>); Landgraf, Hans-Peter (<i>AEGAEON Technologies GmbH</i>); Danzer, Anna-Lena (<i>Dept. of Neurology, University of Regensburg</i>); Schickling, Benedikt (<i>OTH Regensburg, Lab for Measurement and Control Technology, Faculty of Mechanical Engineering, Regensburg</i>); Nicolau Torra, Anna (<i>OTH Regensburg, Lab for Measurement and Control Technology, Faculty of Mechanical Engineering, Regensburg</i>); Reitmeier, Torsten (<i>OTH Regensburg, Lab for Measurement and Control Technology, Faculty of Mechanical Engineering, Regensburg</i>); Schulte-Mattler, Wilhelm (<i>Dept. of Neurology, University of Regensburg</i>); von Schweinitz, Dietrich (<i>Dr. von Hauner Children's Hospital, Dept. of Pediatric Surgery, Clinics of the University of Munich</i>); Ketterl, Hermann (<i>OTH Regensburg, Lab for Measurement and Control Technology, Faculty of Mechanical Engineering, Regensburg</i>)	

FrPoS-05: 17:15-19:00	Exhibit Hall 2
Diagnostic Devices and Physiological Monitoring (IV) – Poster (Theme 9) (Poster Session)	

17:15-19:00	FrPoS-05.1
Design and Evaluation of a Portable Smart-Phone based Peripheral Neuropathy Test Platform	3898-3901
Jacobs, Peter G. (<i>Oregon Health & Science University</i>); Hanaway, Peter (<i>All Systems Go</i>); Leitschuh, Joseph (<i>Oregon Health & Science University</i>); Condon, John (<i>Pro-tech</i>); Rajhbeharrysingh, Uma (<i>Johns Hopkins University</i>); Mosquera-Lopez, Clara* (<i>Oregon Health & Science University</i>); Guidarelli, Carolyn (<i>Oregon Health & Science University</i>); Winters-Stone, Kerri (<i>Oregon Health & Science University</i>)	
17:15-19:00	FrPoS-05.2
Low-Noise Transimpedance Amplifier Design using Chopper-Stabilized Technique for Nanopore Applications	3902-3905
Park, Youkyeong (<i>Gachon University</i>); Yun, Jeong-dae (<i>Gachon University</i>); Kim, Jungsuk* (<i>Gachon University</i>)	
17:15-19:00	FrPoS-05.3
Point-of-Care Assessment of Folate Status using a Fluorescence Lateral Flow Assay	3906-3909
Rey, Elizabeth* (<i>Cornell University</i>); Finkelstein, Julia (<i>Cornell University</i>); Erickson, David (<i>Cornell University</i>)	
17:15-19:00	FrPoS-05.4
Black-Box Model Identification of Physical Activity in Type-1 Diabetes Patients	3910-3913
Faccioli, Simone (<i>Univ. of Padua</i>); Ozaslan, Basak (<i>Univ. of Virginia</i>); Garcia-Tirado, Jose (<i>Univ. of Virginia, Center for Diabetes Technology</i>); Breton, Marc D. (<i>Univ. of Virginia</i>); Del Favero, Simone* (<i>Univ. of Padova</i>)	
17:15-19:00	FrPoS-05.5
Development of a Human Infant Feeding Reinforcement System	3914-3917
Dharmavaram, Poornima (<i>Univ. at Buffalo, The State Univ. of New York</i>); Kong, Kai Ling (<i>Univ. at Buffalo, NY</i>); Anzman-Frasca, Stephanie (<i>Univ. at Buffalo, The State Univ. of New York</i>); Epstein, Leonard (<i>Univ. at Buffalo, The State Univ. of New York</i>); Titus, Albert* (<i>Univ. at Buffalo, The State Univ. of New York</i>)	
17:15-19:00	FrPoS-05.6
3-Stage Miller Cross-Coupled Load based Photodiode Readout for Glucose Monitoring	3918-3921
Vinchhi, Bakul* (<i>EPFL Lausanne</i>); Dehollain, Catherine (<i>Ecole Polytechnique Federale de Lausanne</i>); Berger, Daniel (<i>EPFL</i>)	

FrPoS-06: 17:15-19:00	Exhibit Hall 2
Rehabilitation Applications – Poster (Theme 7) (Poster Session)	

17:15-19:00	FrPoS-06.1
Identification of the Relationships between Noncontact Capacitive Sensing Signals and Continuous Grasp Forces: Preliminary Study	3922-3925
Zheng, Enhao* (<i>Institute of Automation, Chinese Academy of Sciences</i>); Wang, Qining (<i>Peking University</i>); Qiao, Hong (<i>Institute of Automation, Chinese Academy of Sciences</i>)	

17:15-19:00	FrPoS-06.2
A Novel Variable Stiffness Compliant Finger Exoskeleton for Rehabilitation based on Electromagnet Control	3926-3929
Liang, Renghao (<i>Xi'an Jiao Tong University</i>); Xu, Guanghua* (<i>Xi'an Jiao Tong University</i>); Li, Min (<i>School of Mechanical Engineering, Xi'an Jiao Tong University</i>); Zhang, Sicong (<i>Xi'an Jiao Tong University</i>); Luo, Ailing (<i>Xi'an Jiao Tong University</i>); Tao, Tangfei (<i>Xi'an Jiao Tong University</i>)	
17:15-19:00	FrPoS-06.3
Dynamically Mapping Socket Loading Conditions during Real Time Operation of an Upper Limb Prosthesis	3930-3933
Fu, Jonathan* (<i>Johns Hopkins University</i>); Nguyen, Harrison (<i>Johns Hopkins University</i>); Kim, Dong Woo (<i>Johns Hopkins University</i>); Shallal, Christopher (<i>Johns Hopkins University</i>); Cho, Sue Min (<i>Johns Hopkins University</i>); Osborn, Luke (<i>Johns Hopkins University</i>); Thakor, Nitish (<i>Johns Hopkins University</i>)	
17:15-19:00	FrPoS-06.4
Modeling of Hand and Forearm Link using Inertial Sensors	3934-3937
Kitano, Keisuke* (<i>Doshisha Univ.</i>); Ito, Akihito (<i>Doshisha Univ.</i>); Tsujiuchi, Nobutaka (<i>Doshisha Univ.</i>)	
17:15-19:00	FrPoS-06.5
A Practical Approach for Evaluation of Socket Pistoning for Lower Limb Amputees	3938-3941
Vempala, Vibhavari* (<i>North Carolina State Univ.</i>); Liu, Ming (<i>NC State Univ.</i>); Kamper, Derek (<i>North Carolina State Univ.</i>); Huang, He (<i>North Carolina State Univ. and Univ. of North Carolina at Chapel Hill</i>)	
17:15-19:00	FrPoS-06.6
Development of Sensorised Resistance Band for Objective Exercise Measurement: Activities Classification Trial	3942-3945
Ma, Jianjia (<i>Loughborough Univ.</i>); Hogervorst, Eef (<i>Loughborough Univ.</i>); Magistro, Daniele (<i>Loughborough Univ.</i>); Chouliaras, Vassilios (<i>Loughborough Univ.</i>); Zecca, Massimiliano* (<i>Loughborough Univ.</i>)	
17:15-19:00	FrPoS-06.7
Exploration of Metrics for Leg Length Discrepancy using a Wearable Gait Analysis System	3946-3949
Marquez, J. Sebastian* (<i>Florida International University</i>); Atri, Roozbeh (<i>Florida International University</i>); Siddiquee, Masudur R. (<i>Florida International University</i>); Leung, Connie (<i>Florida International University</i>); Bai, Ou (<i>Florida International University</i>)	
17:15-19:00	FrPoS-06.8
Design of a Low-Cost MRI Compatible Plantarflexion Force Measurement Device	3950-3953
Allexandre, Didier* (<i>Kessler Foundation</i>); Androwis, Ghaith (<i>Kessler Foundation, and New Jersey Institute of Technology</i>); Saleh, Soha (<i>Kessler Foundation</i>); Benony, Betty (<i>Marquet Getinge Group</i>); Yue, Guang (<i>Kessler Foundation</i>)	

FrPoS-07: 17:15-19:00	Exhibit Hall 2
General and Theoretical Informatics: Algorithms (II) – Poster (Theme 10) (Poster Session)	

17:15-19:00	FrPoS-07.1
Automatic Detection of Preferred Retinal Locus (PRL) for Low Vision Rehabilitation using Oculometrics Analysis	3954-3957
Yow, Ai Ping (<i>Institute for Infocomm Research</i>); Wong, Damon* (<i>Institute for Infocomm Research</i>); Lim, Tock Han (<i>Tan Tock Seng Hospital</i>); Laude, Augustinus (<i>Tan Tock Seng Hospital</i>)	
17:15-19:00	FrPoS-07.2
A Novel Method to Determine Dynamic Temperature Trends Applied to In-Shoe Temperature Data during Walking	3958-3961
Cutajar, Lucianne (<i>Univ. of Malta</i>); Falzon, Owen* (<i>Univ. of Malta</i>); Mizzi, Anabelle (<i>Univ. of Malta</i>); Swaine, Ian (<i>Univ. of Greenwich</i>); Springett, Kate (<i>Canterbury Christ Church Univ.</i>); Mizzi, Stephen (<i>Univ. of Malta</i>)	
17:15-19:00	FrPoS-07.3
Deviations of Acoustic Low-Level Descriptors in Speech Features of a Set of Triplets, One with Autism	3962-3966
Yatawatte, Hasini* (<i>University of Notre Dame</i>); Poellabauer, Christian (<i>University of Notre Dame</i>); Schneider, Sandra (<i>Saint Mary's College</i>); Latham, Susan (<i>Saint Mary's College</i>)	

17:15-19:00 FrPoS-07.4
Interval Kernels for Combining Biometric Measurements from Multiple Prostate Samples Per Patient in Prognostic Models with Transductive Semi-Supervised Support Vector Regression 3967-3970
 Khan, Faisal* (*Rutgers, The State University of New Jersey*)

FrPoS-08: 17:15-19:00 Exhibit Hall 2
General and Theoretical Informatics: Machine Learning (II) – Poster (Theme 10) (Poster Session)

17:15-19:00 FrPoS-08.1
Diagnosis of Prostate Cancer in a Chinese Population using Machine Learning Methods 3971-3974
 Wang, Guanjin* (*The Hong Kong Polytechnic University*); Teoh, Jeremy Yuen-Chun (*Chinese University of Hong Kong*); Choi, Kup-Sze (*Centre for Smart Health, School of Nursing, The Hong Kong Polytechnic University*)

17:15-19:00 FrPoS-08.2
Automatic System for Obstructive Sleep Apnea Events Detection using Convolutional Neural Network 3975-3978
 Cen, Ling (*Nanyang Technological University*); Yu, Zhuliang (*South China University of Technology, Chinese*); Kluge, Tilmann (*Austrian Institute of Technology*); Ser, Wee* (*Nanyang Technological University*)

17:15-19:00 FrPoS-08.3
A Fully Automated System for Sizing Nasal PAP Masks using Facial Photographs 3979-3982
 Johnston, Benjamin* (*University of Sydney*); de Chazal, Philip (*University of Sydney*)

17:15-19:00 FrPoS-08.4
Rapid Anxiety and Depression Diagnosis in Young Children Enabled by Wearable Sensors and Machine Learning 3983-3986
 McGinnis, Ryan S.* (*University of Vermont*); McGinnis, Ellen (*University of Vermont*); Hruschak, Jessica (*University of Michigan*); Lopez-Duran, Nestor (*University of Michigan*); Fitzgerald, Kate (*University of Michigan*); Rosenblum, Katherine L. (*University of Michigan*); Muzik, Maria (*University of Michigan*)

17:15-19:00 FrPoS-08.5
SCOSY: A Biomedical Collaboration Recommendation System 3987-3990
 Guerra Marin, Jorge* (*Children's Hospital of Philadelphia*); Quan, Wei (*Drexel University*); Li, Kai (*Drexel University*); Ahumada, Luis (*Johns Hopkins All Children's Hospital*); Winston, Flaura (*Children's Hospital of Philadelphia*); Desai, Bimal (*Children's Hospital of Philadelphia*)

17:15-19:00 FrPoS-08.6
Identification of Optimum Panel of Blood-Based Biomarkers for Alzheimer's Disease Diagnosis using Machine Learning 3991-3994
 Eke, Chima Stanley* (*School of Computing, Electronics, and Mathematics, University of Plymouth*); Jammeh, Emmanuel (*Plymouth University, School of Computing and Mathematics*); Li, Xinzhong (*Medical Statistics/Bioinformatics, Plymouth University*); Carroll, Camille (*Peninsula Schools of Medicine and Dentistry, Plymouth University*); Pearson, Stephen (*Re:Cognition Health, UK*); Ifeakor, Emmanuel (*University of Plymouth*)

17:15-19:00 FrPoS-08.7
Prediction of One-Year Transplant-Free Survival after Norwood Procedure based on the Pre-Operative Data 3995-3998
 Ahumada, Luis (*Johns Hopkins All Children's Hospital*); Peck, Jacquelin (*Johns Hopkins All Children's Hospital*); Guerra Marin, Jorge (*Children's Hospital of Philadelphia*); Do, Nhue (*Johns Hopkins All Children's Hospital*); Gupta, Monisha (*Johns Hopkins All Children's Hospital*); Ghazarian, Sharon (*Johns Hopkins All Children's Hospital*); Rehman, Mohamed (*The Children's Hospital of Philadelphia*); Jacobs, Jeffrey P. (*Johns Hopkins All Children's Hospital*); Jalali, Ali* (*Villanova University*)

17:15-19:00 FrPoS-08.8
3D Shape-Based Body Composition Prediction Model using Machine Learning 3999-4002
 Lu, Yao* (*George Washington University*); McQuade, Scott (*George Washington University*); Hahn, James (*George Washington University*)

17:15-19:00 FrPoS-08.9
A Spark-Based Analytic Pipeline for Seizure Detection in EEG Big Data Streams 4003-4006
 Eslampanah Sendi, Mohammad Sadegh (*Georgia Institute of Technology*); Heydarzadeh, Mehrdad (*University of Texas at Dallas*); Mahmoudi, Babak* (*Emory University*)

17:15-19:00 FrPoS-08.10
Personalized Gaussian Processes for Forecasting of Alzheimer's Disease Assessment Scale-Cognition Sub-Scale (ADAS-Cog13) 4007-4011
 Utsumi, Yuria* (MIT); Rudovic, Ognjen (Massachusetts Institute of Technology); Peterson, Kelly (Massachusetts Institute of Technology); Guerrero, Ricardo (Imperial College London); Picard, Rosalind (Massachusetts Institute of Technology)

FrPoS-09: 17:15-19:00 Exhibit Hall 2
Health Informatics: Decision Support Methods and Systems (II) – Poster (Theme 10) (Poster Session)

17:15-19:00 FrPoS-09.1
Eye Movements – An Early Marker of Cognitive Dysfunctions 4012-4016
 Chatterjee, Debatri (TCS Innovation Lab); Gavas, Rahul* (TCS Research and Innovation, Tata Consultancy Services Ltd.); Chakravarty, Kingshuk (Tata Consultancy Services Ltd.); Sinha, Aniruddha (Tata Consultancy Services Ltd.); Lahiri, Uttama (Indian Institute of Technology, Gandhinagar)

17:15-19:00 FrPoS-09.2
Eigen Posture based Fall Risk Assessment System using Kinect 4017-4020
 Tripathy, Soumya Ranjan (TCS Research and Innovation, Tata Consultancy Services Ltd.); Chakravarty, Kingshuk* (Tata Consultancy Services Ltd.); Sinha, Aniruddha (Tata Consultancy Services Ltd.)

17:15-19:00 FrPoS-09.3
Evaluation for the Necessity of Medical Imaging Tests Prescription in Neurology 4021-4024
 Manta, Ourania (NTUA); Toumpaniaris, Petros (National Technical University of Athens); Katrakazas, Panagiotis* (School of Electrical and Computer Engineering, National Technical University of Athens); Kouris, Ioannis (National Technical University of Athens); Lambrou, George I. (National and Kapodistrian University of Athens); Koutsouris, Dimitrios (BioMedical Engineering Lab, School of Electrical and Computer Engineering, National Technical University of Athens); Kepentzis, Stavros (National Technical University of Athens); Iliopoulou, Dimitra (National Technical University of Athens)

17:15-19:00 FrPoS-09.4
CHANGE: Cardiac Health Analysis using Graph Eigenvalues 4025-4029
 Dutta Choudhury, Anirban* (Tata Consultancy Services Ltd.); Chowdhury, Ananda (Jadavpur University)

17:15-19:00 FrPoS-09.5
Risk Prediction of Heart Failure Decompensation Events in Multiparametric Feature Spaces 4030-4033
 Nunes, Diogo (University of Coimbra); Leal, Adriana (University of Coimbra); Rocha, Teresa (Inst Superior de Eng de Coimbra); Traver, Vicente (ITACA - Universitat Politècnica de València); Teixeira, César (University of Coimbra); Paredes, Simao* (Instituto Politécnico de Coimbra); de Carvalho, Paulo (University of Coimbra); Henriques, Jorge (University of Coimbra); Ruano, M. Graça (FCT, University of Algarve & CISUC-University of Coimbra)

17:15-19:00 FrPoS-09.6
Atrial Fibrillation Prediction using Recordings from Portable Devices 4034-4037
 Li, Zhi* (University of Michigan); Derksen, Harm (University of Michigan, Ann Arbor); Gryak, Jonathan (University of Michigan); Ghanbari, Hamid (University of Michigan); Gunaratne, Pujitha (Toyota Motor North America); Najarian, Kayvan (University of Michigan - Ann Arbor)

17:15-19:00 FrPoS-09.7
Early Prediction of Sepsis in EMR Records using Traditional ML Techniques and Deep Learning LSTM Networks 4038-4041
 Mohammed, Saqib, Mohammed Saqib (MIBLAB); Sha, Ying* (Georgia Institute of Technology); Wang, May D. (Georgia Tech and Emory University)

17:15-19:00 FrPoS-09.8
Interpretable Machine Learning Techniques for Causal Inference using Balancing Scores as Meta-Features 4042-4045
 Nohara, Yasunobu* (Kyushu University Hospital); Iihara, Koji (Kyushu University); Nakashima, Naoki (Kyushu University Hospital)

17:15-19:00

FrPoS-10.1

Validation of Improvements of Robotic Devices for Nursing Care using a Sensing Dummy Simulating Human Body

4046-4049

Ogata, Kunihiro* (*National Institute of Advanced Industrial Science and Technology (AIST)*); Tanaka, Hideyuki (*National Institute of Advanced Industrial Science and Technology*); Matsumoto, Yoshio (*Advanced Industrial Science and Technology*)

17:15-19:00

FrPoS-10.2

Methodologies for Workforce Optimization in Hospital's Emergency Dept.

4050-4053

Paul, Soubhik (*Philips India Ltd.*); Palanisamy, Krishnamoorthy (*Philips India Ltd.*); M.S, Dinesh* (*Philips Research India*); Swaminathan, Kailash (*Philips Research India*); Bussa, Nagaraju (*Philips Research Asia - Bangalore*); Mariyanna, Shiva (*Philips India Ltd.*)

17:15-19:00

FrPoS-10.3

A Different Approach for Digital Pathology: Lexicon-Semantic Analysis of Histopathological Reports for the Assessment of Their Quality

4054-4057

Vega-Barbas, Mario* (*Karolinska Institutet*); Seoane, Fernando (*Karolinska Institutet*)

17:15-19:00

FrPoS-10.4

How Is the Doctor Feeling? ICU Provider Sentiment Is Associated with Diagnostic Imaging Utilization ..

4058-4064

Ghassemi, Mohammad (*Massachusetts Institute of Technology*); Al-Hanai, Tuka* (*Massachusetts Institute of Technology*); Raffa, Jesse (*Massachusetts Institute of Technology*); Mark, Roger (*Massachusetts Institute of Technology*); Nemati, Shamim (*Emory University School of Medicine*); Chokshi, Falgun (*Emory University School of Medicine*)

17:15-19:00

FrPoS-10.5

Can Mixed-Reality Improve the Training of Medical Procedures?

4065-4068

Azimi, Ehsan* (*Johns Hopkins University*); Winkler, Alexander (*Johns Hopkins University*); Tucker, Emerson (*Johns Hopkins University*); Qian, Long (*Johns Hopkins University*); Doswell, Jayfus (*Juxtopia LLC*); Navab, Nassir (*Technische Universität München*); Kazanzides, Peter (*Johns Hopkins University*)

17:15-19:00

FrPoS-10.6

Definition and Representation of a Process to Engineer a Multi-User Information**Management Application for Continuity of Care**

4069-4072

Hernandez, Liss (*Universidad Politécnica de Madrid*); Merino, Beatriz (*Universidad Politécnica de Madrid*); Fico, Giuseppe* (*Universidad Politécnica de Madrid*); Casassus, Maria Alonso (*Hospital Clínico San Carlos*); Rodríguez Machuca, M^a José (*Hospital Clínico San Carlos*); Ortuño-Soriano, Ismael (*Hospital Clínico San Carlos*); Fernandez-del-Palacio, Encarnación (*Hospital Clínico San Carlos*); Cabrera-Umpierrez, Maria Fernanda (*Universidad Politecnica de Madrid*); Seara-Aguilar, Germán (*Hospital Clínico San Carlos*); Arredondo, María Teresa (*Universidad Politécnica de Madrid*)

17:15-19:00

FrPoS-10.7

Evaluating ICU Clinical Severity Scoring Systems and Machine Learning Applications:**APACHE IV/IVa Case Study**

4073-4076

Balkan, Baran (*Univ. of Arizona*); Essay, Patrick (*Univ. of Arizona*); Subbian, Vignesh* (*Univ. of Arizona*)

17:15-19:00

FrPoS-10.8

A Standing Function Evaluation System based on Virtual Light Touch Contact and Factor Analysis

4077-4080

Sakata, Mami* (*Yokohama National University*); Kawahara, Dai (*Yokohama National University*); Shima, Keisuke (*Yokohama National University*); Izumi, Hiroyuki (*University of Occupational and Environmental Health, Japan*); Nagara, Tomoyuki (*JFE Steel Corp.*); Shimatani, Koji (*Prefectural University of Hiroshima*)

- 17:15-19:00 FrPoS-11.1
Personal Health Data: Access and Perceived Value in Denmark 4081-4084
 Karampela, Maria* (*IT University of Copenhagen*); Grundstrom, Casandra (*University of Oulu*);
 Minna, Isomursu (*IT University of Copenhagen*)
- 17:15-19:00 FrPoS-11.2
Robust Ensemble Learning to Identify Rare Disease Patients from Electronic Health Records 4085-4088
 Colbaugh, Richard (*Volv Global*); Glass, Kristin* (*Volv Global*); Rudolf, Christopher (*Volv Global*);
 Tremblay, Mike (*Volv Global*)
- 17:15-19:00 FrPoS-11.3
Towards the Establishment of a Biomedical Ontology for the Primary Sjögren's Syndrome 4089-4092
 Pezoulas, Vasileios C. (*University of Ioannina*); Exarchos, Themis P. (*Unit of Medical Tech & Intelligent Info*);
 Andronikou, Vassiliki (*National Technical University of Athens*); Varvarigou, Theodora (*National Technical University of Athens*); Tzioufas, Athanasios (*National and Kapodistrian University of Athens*);
 De Vita, Salvatore (*Udine University*); Fotiadis, Dimitrios I.* (*University of Ioannina*)
- 17:15-19:00 FrPoS-11.4
A FHIR-Enabled Streaming Sepsis Prediction System for ICUs 4093-4096
 Henry, Joel (*Georgia Institute of Technology*); Lynch, Dennis (*Georgia Institute of Technology*); Mals, Jeff
 (*Georgia Institute of Technology*); Shashikumar, Supreeth Prajwal (*Georgia Institute of Technology*); Holder,
 Andre (*Emory University School of Medicine*); Sharma, Ashish (*Emory University*); Nemati, Shamim* (*Emory University School of Medicine*)
- 17:15-19:00 FrPoS-11.5
An Empirical Study of Questionnaires for the Diagnosis of Pediatric Obstructive Sleep Apnea 4097-4100
 Ahmed, Sadia* (*University of Texas at Arlington*); Hasani, Sona (*University of Texas at Arlington*); Koone, Mary
 (*University of Texas at Arlington*); Thirumuruganathan, Saravanan (*Qatar Computing Research Institute*); Diaz-Abad,
 Montserrat (*University of Maryland School of Medicine*); Mitchell, Ron (*University of Texas Southwestern Medical Center*);
 Isaiah, Amal (*University of Maryland School of Medicine*); Das, Gautam (*University of Texas at Arlington*)
- 17:15-19:00 FrPoS-11.6
A Distributed Storage Model for Healthcare Big Data Designed on HBase 4101-4105
 Zhang, Lu (*Research Center for BioMedical Information Technology, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Li, Qi (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Li, Ye (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*);
 Cai, Yun-Peng* (*SIAT*)
- 17:15-19:00 FrPoS-11.7
Comparison of Gaussian Processes Methods to Linear Methods for Imputation of Sparse Physiological Time Series 4106-4109
 Nickerson, Paul (*University of Florida*); Baharloo, Raheleh (*University of Florida*); Davoudi, Anis* (*University of Florida*);
 Bihorac, Azra (*University of Florida*); Rashidi, Parisa (*University of Florida*)
- 17:15-19:00 FrPoS-11.8
Effects of Consecutive Moderately Cold Days on Cardiovascular Disease Mortality in Shenzhen, China: A Preliminary Study 4110-4113
 Chen, Runge (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Miao, Fen
 (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Zheng, Jing (*Shenzhen Medical Information Center*); Wu, Yongsheng (*Shenzhen Center for Disease Control and Prevention*);
 Li, Ye* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*)
- 17:15-19:00 FrPoS-11.9
SMCT – An Innovative Tool for Mental Health Analysis of Twitter Data 4114-4117
 Watkins, Nathan G. (*University of New South Wales*); Lovell, Nigel H. (*University of New South Wales*);
 Larsen, Mark Erik* (*University of New South Wales*)

17:15-19:00

FrPoS-12.1

Automatic Extraction of the 3D Symmetry Line of Back Surface: Application on Scoliotic Adolescents 4118-4121

Morand, Marion* (*LIRMM, Montpellier University*); Comas, Olivier (*DMS Imaging*); Fiorio, Christophe (*LIRMM, Montpellier University*); Subsol, Gérard (*LIRMM, Montpellier University*)

17:15-19:00

FrPoS-12.2

Automatic Tooth Segmentation of Dental Mesh using a Transverse Plane 4122-4125

Kim, Suzi* (*Korea Advanced Institute of Science and Technology*);
Choi, Sunghye (*Korea Advanced Institute of Science and Technology*)

17:15-19:00

FrPoS-12.3

Exploring Different Impaired Speed of Genetic-Related Brain Function and Structures in Schizophrenic Progress using Multimodal Analysis 4126-4129

Luo, Na (*University of Chinese Academy of Sciences*); Tian, Lin (*Wuxi Mental Health Center*); Calhoun, Vince (*The Mind Research Network/University of New Mexico*); Chen, Jiayu (*The Mind Research Network*); Lin, Dongdong (*The Mind Research network*); Vergara, Victor Manuel (*The Mind Research Network*); Rao, Shuquan (*School of Life Science and Engineering, Southwest Jiao Tong University*); Zhang, Fuquan (*Wuxi Mental Health Center*); Sui, Jing* (*Institute of Automation, Chinese Academy of Sciences*)

17:15-19:00

FrPoS-12.4

Radiomics: A Novel CT-Based Method of Predicting Postoperative Recurrence in Ovarian Cancer 4130-4133

Wei, Wei (*Xi'an Polytechnic University*); Rong, Yu (*West China Second University Hospital of Sichuan University*); Liu, Zhenyu (*Institute of Automation, Chinese Academy of Sciences*); Zhou, Bin (*West China Second University Hospital of Sichuan University*); Tang, Zhenchao (*Shandong University, Weihai*); Wang, Shuo (*Chinese Academy of Sciences*); Dong, Di (*Chinese Academy of Sciences*); Zang, Yali (*Institute of Automation, Chinese Academy of Sciences*); Guo, Yingkun (*West China Second University Hospital of Sichuan University*); Tian, Jie* (*Chinese Academy of Sciences*)

17:15-19:00

FrPoS-12.5

Adapted K-Core Decomposition and Visualization for Functional Magnetic Resonance Imaging Connectivity Networks 4134-4137

de Ridder, Michael* (*University of Sydney*); Klein, Karsten (*Universität Konstanz*); Kim, Jinman (*University of Sydney*)

17:15-19:00

FrPoS-12.6

Automatic Detection of Early Gastric Cancer in Endoscopic Images using a Transferring Convolutional Neural Network 4138-4141

Sakai, Yoshimasa (*The University of Electro-Communications*); Takemoto, Satoko (*RIKEN*); Hori, Keisuke (*National Cancer Center Hospital East*); Nishimura, Masaomi (*RIKEN*); Ikematsu, Hiroaki (*National Cancer Center Hospital East*); Yano, Tomonori (*National Cancer Center Hospital East*); Yokota, Hideo* (*RIKEN Center for Advanced Photonics*)

17:15-19:00

FrPoS-12.7

Localisation of Colorectal Polyps by Convolutional Neural Network Features Learnt from White Light and Narrow Band Endoscopic Images of Multiple Databases 4142-4145

Zheng, Yali (*Chinese University of Hong Kong*); Zhang, Ruikai (*Chinese University of Hong Kong*); Yu, Ruoxi (*Chinese University of Hong Kong*); Jiang, Yuqi (*Chinese University of Hong Kong*); Mak, Wing Chung Tony (*Chinese University of Hong Kong*); Wong, Hei Sunny (*Chinese University of Hong Kong*); Lau, James Y. W. (*Chinese University of Hong Kong*); Poon, Carmen C. Y.* (*Chinese University of Hong Kong*)

17:15-19:00

FrPoS-12.8

Surgical Suturing with Depth Constraints: Image-Based Metrics to Assess Skill 4146-4149

Kil, Irfan* (*Clemson University*); Groff, Richard E (*Clemson University*); Singapogu, Ravikiran (*Clemson University*)

Image-Guided Therapies and Therapeutic Devices – Poster (Theme 9) (Poster Session)

- 17:15-19:00 FrPoS-13.1
Study of the Photoneutron Generation Caused by a LinAc Beryllium Window with a 6 MeV Treatment Beam 4150-4153
 Juste, Belen* (*Polytechnic University of Valencia*); Morató, Sergio (*Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM)*); Salvat, Alejandra (*The Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM) at the Universitat Politècnica de València*); Miró, Rafael (*Polytechnic University of Valencia*); Verdú, Gumersindo (*Polytechnic University of Valencia*)
- 17:15-19:00 FrPoS-13.2
A Reference-Less Time-Division-Duplex Transceiver IC for a 5-Fr 6-Electrode Renal Denervation Catheter in 0.18- μ m 70-V BCDMOS 4154-4157
 Yang, Jaehyeok* (*KAIST*); Kim, Seohyeon (*KAIST*); Hwang, Gunpil (*KAIST*); Kwon, Kyeongha (*KAIST*); Jeon, Sejun (*KAIST*); Bae, Hyeon-Min (*KAIST*)
- 17:15-19:00 FrPoS-13.3
A Steerable Endoscope for Transnasal Skull Base Surgery 4158-4161
 Kwon, Seong-il (*University of Science & Technology, Korea Institute of Science & Technology*); Ryu, Geunwoong (*Korea Institute of Science and Technology, Korea University of Science and Technology*); Kang, Sungchul (*Korea Institute of Science and Technology*); Kim, Keri* (*Korea Institute of Science and Technology*)
- 17:15-19:00 FrPoS-13.4
A Phantom Study to Create Synthetic CT from Orthogonal Two-Dimensional Cine MRI and Evaluate the Effect of Irregular Breathing 4162-4165
 Müller, Marco* (*Univ. of Sydney*); Paganelli, Chiara (*Politecnico di Milano*); Keall, Paul John (*Univ. of Sydney*)
- 17:15-19:00 FrPoS-13.5
Design, Fabrication and Validation of a Precursor Pulsed Electromagnetic Field Device for Bone Fracture Repair 4166-4169
 Daish, Christian* (*RMIT Univ.*); Blanchard, Romane (*Univ. of Melbourne*); Duchi, Serena (*St Vincent's Dept. of Surgery, Univ. of Melbourne*); Onofrillo, Carmine (*St Vincent's Dept. of Surgery, Univ. of Melbourne*); Augustine, Cheryl (*St Vincent's Dept. of Surgery, Univ. of Melbourne*); Fox, Kate (*RMIT Univ.*); Pivonka, Peter (*St Vincent's Dept. of Surgery, Univ. of Melbourne*); Pirogova, Elena (*RMIT Univ.*)
- 17:15-19:00 FrPoS-13.6
Electrical Characterization of Human Biological Tissue for Irreversible Electroporation Treatments 4170-4173
 Beitel-White, Natalie* (*Virginia Polytechnic Institute and State University*); Bhonsle, Suyashree (*Virginia Tech*); Martin, Robert C. G. (*University of Louisville*); Davalos, Rafael (*Virginia Tech*)

Stimulation and Neuromodulation (II) – Poster (Theme 9) (Poster Session)

- 17:15-19:00 FrPoS-14.1
An Energy Efficient Programmable Neuro-Mimicking Stimulator IC for Implantable Electroceutical Systems 4174-4177
 Lee, Hyungwoo* (*Samsung Advanced Institute of Technology*); Kim, Sang Joon (*Samsung Electronics*)
- 17:15-19:00 FrPoS-14.2
A 32-Channel Wireless Configurable System for Electrical Stimulation of the Stomach 4178-4181
 AbuKhalaf, Zaid (*New York Institute of Technology*); Javan Khoshkholgh, Amir (*New York Institute of Technology*); Alrofati, Wahib (*New York Institute of Technology*); Farajidavar, Aydin* (*New York Institute of Technology*)
- 17:15-19:00 FrPoS-14.3
Impact of Electrode Number on the Performance of High-Definition Transcranial Direct Current Stimulation (HD-tDCS) 4182-4185
 Wang, Yushan* (*University of California Los Angeles*); Zhou, Hanyue (*University of California Los Angeles*); Li, Ying (*University of California Los Angeles*); Liu, Wentai (*University of California Los Angeles*)

17:15-19:00 FrPoS-14.4
Uterosacral Nerve Stimulation via Cuff Electrode: A Preliminary Animal Study for Potential Application to Treatment of Preterm Labor 4186-4189
 Lee, Yi Jae (*Korea Institute of Science and Technology*); Eom, Kyu shik (*Korea Institute of Science and Technology*); Kim, Hee Youn (*Dept. of Obstetrics and Gynecology, Korea University Medical Center*); Ahn, Ki Hoon (*Dept. of Obstetrics and Gynecology, Korea University Medical Center*); Lee, Soo Hyun* (*Korea Institute of Science and Technology*)

FrPoS-15: 17:15-19:00 Exhibit Hall 2
Biomaterials and Cellular Interactions – Poster (Theme 3) (Poster Session)

17:15-19:00 FrPoS-15.1
Ionic Conduction in Biological Nanopores Created by Ultrashort, High-Intensity Pulses 4190-4193
 Qiu, Hao (*Fort Valley state University*); Wang, Xianping* (*Southeast Missouri State University*); Choi, Anthony (*Mercer University*); Xie, Fei (*Mount Vernon Nazarene University*); Zhao, Wenbing (*Cleveland State University*)

17:15-19:00 FrPoS-15.2
Simulation of pH-Regulated Electrokinetic Ion Transport in Nanopores with Polyelectrolyte Brushes 4194-4197
 Qiu, Hao (*Fort Valley state University*); Wang, Xianping* (*Southeast Missouri State University*); Choi, Anthony (*Mercer University*); Zhao, Wenbing (*Cleveland State University*)

17:15-19:00 FrPoS-15.3
Cell Attachment on Inside-Outside Surface and Cell Encapsulation in Wall of Microscopic Tubular Scaffolds for Vascular Tissue-Like Formation 4198-4201
 Duong Van, Thuy (*University of Ulsan*); Lee, Yeasol (*University of Ulsan*); Dang, Thi Thao (*University of Ulsan*); Nguyen, Trung (*University of Ulsan*); Phan, Huu Lam (*Ulsan University*); Shin, Daehyeon (*University of Ulsan*); Lee, YongKwan (*University of Ulsan*); Park, Hodong (*Ulsan University*); Koo, Kyoin* (*University of Ulsan*); Hwang, Changho (*Ulsan University Hospital*); Lee, HyoSeok (*University of Ulsan*); Son, Hyewon (*Dept. of BioMedical Engineering, University of Ulsan*); Jang, Hojeong (*Dept. of BioMedical Engineering, University of Ulsan*); Back, Sung Hoon (*University of Ulsan*); Oh, Seok (*University of Ulsan*)

17:15-19:00 FrPoS-15.4
Application of Electrically Charged Carbon Nanodots@glass in DNA and Cell Engineering 4202-4204
 Xie, Yingqiu* (*Nazarbayev University*); Nurkesh, Ayan A. (*Nazarbayev University*); Keneskhanova, Zhibek (*Nazarbayev University*); Altaikyzy, Akerke (*Nazarbayev University*); Fan, Haiyan (*Nazarbayev University*)

17:15-19:00 FrPoS-15.5
Exploring New Treatment for Spinalized Rats by Synergising Robotic Rehabilitation System and Regenerative Medicine 4205-4208
 Anopas, Dollaporn* (*Nanyang Technological Univ.*); Lin, Junquan (*Nanyang Technological Univ.*); Milbreta, Ulla (*Nanyang Technological Univ.*); Lin, Vincent Po Hen (*Nanyang Technological Univ.*); Chin, Jiah Shin (*Nanyang Technological Univ.*); Wee, Seng Kwee (*Tan Tock Seng Hospital*); Er, Tow Peh (*Tan Tock Seng Hospital*); Chew, Sing Yian (*Nanyang Technological Univ.*); Ang, Wei Tech (*Nanyang Technological Univ.*)

17:15-19:00 FrPoS-15.6
The Role of Temperature, Ammonia and Nitrite to Bioluminescence of Aliivibrio Fischeri: Towards a New Sensor for Aquaculture 4209-4212
 Silva, Luis Filipe Branco Alves da (*ChongQing Technology & Business University, University College of Southeast Norway, Norwegian University of Life Sciences*); Pires, Nuno M. M. (*University College of Southeast Norway and Institute of Applied Micro-Nano Science and Technology*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*); Teien, Hans-Christian (*Norwegian University of Life Sciences*); Yang, Yili (*Nanyang City Center Hospital*); Storebakke, Trond (*Norwegian University of Life Sciences*); Salbu, Brit (*Centre for Environmental Radioactivity (CERAD CoE), Norwegian University of Life Sciences*)

17:15-19:00 FrPoS-15.7
Calcium Mineralization and Osteopontin Expression by Osteoblasts onto Graphene Oxide Coating on Anodized Titanium 4213-4216
 WITHDRAWN
 Techaniyom, Pichayada (*King Mongkut's University of Technology Thonburi*); Sirivisoot, Sirinrath* (*King Mongkut's University of Technology Thonburi*)

17:15-19:00	FrPoS-15.8
3D Nano-Crystal Platinum for High-Performance Neural Electrode	4217-4220
Zeng, Qi (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Zhang, Yi (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Wu, Tianzhun* (Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences (CAS)); Sun, Bin (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China); Xia, Kai (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Humayun, Mark (University of Southern California)	
17:15-19:00	FrPoS-15.9
Reduction the Initial-Burst Release of Doxorubicin from Polymeric Depot as a Local Drug Delivery System for Cancer Treatment	4221-4224
Thedrattanawong, Chitinart (Mahidol University); Thanapongpibul, Chalaisorn (Mahidol University); Nittayacharn, Pinunta (Mahidol University); Nasongkla, Norased* (Faculty of Engineering, Mahidol University)	
17:15-19:00	FrPoS-15.10
Control of Hydroxyapatite Film Orientation by RF Magnetron Sputtering	4225-4228
Kubota, Takafumi* (Doshisha University); Hirata, Keishiro (Doshisha University); Takayanagi, Shinji (Doshisha University); Matsukawa, Mami (Doshisha University)	
FrPoS-16: 17:15-19:00	Exhibit Hall 2
Sensor Informatics: Intelligent Medical Devices and Sensors – Poster (Theme 10) (Poster Session)	
17:15-19:00	FrPoS-16.1
Stroke Volume, Ejection Fraction and Cardiac Health Monitoring using Impedance Cardiography	4229-4232
Ghosh, Sudipta (Indian Institute of Technology, Kharagpur); Chattopadhyay, Bhabani Prasad (Medical College And Hospital, Kolkata); Roy, Ram Mohan (Medical College And Hospital, Kolkata); Mukhopadhyay, Jayanta (Dept. of Computer Science & Engineering, IIT Kharagpur); Mahadevappa, Manjunatha* (Indian Institute of Technology Kharagpur)	
17:15-19:00	FrPoS-16.2
HOLOBALANCE: An Augmented Reality Virtual Trainer Solution for Balance Training and Fall Prevention	4233-4236
Kouris, Ioannis* (National Technical University of Athens); Sarafidis, Michail (National Technical University of Athens); Androutsou, Thelma (National Technical University of Athens); Koutsouris, Dimitrios (BioMedical Engineering Lab, School of Electrical and Computer Engineering, National Technical University of Athens)	
17:15-19:00	FrPoS-16.3
An Automatic Cycling Performance Classifier System based on the Crank Arm Force Measurement Data	4237-4240
Vieira Pigatto, Andre (Federal Univ. of Rio Grande do Sul (UFRGS)); Ruschel dos Santos, Raphael* (Univ. Federal do Rio Grande do Sul); Balbinot, Alexandre (Federal Univ. of Rio Grande do Sul (UFRGS))	
17:15-19:00	FrPoS-16.4
Comparing Manual and Machine Annotations of Emotions in Non-Acted Speech	4241-4244
Deshpande, Gauri (Tata Research Development and Design Center, Tata Consultancy Services); Viraraghavan, Venkata Subramanian* (Tata Consultancy Services Ltd.); Duggirala, Mayuri (Tata Research Development and Design Center, Tata Consultancy Services); Vempada, Ramu Reddy (TCS Research & Innovation Lab); Patel, Sachin (Tata Research Development and Design Center, Tata Consultancy Services)	
17:15-19:00	FrPoS-16.5
The Analytical Study in the Assessment of Body Segment Composition using Electrical Impedance in Patients with Schizophrenia	4245-4248
Huang, Ji-Jer* (Southern Taiwan University of Science and Technology); Huang, Min-Wei (National Cheng Kung University); Yang, Chiu-Yueh (Dept. of Nursing, National Yang-Ming University)	
17:15-19:00	FrPoS-16.6
Walk Identification using a Smart Carpet and Mel-Frequency Cepstral Coefficient (MFCC) Features	4249-4252
Muheidat, Fadi* (University of the Pacific); Tyrer, Harry (University of Missouri - Columbia); Popescu, Mihail (University of Missouri)	

17:15-19:00	FrPoS-16.7
Parkinson's Disease Classification of mPower Walking Activity Participants	4253-4256
Pittman, Benjamin (<i>University of Washington</i>); Hosseini Ghomi, Reza (<i>University of Washington</i>); Si, Dong* (<i>University of Washington</i>)	

FrPoS-17: 17:15-19:00	Exhibit Hall 2
Medical Instrumentation – Poster (Theme 7) (Poster Session)	

17:15-19:00	FrPoS-17.1
Monitoring Sucking Abilities in Newborns: Design and Validation on Adult of a Wearable System for Non-Invasive Deglutition Detection	4257-4260
Del Fabbro Arcopitno, Micaela (<i>Università Campus Bio-Medico di Roma</i>); Tosi, Jacopo (<i>Università Campus Bio-Medico di Roma</i>); Formica, Domenico (<i>Campus Bio-Medico University</i>); Taffoni, Fabrizio* (<i>Campus Bio-Medico University</i>)	

17:15-19:00	FrPoS-17.2
A High-Throughput Impedimetric Platform for Biological Analysis: Design, Implementation and Experimental Results	4261-4264
Giancarlo, Ayala-Charca (<i>York University</i>); Munidasa, Samal (<i>York University</i>); Magierowski, Sebastian (<i>York University</i>); Ghafar-Zadeh, Ebrahim* (<i>York University</i>)	

17:15-19:00	FrPoS-17.3
Piezoelectric Tooth Aligner for Accelerated Orthodontic Tooth Movement	4265-4268
Bani-Hani, Muath (<i>Jordan University of Science and Technology</i> .); Karami, M. Amin* (<i>State University of New York at Buffalo</i>)	

17:15-19:00	FrPoS-17.4
Geometry-Based Model for U-Shaped Strain Gauges on Medical Needles	4269-4272
Schaefer, Pierre-Loup* (<i>Laboratoire TIMC-IMAG</i>); Chagnon, Grégory (<i>Université de Grenoble</i>); Moreau-Gaudry, Alexandre (<i>Université Joseph Fourier - Grenoble University Hospital</i>)	

17:15-19:00	FrPoS-17.5
Harmonic Error Cancellation for Accurate Square-Wave-Based Bio-Impedance Measurements	4273-4276
Subhan, Saqib* (<i>New York University Abu Dhabi</i>); Ha, Sohmyung (<i>New York University Abu Dhabi</i>)	

17:15-19:00	FrPoS-17.6
Inkjet Printed Parallel Plate Capacitors using PVP Polymer Dielectric Ink on Flexible Polyimide Substrates	4277-4280
Mohapatra, Ankita (<i>University of Memphis</i>); Tuli, Sayema (<i>University of Memphis</i>); Liu, Kwei (<i>University of Memphis</i>); Fujiwara, Tomoko (<i>University of Memphis</i>); Hewitt, Robert (<i>University of Memphis</i>); Andrasik, Frank (<i>University of Memphis</i>); Morshed, Bashir* (<i>University of Memphis</i>)	

17:15-19:00	FrPoS-17.7
Carbon Nanospikes on Silicon Wafer for Amperometric Biosensing Applications	4281-4284
Shanta, Aysha Siddique (<i>University of Tennessee</i>); Shamsir, Samira* (<i>University of Tennessee Knoxville</i>); Song, Yang (<i>Oak Ridge National Lab</i>); Hensley, Dale (<i>Oak Ridge National Lab</i>); Rondinone, Adam (<i>Oak Ridge National Lab</i>); Islam, Syed Kamrul (<i>University of Tennessee</i>); McFarlane, Nicole (<i>University of Tennessee</i>)	

FrPoS-18: 17:15-19:00	Exhibit Hall 2
Novel Physiological Monitoring Methods – Poster (Theme 7) (Poster Session)	

17:15-19:00	FrPoS-18.1
Study of Clinical Sample Detection for LH with Lateral Flow Immunochromatographic Strip using Support Vector Regression	4285-4288
Liu, Juntao (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Wang, Yang (<i>State Key Lab of Transducer Technology, Institute of Electronics, Chinese Academy of Sciences</i>); Luo, Jinping (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Xu, Shengwei (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Jin, Hongyan (<i>Obstetrics and Gynecology Dept., First Hospital Peking University</i>); Cai, Xinxia* (<i>Institute of Electronics, Chinese Academy of Sciences</i>)	

17:15-19:00	FrPoS-18.2
Fabrication and Interrogation of Refractive Index Biosensors based on Etched Fiber Bragg Grating (EFBG) 4289-4292	
Bekmurzayeva, Aliya* (<i>National Lab Astana, Nazarbayev University; PhD in Science, Engineering and Technology Program, School of Engineering</i>); Shaimerdenova, Madina (<i>National Lab Astana, Nazarbayev University</i>); Tosi, Daniele (<i>Nazarbayev University</i>)	
17:15-19:00	FrPoS-18.3
A Novel Approach for Swallow Detection by Fusing Throat Acceleration and PPG Signal 4293-4296	
Wei, Li* (<i>Zhejiang University</i>); Pan, Yun (<i>Zhejiang University</i>); Zhong, Yizhou (<i>Hangzhou Proton Technology Co., Ltd.</i>); Huan, Ruohong (<i>Zhejiang University of technology</i>)	
17:15-19:00	FrPoS-18.4
EMG Channel Selection for Improved Hand Gesture Classification 4297-4300	
Samadani, Ali* (<i>Philips Research North America</i>)	
17:15-19:00	FrPoS-18.5
Preliminary Finite Element Model for Hydrogen-Based Electrochemical Glucose Sensors N/A	
Valdovinos, John* (<i>California State University Northridge</i>)	
17:15-19:00	FrPoS-18.6
Flexible Non-Contact Electrodes for Bioelectrical Signal Monitoring 4305-4308	
Liu, Shuting (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Liu, Xueyu (<i>Chongqing University of Technology</i>); Jiang, Yanbing (<i>Shenzhen Institutes of Advanced Technology</i>); Wang, Xin (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Huang, Pin-Gao (<i>Chinese Academy of Sciences</i>); Wang, Hui (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Zhu, Mingxing (<i>Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences</i>); Tan, Jingqian (<i>The Third Affiliated Hospital, Sun Yat-Sen University</i>); Li, Peng (<i>The Third Affiliated Hospital of Sun Yat-Sen University</i>); Lin, Chuang (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Zhang, Guanghe (<i>Institute of Computing Technology, Chinese Academy of Sciences</i>); Chen, Shixiong* (<i>Shenzhen Institutes of Advanced Technology</i>); Li, Guanglin (<i>Shenzhen Institutes of Advanced Technology</i>)	
17:15-19:00	FrPoS-18.7
Disposable Stiffness Sensor for Endoscopic Examination 4309-4312	
Faragasso, Angela* (<i>University of Tokyo</i>); Bimbo, Joao (<i>Istituto Italiano di Tecnologia</i>); Yamashita, Atsushi (<i>University of Tokyo</i>); Asama, Hajime (<i>University of Tokyo</i>)	
17:15-19:00	FrPoS-18.8
A Wrist-Worn Strap with an Array of Electrodes for Robust Physiological Sensing 4313-4317	
Ibrahim, Bassem* (<i>Texas A&M Univ.</i>); McMurray, Justin (<i>Texas A&M Univ.</i>); Jafari, Roozbeh (<i>Texas A&M Univ.</i>)	

FrPoS-19: 17:15-19:00	Exhibit Hall 2
Physiological Monitoring – Poster (Theme 7) (Poster Session)	

17:15-19:00	FrPoS-19.1
A Novel Calibration Procedure of Pulse Transit Time based Blood Pressure Measurement with Heart Rate and Respiratory Rate 4318-4322	
Lui, Hin Wai* (<i>Hong Kong University of Science and Technology</i>); Chow, King Lau (<i>Hong Kong University of Science and Technology</i>)	
17:15-19:00	FrPoS-19.2
Effect of Position and Fastening Belt Pressure on the Accuracy of PPG-Based Heart Rate Sensor 4323-4326	
Shimazaki, Takunori (<i>Osaka City University</i>); Kuwahara, Yuzu (<i>Osaka City University</i>); Kimoto, Masaya (<i>Osaka City University</i>); Hara, Shinsuke* (<i>Osaka City University</i>); Yomo, Hiroyuki (<i>Kansai University</i>)	
17:15-19:00	FrPoS-19.3
Unconstrained Monitoring of Biological Signals using an Aortic Pulse Wave Sensor 4327-4330	
Hagiya, Naoki* (<i>Hiroshima Univ.</i>); Mito, Akihisa (<i>Hiroshima Univ.</i>); Hirano, Harutoyo (<i>Shizuoka Univ.</i>); Soh, Zu (<i>Dept. of System Cybernetics, Institute of Engineering, Hiroshima Univ.</i>); Fujita, Etsunori (<i>Delta Tooling Co., Ltd.</i>); Ogura, Yumi (<i>Delta Tooling Co., Ltd.</i>); Uchikawa, Ryuichi (<i>Delta Tooling Co., Ltd.</i>); Kaneko, Shigehiko (<i>Univ. of Tokyo</i>); Nakamura, Ryuji (<i>Hiroshima Univ.</i>); Saeki, Noboru (<i>Hiroshima Univ.</i>); Kawamoto, Masashi (<i>Hiroshima Univ.</i>); Yoshizumi, Masao (<i>Hiroshima Univ.</i>); Tsuji, Toshio (<i>Hiroshima Univ.</i>)	

17:15-19:00	FrPoS-19.4
Children Activity Recognition: Challenges and Strategies	4331-4334
Hosseini, Anahita (<i>Dept. of Computer Science, University of California Los Angeles</i>); Fazeli, Shayan* (<i>University of California Los Angeles</i>); van Vliet, Eleanne (<i>University of Southern California - Los Angeles</i>); Valencia, Lisa (<i>University of Southern California - Los Angeles</i>); Habre, Rima (<i>University of Southern California - Los Angeles</i>); Sarrafzadeh, Majid (<i>University of California Los Angeles</i>); Bui, Alex (<i>University of California Los Angeles</i>)	
17:15-19:00	FrPoS-19.5
Psychophysiological Stress Assessment among On-Duty Firefighters	4335-4338
Rodrigues, Susana (<i>Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência - INESC TEC</i>); Dias, Duarte (<i>INESC TEC</i>); Paiva, Joana (<i>INESC TEC, Faculty of Engineering, University of Porto</i>); Cunha, Joao Paulo Silva* (<i>INESC TEC</i>)	
17:15-19:00	FrPoS-19.6
System Level Framework for Assessing the Accuracy of Neonatal EEG Acquisition	4339-4342
O'Sullivan, Mark* (<i>University College Cork</i>); Popovici, Emanuel (<i>University College Cork</i>); Bocchino, Andrea (<i>Tyndall National Institute</i>); O'Mahony, Conor (<i>Tyndall National Institute, University College Cork</i>); Boylan, Geraldine (<i>University College Cork</i>); Temko, Andriy (<i>University College Cork</i>)	
17:15-19:00	FrPoS-19.7
A Pilot Study of an Unobtrusive Bed-Based Sleep Quality Monitor for Severely Disabled Autistic Children	4343-4346
Carlson, Charles* (<i>Kansas State University</i>); Suliman, Ahmad (<i>Kansas State University</i>); Alivar, Alaleh (<i>Kansas State University</i>); Prakash, Punit (<i>Kansas State University</i>); Thompson, David (<i>Kansas State University</i>); Natarajan, Balasubramaniam (<i>Kansas State University</i>); Warren, Steve (<i>Kansas State University</i>)	
17:15-19:00	FrPoS-19.8
A System for Assessment of Canine-Human Interaction during Animal-Assisted Therapies	4347-4350
Foster, Marc (<i>North Carolina State University</i>); Beppler, Eric (<i>North Carolina State University</i>); Holder, Timothy (<i>North Carolina State University</i>); Dieffenderfer, James (<i>North Carolina State University</i>); Erb, Patrick (<i>North Carolina State University</i>); Everette, Kristy (<i>Duke University</i>); Gruen, Margaret (<i>North Carolina State University</i>); Somers, Tamara (<i>Duke University</i>); Evans, Thomas (<i>BioSense</i>); Daniele, Michael (<i>North Carolina State University</i>); Roberts, David (<i>North Carolina State University</i>); Bozkurt, Alper* (<i>North Carolina State University</i>)	
FrPoS-20: 17:15-19:00	
Physiological Sensing – Poster (Theme 7) (Poster Session)	
Exhibit Hall 2	
17:15-19:00	FrPoS-20.1
Estimating Localized Bio-Impedance with Measures from Multiple Redundant Electrode Configurations	4351-4354
Fu, Bo (<i>University of Alabama</i>); Freeborn, Todd* (<i>University of Alabama</i>)	
17:15-19:00	FrPoS-20.2
Characterization Study of Neck Photoplethysmography	4355-4358
Garcia Lopez, Irene* (<i>Imperial College London</i>); Imtiaz, Syed Anas (<i>Imperial College London</i>); Rodriguez-Villegas, Esther (<i>Imperial College London</i>)	
17:15-19:00	FrPoS-20.3
Low-Cost, USB Connected and Multi-Purpose Biopotential Recording System	N/A
Sun, Han (<i>Southeast University</i>); Wolkowicz, Kelilah (<i>Pennsylvania State University</i>); Liu, Jiayang (<i>Pennsylvania State University</i>); Zhang, Xiong (<i>Southeast University</i>); Gluckman, Bruce J.* (<i>Pennsylvania State University</i>)	
17:15-19:00	FrPoS-20.4
A Modified Mask for Continuous Cardiac Monitoring during Positive Airway Pressure Therapy	4363-4366
Gardner, Mark* (<i>Flinders University</i>); Randhawa, Sharmil (<i>Flinders University Medical Device Research Institute</i>); Malouf, Gordon Joseph (<i>ResMed</i>); Reynolds, Karen (<i>Flinders University Medical Device Research Institute</i>)	
17:15-19:00	FrPoS-20.5
Power Wheelchair Footplate Pressure and Positioning Sensor	4367-4370
Majerus, Steve* (<i>APT Center, Cleveland VAMC</i>); Lerchbacker, Joseph (<i>Louis Stokes Cleveland VA Medical Center</i>); Mitchell, Steven (<i>Louis Stokes Cleveland VA Medical Center</i>); Bogie, Kath (<i>Cleveland VA Medical Center/Case Western Reserve University</i>); Henzel, M. Kristi (<i>Louis Stokes Cleveland Veterans Affairs Medical Center</i>)	

17:15-19:00	FrPoS-20.6
Stable Contactless Sensing of Vital Signs using RGB-Thermal Image Fusion System with Facial Tracking for Infection Screening 4371-4374	
Negishi, Toshiaki* (<i>The Univ. of Electro-Communications</i>); Sun, Guanghao (<i>The Univ. of Electro-Communications</i>); Liu, He (<i>Harbin Univ. of Science and Technology</i>); Sato, Shohei (<i>Huawei Technologies Japan K.K.</i>); Matsui, Takemi (<i>Tokyo Metropolitan Univ.</i>); Kirimoto, Tetsuo (<i>The Univ. of Electro-Communications</i>)	
17:15-19:00	FrPoS-20.7
Bed Sensor System with Multiple Weight Sensor Units for Urine Accumulation Measurement in Bladder 4375-4378	
Noyori, Shuhei* (<i>University of Tokyo</i>); Noguchi, Hiroshi (<i>University of Tokyo</i>); Nakagami, Gojiro (<i>University of Tokyo</i>); Mori, Taketoshi (<i>University of Tokyo</i>); Sanada, Hiromi (<i>University of Tokyo</i>)	
17:15-19:00	FrPoS-20.8
Data Compression via Low Complexity Delta Transition Lossless Encoding for Remote Physiological and Environmental Monitoring 4379-4384	
Felton, Christopher* (<i>Mayo Clinic</i>); Gilbert, Barry (<i>Mayo Clinic College of Medicine</i>); Haider, Clifton (<i>Mayo Clinic</i>)	
FrPoS-21: 17:15-19:00	Exhibit Hall 2
Wearable Technology Applications – Poster (Theme 7) (Poster Session)	
17:15-19:00	FrPoS-21.1
Human Activity Recognition from Inertial Sensor Time-Series using Batch Normalized Deep LSTM Recurrent Networks 4385-4388	
Zebin, Tahmina (<i>University of Manchester</i>); Sperrin, Matthew (<i>University of Manchester</i>); Peek, Niels (<i>University of Manchester</i>); Casson, Alexander James* (<i>University of Manchester</i>)	
17:15-19:00	FrPoS-21.2
Development of a Lightweight Flexible Construction Work Assist Suit using Pneumatic Rubber Artificial Muscles 4389-4392	
Ogawa, Kazunori* (<i>Daiya Industry Co., Ltd.</i>); Ono, Ayumu (<i>Daiya Industry Co., Ltd.</i>); Fukuda, Yoshiyuki (<i>Daiya Industry Co., Ltd.</i>); Tsuneyasu, Kosuke (<i>Hiroshima University</i>); Kurita, Yuichi (<i>Hiroshima University</i>)	
17:15-19:00	FrPoS-21.3
Capacitive Sensors Array for Plantar Pressure Measurement Insole Fabricated with Flexible PCB 4393-4396	
Aqueveque, Pablo* (<i>Univ. of Concepcion</i>); Pastene, Francisco (<i>Univ. of Concepcion</i>); Osorio, Rodrigo (<i>Univ. of Concepcion</i>); Saavedra, Francisco (<i>Univ. of Concepcion</i>); Pino, Esteban J (<i>Universidad de Concepcion</i>)	
17:15-19:00	FrPoS-21.4
Wearable Fetal Monitoring Solution for Improved Mobility during Labor and Delivery 4397-4400	
Nguyen, Kristen* (<i>Farus, LLC</i>); Elizabeth, Bamgbose (<i>University of San Diego</i>); Cox, Brian (<i>Farus, LLC</i>); Huang, Sean Po-Hsiang (<i>Farus, LLC</i>); Mierzwa, Andrzej (<i>Farus, LLC</i>); Hutchins, Susie (<i>University of San Diego</i>); Caso, Brand (<i>Tenacore Holdings, Inc</i>); Culjat, Martin (<i>Dthera Sciences</i>); Connelly, Cynthia (<i>University of San Diego</i>); Lacoursiere, Yvette (<i>University of California, San Diego</i>); Singh, Rahul (<i>Farus, LLC</i>)	
17:15-19:00	FrPoS-21.5
Pre-Impact Alarm System for Fall Detection using MEMS Sensors and HMM-Based SVM Classifier 4401-4405	
Zhao, Guoru* (<i>Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Shenzhen, China</i>); Liang, Shengyun (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>)	
17:15-19:00	FrPoS-21.6
Wearable EMG Shirt for Upper Limb Training 4406-4409	
Pino, Esteban J* (<i>Universidad de Concepcion</i>); Arias, Yerko (<i>Universidad de Concepcion</i>); Aqueveque, Pablo (<i>University of Concepcion</i>)	
17:15-19:00	FrPoS-21.7
Tele-Monitoring and Tele-Rehabilitation of the Shoulder Muscular-Skeletal Diseases through Wearable Systems 4410-4413	
Carbonaro, Nicola (<i>University of Pisa</i>); Lucchesi, Irene (<i>University of Pisa</i>); Lorusi, Federico (<i>University of Pisa</i>); Tognetti, Alessandro* (<i>University of Pisa</i>)	

17:15-19:00 FrPoS-21.8
Predicting Walking Intentions using sEMG and Mechanical Sensors for Various Environment 4414-4417
 Kyeong, Seulki* (KAIST); Shin, Wonseok (KAIST); Kim, Jung (Korea Advanced Institute of Science and Technology)

FrPoS-22: 17:15-19:00 Exhibit Hall 2
mHealth Applications – Poster (Theme 7) (Poster Session)

17:15-19:00 FrPoS-22.1
Real-Time Action Recognition and Fall Detection based on Smartphone 4418-4422
 Ning, YunKun (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Zhao, Guoru* (Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Shenzhen, China);
 Liang, Shengyun (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences)

17:15-19:00 FrPoS-22.2
An Optimised Algorithm for Accurate Steps Counting from Smart-Phone Accelerometry 4423-4427
 Salvi, Dario* (University of Oxford); Velardo, Carmelo (University of Oxford); Brynes, Jamieson (University of Oxford); Tarassenko, Lionel (University of Oxford)

17:15-19:00 FrPoS-22.3
Subject Count Estimation by using Doppler Radar Occupancy Sensor 4428-4431
 Yavari, Ehsan* (University of Hawaii at Manoa); Gao, Xiaomeng (University of California, Davis);
 Boric-Lubecke, Olga (University of Hawaii at Manoa)

17:15-19:00 FrPoS-22.4
A Human Tracking and Physiological Monitoring FSK Technology for Single Senior at Home Care 4432-4435
 Wang, Jing* (Texas Tech University); Li, Changzhi (Texas Tech University)

17:15-19:00 FrPoS-22.5
Integrated Signal Encoding and Analysis System for Actigraphy-Based Long-Term Monitoring of Periodic Limb Movements in Sleep 4436-4439
 Athavale, Yashodhan* (Ryerson University); Krishnan, Sridhar (Ryerson University); Raissi, Afsaneh (Sunnybrook Health Sciences Centre); Kirolos, Nardin (Sunnybrook Health Sciences Centre); Murray, Brian (Sunnybrook Health Sciences Center, University of Toronto); Boulos, Mark I. (Sunnybrook Health Science Centre)

17:15-19:00 FrPoS-22.6
Finger-Worn Sensors for Accurate Functional Assessment of the Upper Limbs in Real-World Settings 4440-4443
 Liu, Xin (University of Massachusetts Amherst); Rajan, Smita (University of Massachusetts Amherst);
 Ramasarma, Nathan (ArcSecond Inc.); Bonato, Paolo (Harvard Medical School); Lee, Sunghoon Ivan* (University of Massachusetts Amherst)

17:15-19:00 FrPoS-22.7
Development of a Smart Home-Based Package for Unobtrusive Physiological Monitoring 4444-4447
 Armanfard, Narges* (Univ. of Toronto); Komeili, Majid (Univ. of Toronto); Mihailidis, Alex (Univ. of Toronto)

FrPoS-23: 17:15-19:00 Exhibit Hall 2
Ambulatory and Diagnostic Systems and Devices (III) – Poster (Theme 9) (Poster Session)

17:15-19:00 FrPoS-23.1
Detection of Echinocyte during Perfusion with Oxygenator based on Continuous Blood Viscosity Monitoring 4448-4451
 Okahara, Shigeyuki* (Junshin Gakuen University); Miyamoto, Satoshi (Hiroshima University Hospital); Soh, Zu (Dept. of System Cybernetics, Institute of Engineering, Hiroshima University); Tsuji, Toshio (Hiroshima University)

17:15-19:00 FrPoS-23.2
Considering Plasma Insulin Concentrations in Adaptive Model Predictive Control for Artificial Pancreas Systems 4452-4455
 Hajizadeh, Iman (Illinois Institute of Technology); Rashid, Mudassir (Illinois Institute of Technology);
 Cinar, Ali* (Illinois Institute of Technology)

17:15-19:00	FrPoS-23.3
Clinical Decision Support for Early Detection of Prediabetes and Type 2 Diabetes Mellitus using Wearable Technology	4456-4459
Baig, Mirza Mansoor* (<i>Auckland University of Technology</i>); Mirza, Farhaan (<i>Auckland University of Technology</i>); GholamHosseini, Hamid (<i>Auckland University of Technology</i>); Gutierrez, Jairo (<i>Auckland University of Technology</i>); Ullah, Ehsan (<i>Auckland District Health Board</i>)	
17:15-19:00	FrPoS-23.4
Towards an ASIC-Based Fluoroscopic Capsule for the Early Cancer Detection in the Small Intestine	4460-4463
Varnava, Giorgos (<i>University of Cyprus</i>); Demosthenous, Panayiota (<i>University of Cyprus</i>); Koulaouzidis, Anastasios (<i>The Royal Infirmary of Edinburgh</i>); Georgiou, Julius* (<i>University of Cyprus</i>)	
FrPoS-24: 17:15-19:00	Exhibit Hall 2
Microtechnology – Poster (Theme 3) (Poster Session)	
17:15-19:00	FrPoS-24.1
Achieving Ultra-Conformability with Polyimide-Based ECoG Arrays	4464-4467
Vomero, Maria* (<i>University of Freiburg</i>); Porto Cruz, Maria Francisca (<i>University of Freiburg</i>); Zucchini, Elena (<i>Istituto Italiano di Tecnologia</i>); Shabaniyan, Ardavan (<i>Lab for Design of Microsystems - IMTEK</i>); Delfino, Emanuela (<i>Italian Institute of Technology - Ferrara</i>); Carli, Stefano (<i>Istituto Italiano di Tecnologia</i>); Fadiga, Luciano (<i>Università degli Studi di Ferrara, Ferrara, Italia</i>); Ricci, Davide (<i>Istituto Italiano di Tecnologia - RBCS</i>); Stieglitz, Thomas (<i>University of Freiburg</i>)	
17:15-19:00	FrPoS-24.2
Impact of Reactive Obstacle on Molecular Communication between Nanomachines	4468-4471
Al-Zu'bi, Muneer* (<i>University of Technology Sydney</i>); Mohan, Ananda (<i>University of Technology Sydney</i>); Ling, Sai Ho, Steve (<i>University of Technology Sydney</i>)	
17:15-19:00	FrPoS-24.3
Direct Measurement of Mass Transport in Actuation of Conducting Polymers Nanotubes	4472-4475
Eslamian, Mohammadjavad* (<i>University of Houston</i>); Antensteiner, Martin (<i>University of Houston</i>); Abidian, Mohammad Reza (<i>University of Houston</i>)	
17:15-19:00	FrPoS-24.4
Single Molecule Free Solution Hydrodynamic Separation for Size Profiling of Serum Cell-Free DNA	4476-4479
Li, Andrew (<i>Johns Hopkins University</i>); Friedrich, Sarah (<i>Johns Hopkins University</i>); Wang, Tza-Huei* (<i>Johns Hopkins University</i>)	
17:15-19:00	FrPoS-24.5
Focused Ion Beam-Based Milling, Imaging and Analysis of 3D Tumor Spheroids	4480-4483
Almarshad, Hassan* (<i>Aljouf University</i>); Hoshino, K. (<i>University of Connecticut</i>); Madhavan, Mathangi (<i>University of Connecticut, Storrs</i>)	
17:15-19:00	FrPoS-24.6
Mouse Embryo Assay to Evaluate Polydimethylsiloxane (PDMS) Embryo-Toxicity	4484-4487
Colucci, Francesco (<i>University of Leeds</i>); McKeegan, Paul Joseph (<i>University of Leeds</i>); Picton, Helen (<i>University of Leeds</i>); Pensabene, Virginia* (<i>University of Leeds</i>)	
17:15-19:00	FrPoS-24.7
Active, Artificial Hair Cells for Biomimetic Sound Detection based on Active Cantilever Technology	4488-4491
Lenk, Claudia* (<i>TU Ilmenau</i>); Ekinici, Ali (<i>TU Ilmenau</i>); Rangelow, Ivo W. (<i>TU Ilmenau</i>); Gutschmidt, Stefanie (<i>University of Canterbury</i>)	
17:15-19:00	FrPoS-24.8
Single LNA-Enhanced Nanopore Genetic Discrimination of Pathogenic Serotypes and Cancer Driver Mutations	4492-4495
Gu, Li-Qun* (<i>University of Missouri</i>)	

17:15-19:00 FrPoS-24.9
Automatic Planar Asymmetric Lipid Bilayer Membrane Formation Toward Biological High-Throughput Assay 4496-4499
 Gotanda, Masahide* (*Keio University*); Kamiya, Koki (*Kanagawa Academy of Science and Technology*); Osaki, Toshihisa (*Kanagawa Academy of Science and Technology*); Fujii, Satoshi (*Kanagawa Academy of Science and Technology*); Misawa, Nobuo (*KISTEC*); Miki, Norihisa (*Keio University*); Takeuchi, Shoji (*University of Tokyo*)

FrPoS-25: 17:15-19:00 Exhibit Hall 2
Cardiac Mechanics – Poster (Theme 5) (Poster Session)

17:15-19:00 FrPoS-25.1
Computational Platform based on Deep Learning for Segmenting Ventricular Endocardium in Long-Axis Cardiac MR Imaging 4500-4503
 Leng, Shuang (*National Heart Centre Singapore*); Yang, Xulei (*Institute for Infocomm Research, A*STAT*); Zhao, Xiaodan (*National Heart Centre Singapore*); Zeng, Zeng (*I2R, A*STAR*); Su, Yi (*Institute of High Performance Computing*); Koh, Angela (*National Heart Centre Singapore*); Sim, Kheng Leng David (*National Heart Centre Singapore*); Tan, Ju Le (*National Heart Centre Singapore*); Tan, Ru San (*National Heart Center*); Zhong, Liang* (*National Heart Centre Singapore*)

17:15-19:00 FrPoS-25.2
Cardiac Image Segmentation using Memory Persistence Methodology 4504-4507
 Yang, Xulei (*Institute for Infocomm Research, A*STAT*); Su, Yi (*Institute of High Performance Computing*); Leng, Shuang (*National Heart Centre Singapore*); Yeo, Si Yong (*Inst of High Performance Computing*); Yang, Feng (*Institute of High Performance Computing, A*Star, Singapore*); Tan, Ru San (*National Heart Center*); Zhong, Liang* (*National Heart Centre Singapore*)

17:15-19:00 FrPoS-25.3
Hemodynamic Evaluation of an Intra-Atrial Blood Pump on a Pulsatile Mock Circulatory Loop 4508-4511
 Smith, Peter Alex* (*Texas Heart Institute*); Wang, Yaxin (*Texas Heart Institute*); Bieritz, Shelby (*Rice University*); Sampaio, Luiz C. (*Texas Heart Institute*); Metcalfe, Ralph (*University of Houston*); Cohn, William E. (*Texas Heart Institute*); Frazier, O.H. (*Texas Heart Institute @ St. Luke's Hospital*)

17:15-19:00 FrPoS-25.4
In Vivo Hemodynamic Evaluation of CH-VAD in a Bovine Model for 14 Days 4512-4515
 Wang, Yaxin* (*Texas Heart Institute*); Conger, Jeff L. (*Texas Heart Institute*); Handy, Kelly (*Texas Heart Institute*); Smith, Peter Alex (*Texas Heart Institute*); Cheema, Faisal H. (*Baylor College of Medicine at Texas Heart Institute*); Sampaio, Luiz C. (*Texas Heart Institute*); Lin, Frank (*CH BioMedical Inc.*); Chen, Chen (*CH BioMedical Inc.*); Morgan, Jeffrey A. (*Baylor College of Medicine*)

17:15-19:00 FrPoS-25.5
Development of an Intelligent Ventricular Assist Device with a Function of Sensorless Thrombus Detection 4516-4519
 Maruyama, Takuro (*Tokyo Institute of Technology*); Murashige, Tomotaka (*Tokyo Institute of Technology*); Sakota, Daisuke (*National Institute of Advanced Industrial Science and Technology*); Maruyama, Osamu (*National Institute of Advanced Industrial Science and Technology (AIST)*); Hijikata, Wataru* (*Tokyo Institute of Technology*)

17:15-19:00 FrPoS-25.6
In Vivo Feasibility Study of an Intra-Atrial Blood Pump for Partial Support of the Left Ventricle 4520-4523
 Smith, Peter Alex* (*Texas Heart Institute*); Wang, Yaxin (*Texas Heart Institute*); Bieritz, Shelby (*Rice University*); Conger, Jeff L. (*Texas Heart Institute*); Sampaio, Luiz C. (*Texas Heart Institute*); Cohn, William E. (*Texas Heart Institute*); Frazier, O.H. (*Texas Heart Institute @ St. Luke's Hospital*)

FrPoS-26: 17:15-19:00 Exhibit Hall 2
Cardiovascular System Modeling – Poster (Theme 5) (Poster Session)

17:15-19:00 FrPoS-26.1
Developing a Computational Model of Renal Nerves and Surgical System for Laparoscopic Renal Denervation 4524-4527
 Ye, Eunbi (*POSTECH*); Lee, Seung-Hyun (*POSTECH*); Baik, Jinhwan (*POSTECH*); Ryu, Seon Young (*POSTECH*); Song, Won Hoon (*Seoul National University Hospital*); Choi, Eue Keun (*Seoul National University Hospital*); Jeong, Chang Wook (*Seoul National University Hospital*); Park, Sung-Min* (*POSTECH*)

17:15-19:00	FrPoS-26.2
InSilc: 3D Reconstruction and Plaque Characterization Tool	4528-4531
Karanasiou, Georgia (<i>Institute of Molecular Biology and Biotechnology, FORTH</i>); Rigas, Georgios (<i>University of Ioannina</i>); Kyriakidis, Savvas (<i>Institute of Molecular Biology and Biotechnology, FORTH</i>); Tachos, Nikolaos (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Material Science, University of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
17:15-19:00	FrPoS-26.3
Modeling Cardiac Hemodynamic Response during Exercise in Health and Hypertrophic Cardiomyopathy	4532-4535
Farro, Ignacio (<i>School of Medicine, Republic University</i>); Arbeitman, Claudia (<i>CONICET Consejo Nacional de Investigaciones Cientificas y Tecnicas</i>); Cymberknop, Leandro Javier (<i>Universidad Tecnológica Nacional</i>); Cardelino, Juan (<i>Faculty of Engineering, Republic University</i>); Armentano, Ricardo Luis* (<i>Republic University</i>)	
17:15-19:00	FrPoS-26.4
A Stochastic and Mathematically Integrative Model of the Gender Modulation of Cardiorespiratory Activity	4536-4539
BuSha, Brett* (<i>The College of New Jersey</i>); Stella, Martha (<i>The College of New Jersey</i>)	
17:15-19:00	FrPoS-26.5
A Preliminary Computational Model for Hypoxic Acidosis in Cardiac Myocytes	4540-4543
Shimayoshi, Takao* (<i>Kyushu University</i>); Yamamoto, Yuta (<i>Kyoto University</i>); Matsuda, Tetsuya (<i>Kyoto University</i>)	
17:15-19:00	FrPoS-26.6
Fluid-Structure Interaction in the Cerebral Venous Transverse Sinus	4544-4547
Shim, Eun Bo (<i>Kangwon National University</i>); Heldt, Thomas* (<i>Massachusetts Institute of Technology</i>)	

FrPoS-27: 17:15-19:00	Exhibit Hall 2
Vascular Mechanics – Poster (Theme 5) (Poster Session)	

17:15-19:00	FrPoS-27.1
In Vitro Hemodynamic Evaluation of Right Ventricle–Pulmonary Artery Continuity Reconstruction through a Trileaflet Expanded Polytetrafluoroethylene Valved Conduit	4548-4551
Chen, Wei-Ling (<i>Kaohsiung Veterans General Hospital</i>); Kan, Chung-Dann* (<i>National Cheng Kung University Hospital, Dept. of Surgery</i>)	
17:15-19:00	FrPoS-27.2
A Fully Discrete Open Source Framework for the Simulation of Vascular Remodelling	4552-4555
Osborne, James* (<i>University of Melbourne</i>); Bernabeu, Miguel O. (<i>The University of Edinburgh</i>)	
17:15-19:00	FrPoS-27.3
A Clinical Decision Support Platform for the Risk Stratification, Diagnosis, and Prediction of Coronary Artery Disease Evolution	4556-4559
Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Material Science, University of Ioannina</i>); Siogkas, Panagiotis (<i>FORTH-IMBB</i>); Georga, Eleni I. (<i>University of Ioannina</i>); Tachos, Nikolaos (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Kigka, Vassiliki (<i>University of Ioannina</i>); Tsompou, Panagiota (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Andrikos, Ioannis (<i>University of Ioannina</i>); Karanasiou, Georgia (<i>Institute of Molecular Biology and Biotechnology, FORTH</i>); Rocchiccioli, Silvia (<i>Institute of Clinical Physiology, National Research Council</i>); Correia, Joao (<i>Biotronics3D</i>); Pelosi, Gualtiero (<i>Institute of Clinical Physiology, National Research Council</i>); Stofella, Paolo (<i>Exprivia, Molfetta (Bari)</i>); Filipovic, Nenad (<i>University of Kragujevac</i>); Parodi, Oberdan (<i>CNR Clinical Physiology Institute - Milan</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
17:15-19:00	FrPoS-27.4
Local Evaluation of Variation in Pulse Wave Velocity Over the Cardiac Cycle using Single-Element Ultrasound Transducer	4560-4563
Pm, Nabeel* (<i>Indian Institute of Technology Madras</i>); V, Raj Kiran (<i>IIT Madras</i>); Joseph, Jayaraj (<i>HTIC, Indian Institute of Technology Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	

17:15-19:00	FrPoS-27.5
Flow Mediated Dilation in Cirrhosis: A Pilot Study in Different Stages of the Disease	4564-4566
Armentano, Ricardo Luis* (<i>Republic University</i>); Arbeitman, Claudia (<i>CONICET Consejo Nacional de Investigaciones Científicas y Técnicas</i>); Cymberknop, Leandro Javier (<i>Universidad Tecnológica Nacional</i>); Farro, Ignacio (<i>School of Medicine, Republic University</i>); Viotti, Rodrigo (<i>Universidad de la República</i>); Cardelino, Juan (<i>Faculty of Engineering, Republic University</i>)	
17:15-19:00	FrPoS-27.6
In Silico Analysis of Stent Deployment – Effect of Stent Design	4567-4570
Karanasiou, Georgia (<i>Institute of Molecular Biology and Biotechnology, FORTH</i>); Tachos, Nikolaos (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Material Science, University of Ioannina</i>); Conway, Claire (<i>Institute for Medical Engineering and Science, Massachusetts Institute of Technology, Cambridge</i>); Pennati, Giancarlo (<i>Dept. of Chemistry, Materials and Chemical Engineering Dept. "Giulio Natta", Politecnico di Milano</i>); Petrini, Lorenza (<i>Dept. of Civil and Environmental Engineering, Politecnico di Milano</i>); Michalis, Lampros (<i>University of Ioannina</i>); Edelman, Elazer (<i>Institute for Medical Engineering and Science, Massachusetts Institute of Technology, Cambridge, MA and Cardiovascular Division</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
17:15-19:00	FrPoS-27.7
Carotid Local Pulse Wave Velocity Measurement using Dual-Element Accelerometric Patch Probe	4571-4574
R, Arathy* (<i>Indian Institute of Technology Madras</i>); Pm, Nabeel (<i>Indian Institute of Technology Madras</i>); Joseph, Jayaraj (<i>HTIC, Indian Institute of Technology Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	
17:15-19:00	FrPoS-27.8
An In-Vivo Study on Intra-Day Variations in Vascular Stiffness using ARTSENS Pen	4575-4578
V, Raj Kiran* (<i>IIT Madras</i>); Pm, Nabeel (<i>Indian Institute of Technology Madras</i>); Joseph, Jayaraj (<i>HTIC, Indian Institute of Technology Madras</i>); Venkatramanan, Surya (<i>Healthcare Technology Innovation Center (HTIC) IIT-M</i>); Shah, Malay Ilesh (<i>Healthcare Technology Innovation Center (HTIC), Indian Institute of Technology, Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	

Saturday, 21 July 2018

SaAT1: 08:00-09:30	Meeting Room 311
Neural Interfaces (III) (Theme 6) (Oral Session)	
Chair: Lee, Hyunjoo Jenny (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	
08:00-08:15	SaAT1.1
Flexible MRI Compatible Brain Probes	4579-4582
Ahmadi, Mahdi* (<i>University of Minnesota</i>); Cruttenden, Corey (<i>University of Minnesota</i>); Zhu, Xiao-Hong (<i>University of Minnesota</i>); Chen, Wei (<i>University of Minnesota</i>); Rajamani, Rajesh (<i>University of Minnesota</i>)	
08:15-08:30	SaAT1.2
Electrophysiological Detection of Cortical Neurons under Gamma-Aminobutyric Acid and Glutamate Modulation based on Implantable Microelectrode Array Combined with Microinjection	4583-4586
Song, Yilin (<i>State Key Lab of Transducer Technology, Institute of Electronics, Chinese Academy of Sciences</i>); Xiao, Guihua (<i>University of Chinese Academy of Sciences</i>); Li, Ziyue (<i>Chinese Academy of Sciences, Institutes of Electronics</i>); Gao, Fei (<i>Chinese Academy of Sciences, Institutes of Electronics</i>); Wang, Mixia (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Xu, Shengwei (<i>Institute of Electronics, Chinese Academy of Sciences</i>); Cai, Xinxia* (<i>Institute of Electronics, Chinese Academy of Sciences</i>)	
08:30-08:45	SaAT1.3
Micro-Folded 3D Neural Electrodes Fully Integrated in Polyimide	4587-4590
Rehberger, Frank (<i>University of Freiburg</i>); Stieglitz, Thomas (<i>University of Freiburg</i>); Eickenscheidt, Max* (<i>University of Freiburg</i>)	

08:45-09:00 SaAT1.4
3D Printed Cranial Window System for Chronic μ ECOG Recording 4591-4594
 Bent, Brinnae* (*Duke University*); Williams, Ashley (*Duke University*); Bolick, Ryan (*RJB Design*); Chiang, Ken
 Chia-Han (*Duke University*); Trumpis, Michael (*Duke University*); Viventi, Jonathan (*Duke University*)

09:00-09:15 SaAT1.5
Implantable Glass Waveguides and Coating Materials for Chronic Optical Medical Applications 4595-4598
 Alt, Marie Theresa* (*University of Freiburg*); Mitnacht, Annette (*University of Freiburg*);
 Stieglitz, Thomas (*University of Freiburg*)

09:15-09:30 SaAT1.6
Application of Parylene-Based Flexible Multi-Electrode Array for Recording from Subcortical Brain Regions from Behaving Rats 4599-4602
 Xu, Huijing* (*University of Southern California*); Scholten, Kee (*University of Southern California*); Meng, Ellis
 (*University of Southern California*); Berger, Theodore (*USC*); Song, Dong (*University of Southern California*)

SaAT2: 08:00-09:30 Meeting Room 312
Physiological Systems Modeling: Multivariate Signal Processing (Theme 1) (Oral Session)
Chair: Faes, Luca (*University of Palermo*)
Co-Chair: Bianchi, Anna Maria (*Politecnico di Milano*)

08:00-08:15 SaAT2.1
Graph-Based Dimensionality Reduction of EEG Signals via Functional Clustering and Total Variation Measure for BCI Systems 4603-4606
 Mohammadi, Arash* (*Concordia University*); Kalantar, Golnar (*Concordia University*)

08:15-08:30 SaAT2.2
Multiscale Decomposition of Cardiovascular and Cardiorespiratory Information Transfer under General Anesthesia 4607-4610
 Faes, Luca* (*University of Palermo*); Bari, Vlasta (*IRCCS PoliClinico San Donato*); Ranucci, Marco (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive Care, IRCCS PoliClinico San Donato, Milan*);
 Porta, Alberto (*Università degli Studi di Milano*)

08:30-08:45 SaAT2.3
A New Modelling Framework to Study Time-Varying Directional Brain-Heart Interactions: Preliminary Evaluations and Perspectives 4611-4614
 Catrambone, Vincenzo* (*Università di Pisa*); Greco, Alberto (*University of Pisa*); Nardelli, Mimma (*University of Pisa*); Ghiasi, Shadi (*University of Pisa*); Vanello, Nicola (*University of Pisa*); Scilingo, Enzo Pasquale
 (*University of Pisa*); Valenza, Gaetano (*University of Pisa*)

08:45-09:00 SaAT2.4
Exploration of Commercial Web-Sites Affects Autonomic Responses Related to Unconscious Emotions 4615-4618
 Riccardo, Lolatto (*Politecnico di Milano*); Tacchino, Giulia (*Politecnico di Milano*); Bettiga, Debora (*Politecnico di Milano*); Lamberti, Lucio (*Politecnico di Milano*); Cerutti, Sergio (*Politecnico di Milano*);
 Bianchi, Anna Maria* (*Politecnico di Milano*)

09:00-09:15 SaAT2.5
Human-Machine Interaction Assessment by Neurophysiological Measures: A Study on Professional Air Traffic Controllers 4619-4622
 Arico, Pietro (*Fondazione Santa Lucia*); Reynal, Maxime (*ENAC French Civil Aviation University, Toulouse University*); Imbert, Jean-Paul (*ENAC*); Hurter, Christophe* (*ENAC French Civil Aviation University, Toulouse University*); Borghini, Gianluca (*Sapienza University of Rome*); Di Flumeri, Gianluca (*University of Rome Sapienza*); Sciaraffa, Nicolina (*Dept. of Computer, Control and Management Engineering, University of Rome Sapienza*); Di Florio, Antonio (*Dept. Molecular Medicine, University of Rome "Sapienza"*); Terenzi, Michela (*Deep Blue*); Ferreira, Ana (*Deep Blue*); Pozzi, Simone (*Deep Blue*); Betti, Viviana (*Dept. Psychology, Rome*);
 Matteo, Marucci (*BrainTrends srl*); Pavone, Enea (*BrainTrends srl, Rome*); C. Telea, Alexandru (*Dep. of Mathematics and Computing Science, University of Groningen*); Babiloni, Fabio (*University of Rome*)

09:15-09:30 SaAT2.6
A Framework for Physiological Response Prediction with Joint Activity State Optimization 4623-4626
 Gonzalez, Laura* (*North Carolina State University*); Zhong, Boxuan (*North Carolina State University*);
 Lobaton, Edgar (*North Carolina State University*)

- 08:00-08:15 SaAT3.1
Isometry Invariant Shape Descriptors for Abnormality Detection on Brain Surfaces Affected by Alzheimer's Disease 4627-4631
Tu, Yanshuai* (Arizona State University); Wen, Chengfeng (Stony Brook University); Zhang, Wen (School of Computing, Informatics, and Decision Systems Engineering, Arizona State University); Wu, Jianfeng (Arizona State University); Zhang, Jie (Arizona State University); Chen, Kewei (Shanghai Jiao Tong University); Caselli, Richard (Dept. of Neurology, Mayo Clinic Arizona); Reiman, Eric (Banner Alzheimer's Institute); Gu, David Xianfeng (State University of New York at Stony Brook); Wang, Yalin (Arizona State University)
- 08:15-08:30 SaAT3.2
Discriminating ADHD from Healthy Controls using a Novel Feature Selection Method based on Relative Importance and Ensemble Learning 4632-4635
Yao, Dongren (Institute of Automation, Chinese Academy of Sciences); Guo, Xiaojie (Peking University); Zhao, Qihua (Peking University); Liu, Lu (Peking University); Cao, Qingjiu (Institute of Mental Health, Peking University, China); Wang, Yufeng (Peking University); Calhoun, Vince (The Mind Research Network/University of New Mexico); Sun, Li (Peking University); Sui, Jing* (Institute of Automation, Chinese Academy of Sciences)
- 08:30-08:45 SaAT3.3
QRS Detection and Measurement Method of ECG Paper based on Convolutional Neural Networks 4636-4639
Yu, Runze (Peking University); Gao, Yingguo (Peking University); Duan, Xiaohui* (Peking University); Zhu, Tiangang (Peking University People's Hospital); Wang, Zhilong (Peking University People's Hospital); Jiao, Bingli (Peking University)
- 08:45-09:00 SaAT3.4
Toward Lung Tumor Localization based on Strain Variability of Lung Surface during Video-Assisted Thoracoscopic Surgery 4640-4643
Chopra, Nikita* (Western University); Nicholson-Smith, Chloë (The University of Western Ontario); Shahbazi, Mahya (The University of Western Ontario, Canadian Surgical Technologies and Advanced Robotics (CSTAR)); Malthaner, Richard A. (London Health Sciences Center, University of Western Ontario); Patel, Rajni (London Health Sciences Centre)
- 09:00-09:15 SaAT3.5
Analysis of Cellular Feature Differences of Astrocytomas with Distinct Mutational Profiles using Digitized Histopathology Images 4644-4647
Roy, Mousumi* (Stony Brook Univ.); Wang, Fusheng (Stony Brook Univ.); Teodoro, George (Univ. of Brasília); Velázquez Vega, José E. (Emory Univ.); Brat, Daniel (Emory Univ.); Kong, Jun (Emory Univ.)

- 08:00-08:15 SaAT4.1
Development of a Contactless Energy Harvesting System Driven by Contraction of Skeletal Muscle for Implantable Medical Devices 4648-4652
Mochida, Takumi (Tokyo Institute of Technology); Hijikata, Wataru* (Tokyo Institute of Technology)
- 08:15-08:30 SaAT4.2
Sensitivity Optimization of Printed Spiral Coil for Wireless Resistive Analog Passive (WRAP) Sensors using Genetic Algorithm 4653-4656
Noroozi, babak* (University of Memphis); Morshed, Bashir (University of Memphis)
- 08:30-08:45 SaAT4.3
Subcutaneous Solar Energy Harvesting for Self-Powered Wireless Implantable Sensor Systems 4657-4660
Wu, Taiyang* (Monash University); Redouté, Jean-Michel (Monash University); Yuce, Mehmet (Monash University)
- 08:45-09:00 SaAT4.4
Blood-Separating Device without Energy Source for Implantable Medical Devices 4661-4664
Otsuki, Hinako* (Keio University); Ota, Takashi (Keio University); Miki, Norihisa (Keio University)

09:00-09:15 SaAT4.5
A Novel Flexible Sensor for Muscle Shape Change Monitoring in Limb Motion Recognition 4665-4668
 Huang, Pin-Gao (*Chinese Academy of Sciences*); Chen, Zhenxin (*Shandong University*); Fu, Menglong (*University of Chinese Academy of Sciences*); Wang, Hui (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Technology*); Liu, Zhiyuan (*Nanyang Technological University*); Hu, Yongmei (*Shandong University*); Fang, Peng (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*); Chen, Shixiong (*Shenzhen Institutes of Advanced Technology*); Chen, Xiaodong (*Nanyang Technological University*); Li, Guanglin* (*Shenzhen Institutes of Advanced Technology*)

09:15-09:30 SaAT4.6
Carbon Nanotube-Cellulose Pellicle for Glucose Biofuel Cell 4669-4672
 Hasan, Md Qumrul (*University of Maryland Baltimore County*); Yuen, Jonathan (*U.S. Naval Research Lab*); Slaughter, Gymama* (*University of Maryland Baltimore County*)

SaAT5: 08:00-09:30	Meeting Room 316A
Electrical Source Imaging (Theme 2) (Oral Session)	

08:00-08:15 SaAT5.1
Improving EEG Source Localization with a Novel Regularization: Spatiotemporal Graph Total Variation (STGTV) Method 4673-4676
 Zhou, Hanyue* (*University of California Los Angeles*); Wang, Yushan (*University of California Los Angeles*); Li, Ying (*University of California Los Angeles*); Ruan, Dan (*University of California Los Angeles*); Liu, Wentai (*University of California Los Angeles*)

08:15-08:30 SaAT5.2
A Comparison of Point and Complete Electrode Models in a Finite Difference Model of Invasive Electrode Measurements 4677-4680
 Hyde, Damon* (*Boston Children's Hospital and Harvard Medical School*); Tomas-Fernandez, Xavier (*Harvard University*); Stone, Scellig (*Boston Children's Hospital and Harvard Medical School*); Peters, Jurriaan (*Boston Children's Hospital*); Warfield, Simon K. (*Harvard Medical School*)

08:30-08:45 SaAT5.3
Motor Attempt EEG Paradigm as a Diagnostic Tool for Disorders of Consciousness 4681-4684
 Schneider, Christoph (*EPFL*); Perdakis, Serafeim (*EPFL (École Polytechnique Fédérale de Lausanne)*); Silva, Marina (*Acute Neurorehabilitation Unit, Division of Neurology, Dept. of Clinical NeuroSciences, Centre Hospitalier Universitaire Va*); Jöhr, Jane (*Acute Neurorehabilitation Unit, Division of Neurology, Dept. of Clinical NeuroSciences, Centre Hospitalier Universitaire Va*); Alexander, Pincherle (*Acute Neurorehabilitation Unit, Division of Neurology, Dept. of Clinical NeuroSciences, Centre Hospitalier Universitaire Va*); Millán, José del R.* (*Ecole Polytechnique Federale de Lausanne*); Karin, Diserens (*Acute Neurorehabilitation Unit, Division of Neurology, Dept. of Clinical NeuroSciences, Centre Hospitalier Universitaire Va*)

08:45-09:00 SaAT5.4
Preparation-Free Measurement of Event-Related Potential in Oddball Tasks from Hairy Parts using Candle-Like Dry Microneedle Electrodes 4685-4688
 Yoshida, Yuri* (*Keio University*); Kudo, Yuta (*Keio University*); Hoshino, Eiichi (*Keio University*); Minagawa, Yasuyo (*Keio University*); Miki, Norihisa (*University*)

09:00-09:15 SaAT5.5
Automatic Independent Component Scalp Map Analysis of Electroencephalogram during Motor Preparation 4689-4692
 Cheema, Maninderpal Singh (*SUNY Buffalo*); Dutta, Anirban* (*University at Buffalo SUNY*)

SaAT6: 08:00-09:30	Meeting Room 316B
Neuromuscular Systems (I) (Theme 6) (Oral Session)	
Chair: Ellis, Michael (<i>Northwestern University</i>)	
Co-Chair: Abbas, James (<i>Arizona State University</i>)	

08:00-08:15	SaAT6.1
Effect of Botulinum Toxin on the Spatial Distribution of Biceps Brachii EMG Activity using a Grid of Surface Electrodes: A Case Study	4693-4696
Afsharipour, Babak* (<i>Northwestern University</i>); Chandra, Sourav (<i>Shirley Ryan AbilityLab</i>); Son, Jongsang (<i>Shirley Ryan AbilityLab (formerly Rehabilitation Institute of Chicago)</i>); Rymer, William Zev (<i>Northwestern & Rehab Inst of Chicago</i>); Suresh, Nina (<i>Rehabilitation Institute of Chicago</i>)	
08:15-08:30	SaAT6.2
Inter-Limb Muscle Synergy of Hands-and-Knees Crawling in Typical Developing Infants and Infants with Developmental Delay	4697-4700
Xiong, Qiliang (<i>Chongqing University</i>); Hou, Wensheng* (<i>Bioengineering Inst of Chongqing University</i>)	
08:30-08:45	SaAT6.3
Robust Pattern Recognition Myoelectric Training for Improved Online Control within a 3D Virtual Environment	4701-4704
Woodward, Richard* (<i>Northwestern University</i>); Hargrove, Levi (<i>Rehabilitation Institute of Chicago</i>)	
08:45-09:00	SaAT6.4
Differential Activation of Biceps Brachii Muscle Compartments for Human-Machine Interfacing	4705-4709
Lendaro, Eva* (<i>Chalmers University of Technology</i>); Nilsson, Simon (<i>Chalmers University of Technology</i>); Ortiz-Catalan, Max (<i>Chalmers University of Technology</i>)	
09:00-09:15	SaAT6.5
Recurrent Neural Network based Early Prediction of Future Hand Movements	4710-4713
Koch, Philipp* (<i>University of Luebeck</i>); Phan, Huy (<i>University of Oxford</i>); Maaß, Marco (<i>University of Lübeck</i>); Katzberg, Fabrice (<i>University of Luebeck</i>); Mertins, Alfred (<i>University of Lübeck</i>)	
09:15-09:30	SaAT6.6
Models of Motor Learning Generalization	4714-4719
Parmar, Pritesh* (<i>University of Illinois</i>); Patton, James (<i>University Illinois at Chicago (UIC) & The Shirley Ryan AbilityLab (formerly RIC)</i>)	

SaAT7: 08:00-09:30	Meeting Room 316C
Signal Processing and Classification of Neural Signals (Theme 1) (Oral Session)	
Chair: Mitsis, Georgios D. (<i>McGill University</i>)	

08:00-08:15	SaAT7.1
Studying the Effects of Deep Brain Stimulation and Medication on the Dynamics of STN-LFP Signals for Human Behavior Analysis	4720-4723
M. Golshan, Hosein* (<i>University of Denver</i>); Hebb, Adam O. (<i>University of Washington</i>); Nedrud, Joshua (<i>Colorado Neurological Institute</i>); Mahoor, Mohammad H. (<i>University of Denver</i>)	
08:15-08:30	SaAT7.2
Neuroprostheses: Method to Evaluate the Information Content of Stimulation Strategies	4724-4727
Meng, Kevin (<i>National Vision Research Institute</i>); Meffin, Hamish (<i>National ICT Australia</i>); Ibbotson, Michael R (<i>Australian College of Optometry</i>); Kameneva, Tatiana* (<i>Swinburne University of Technology</i>)	
08:30-08:45	SaAT7.3
Bistability in Hodgkin-Huxley-Type Equations	4728-4731
Kameneva, Tatiana* (<i>Swinburne University of Technology</i>); Meffin, Hamish (<i>National ICT Australia</i>); Burkitt, Anthony Neville (<i>University of Melbourne</i>); Grayden, David B. (<i>University of Melbourne</i>)	

08:45-09:00	SaAT7.4
A Comparison Study of Point Process Filter and Deep Learning Performance in Estimating Rat Position using an Ensemble of Place Cells	4732-4735
Rezaei, Mohammad Reza (<i>Isfahan Univ. of Technology</i>); Gillespie, Anna (<i>Univ. of California, San Francisco</i>); Guidera, Jennifer (<i>Univ. of California, San Francisco, San Francisco</i>); Nazari, Behzad (<i>Isfahan Univ. of Technology</i>); Sadri, Saeed (<i>Isfahan Univ. of Technology</i>); Frank, Loren (<i>Univ. of California, San Francisco</i>); Eden, Uri (<i>Boston Univ.</i>); Yousefi, Ali* (<i>Massachusetts General Hospital and Harvard Medical School</i>)	
09:00-09:15	SaAT7.5
Continuous Phase Estimation for Phase-Locked Neural Stimulation using an Autoregressive Model for Signal Prediction	4736-4739
Blackwood, Ethan* (<i>Massachusetts General Hospital</i>); Lo, Meng-chen (<i>Massachusetts General Hospital</i>); Widge, Alik (<i>Massachusetts General Hospital</i>)	
09:15-09:30	SaAT7.6
State Space Oscillator Models for Neural Data Analysis	4740-4743
Beck, Amanda M.* (<i>MIT</i>); Stephen, Emily (<i>MIT</i>); Purdon, Patrick L (<i>Massachusetts General Hospital</i>)	
SaAT8: 08:00-09:30	Meeting Room 318A
Neural Stimulation (IV) (Theme 6) (Oral Session)	
08:00-08:15	SaAT8.1
A Neuroprotective Brain Stimulation for Vulnerable Cerebellar Purkinje Cell after Ischemic Stroke: A Study with Low-Intensity Focused Ultrasound	4744-4747
Baek, Hongchae (<i>Korea Institute of Science and Technology</i>); Sariev, Anvar (<i>KIST</i>); Kim, Min-Ju (<i>Korea Institute of Science and Technology</i>); Lee, Hojin (<i>Korea Institute of Science and Technology</i>); Kim, Jinhyun (<i>Korea Institute of Science and Technology</i>); Kim, Hyungmin* (<i>Korea Institute of Science and Technology</i>)	
08:15-08:30	SaAT8.2
Characterization of Stimulation Artifact Behavior in Simultaneous Electrocorticography Grid Stimulation and Recording	4748-4751
Lim, Jeffrey* (<i>University of California, Irvine</i>); Wang, Po T. (<i>University of California Irvine</i>); Karimi-Bidhendi, Alireza (<i>University of California Irvine</i>); Arasteh, Omid M. (<i>University of California, Irvine</i>); Shaw, Susan J. (<i>University of Southern California</i>); Armacost, Michelle (<i>Rancho Los Amigos National Rehabilitation Center</i>); Gong, Hui (<i>University of Southern California</i>); Liu, Charles Y. (<i>Keck Hospital of the University of Southern California</i>); Do, An H. (<i>University of California Irvine</i>); Heydari, Payam (<i>University of California Irvine</i>); Nenadic, Zoran (<i>University of California Irvine</i>)	
08:30-08:45	SaAT8.3
Simulations of a Birdcage Coil B1+ Field on a Human Body Model for Designing a 3T Multichannel TMS/MRI Head Coil Array	4752-4755
Navarro de Lara, Lucia Isabel* (<i>Martinos Center - MGH</i>); Golestanirad, Laleh (<i>Dept. of NeuroSciences, Cleveland Clinic, Cleveland</i>); Makarov, Sergey (<i>Electrical and Computer Engineering, Worcester Polytechnic Institute</i>); Stockmann, Jason P. (<i>Athinoula A. Martinos Center for BioMedical Imaging, Dept. of Radiology, Massachusetts General Hospital</i>); Wald, Lawrence L. (<i>A. A. Martinos Center for BioMedical Imaging, Dept. of Radiology</i>); Nummenmaa, Aapo (<i>Massachusetts General Hospital</i>)	
08:45-09:00	SaAT8.4
Characterizing Cortical Responses Evoked by Electrical Stimulation of the Mouse Infraorbital Nerve	4756-4759
Suminski, Aaron* (<i>University of Wisconsin-Madison</i>); Ness, Jared P. (<i>University of Wisconsin-Madison</i>); Zeng, Weifeng (<i>University of Wisconsin-Madison</i>); Novello, Joseph (<i>University of Wisconsin-Madison</i>); Brodnick, Sarah (<i>University of Wisconsin-Madison</i>); Pisaniello, Jane (<i>University of Wisconsin-Madison</i>); Dingle, Aaron (<i>University of Wisconsin-Madison</i>); Poore, Samuel (<i>University of Wisconsin-Madison</i>); Lake, Wendell B. (<i>University of Wisconsin-Madison</i>); Williams, Justin (<i>University of Wisconsin</i>)	
09:00-09:15	SaAT8.5
PEDOT: PSS Electrodes for Acute Experimental Evaluation of Vagus Nerve Stimulation on Rodents	4760-4763
Kergoat, Loig (<i>INS, Institut de NeuroSciences des Systèmes, Inserm, Aix Marseille Université</i>); Dieuset, Gabriel (<i>LTSI, Inserm UMR 1099, Rennes, France; University Rennes 1, France</i>); Le Rolle, Virginie (<i>University of Rennes 1</i>); Malliaras, George (<i>Ecole Nationale Supérieure des Mines, CMP-EMSE, MOC</i>); Martin, Benoit (<i>INSERM; Université de Rennes 1; LTSI</i>); Bernard, Christophe (<i>The Laboratoire de Neurophysiologie et Neuropsychologie</i>); Hernández, Alfredo I* (<i>University of Rennes 1 and INSERM U1099</i>)	

09:15-09:30 SaAT8.6
Transcranial Direct Current Stimulation of the Leg Motor Area – Is it Partly Somatosensory? 4764-4767
 Abadi, Zeynab Rezaee Hassan (*University at Buffalo SUNY*); Dutta, Anirban* (*University at Buffalo SUNY*)

SaAT9: 08:00-09:30 Meeting Room 318B
Neural Networks and Support Vector Machines for Biosignal Processing (Theme 1) (Oral Session)
Chair: Boric-Lubecke, Olga (*University of Hawaii Manoa*)

08:00-08:15 SaAT9.1
Personalised Meal Eating Behaviour Analysis via Semi-Supervised Learning 4768-4771
 Papadopoulos, Alexandros (*Aristotle University of Thessaloniki*); Kyritsis, Konstantinos (*Aristotle University of Thessaloniki*); Sarafis, Ioannis (*Aristotle University of Thessaloniki*); Delopoulos, Anastasios* (*Aristotle University of Thessaloniki*)

08:15-08:30 SaAT9.2
Brain Monitoring of Sedation in the Intensive Care Unit using a Recurrent Neural Network 4772-4775
 Sun, Haoqi (*Massachusetts General Hospital*); Nagaraj, Sunil Belur (*Massachusetts General Hospital*); Akeju, Oluwaseun (*Massachusetts General Hospital*); Purdon, Patrick L (*Massachusetts General Hospital*); Westover, Brandon* (*Massachusetts General Hospital*); Westover, Brandon (*MGH / Harvard Medical School*)

08:30-08:45 SaAT9.3
Deep Unsupervised Representation Learning for Abnormal Heart Sound Classification 4776-4779
 Amiriparian, Shahin* (*University of Augsburg*); Schmitt, Maximilian (*University of Passau*); Cummins, Nicholas (*University of Augsburg*); Qian, Kun (*Technical University of Munich*); Dong, Fengquan (*Shenzhen University General Hospital*); Schuller, Bjoern (*Imperial College London*)

08:45-09:00 SaAT9.4
Classifying Treated vs. Untreated MDD Adolescents from Anatomical Connectivity using Nonlinear SVM 4780-4783
 Chu, Shu-Hsien* (*Univ. of Minnesota*); Lenglet, Christophe (*Univ. of Minnesota*); Westlund Schreiner, Melinda (*Univ. of Minnesota*); Klimes-Dougan, Bonnie (*Univ. of Minnesota*); Cullen, Kathryn R. (*Univ. of Minnesota*); Parhi, Keshab (*Univ. of Minnesota*)

09:00-09:15 SaAT9.5
Convolutional Neural Networks for Pathological Voice Detection 4784-4787
 Wu, Huiyi* (*University of Strathclyde*); Soraghan, John J (*University of Strathclyde*); Lowit, Anja (*Strathclyde University*); Di Caterina, Gaetano (*University of Strathclyde*)

09:15-09:30 SaAT9.6
Validating an Algorithm for Automatic Scoring of Inspiratory Flow Limitation within a Range of Recording Settings 4788-4791
 Camassa, Alessandra* (*Institut d'Investigacions Biomèdiques August Pi Sunyer (IDIBAPS), Barcelona*); Franciosini, Angelo (*INT*); Sands, Scott Aaron (*Brigham and Women's Hospital and Harvard Medical School*); Zhi, Ying Xuan (*University of Toronto*); Yadollahi, Azadeh (*University of Toronto*); Bianchi, Anna Maria (*Politecnico di Milano*); Wellman, David Andrew (*Harvard Medical School*); Redline, Susan (*Rainbow Babies and Children's Hospital*); Azarbarzin, Ali (*The University of Manitoba*); Mariani, Sara (*Brigham and Women's Hospital, Harvard Medical School*)

SaAT10: 08:00-09:30 Meeting Room 319A
Ultrasound Imaging – Photoacoustic / Optoacoustic / Thermoacoustic (Theme 2) (Oral Session)

08:00-08:15 SaAT10.1
Optical Spectroscopic Ultrasound Displacement Imaging 4792-4795
 Duan, Tingyang (*ShanghaiTech University*); Lan, Hengrong (*ShanghaiTech University*); Zhong, Hongtao (*ShanghaiTech University*); Zhou, Meng (*ShanghaiTech University*); Zhang, Ruochong (*Nanyang Technological University*); Gao, Fei* (*ShanghaiTech University*)

08:15-08:30 SaAT10.2
Wavelet De-Noising Method with Adaptive Threshold Selection for Photoacoustic Tomography 4796-4799
 Zhou, Meng (*ShanghaiTech University*); Xia, Haibo (*Chinese Academy of Sciences*); Lan, Hengrong (*ShanghaiTech University*); Duan, Tingyang (*ShanghaiTech University*); Zhong, Hongtao (*ShanghaiTech University*); Gao, Fei* (*ShanghaiTech University*)

08:30-08:45	SaAT10.3
Optical Resolution Photoacoustic Microscopy with Fast Laser Scanning and Fixed Photoacoustic Detector	4800-4803
Ishikawa, Kodai (<i>Tohoku University</i>); Shintate, Ryo (<i>Tohoku University</i>); Nagaoka, Ryo (<i>Tohoku University</i>); Saijo, Yoshifumi* (<i>Tohoku University</i>)	
08:45-09:00	SaAT10.4
Hybrid Multi-Wavelength Photoacoustic Imaging	4804-4807
Duan, Tingyang (<i>ShanghaiTech University</i>); Lan, Hengrong (<i>ShanghaiTech University</i>); Zhong, Hongtao (<i>ShanghaiTech University</i>); Zhou, Meng (<i>ShanghaiTech University</i>); Zhang, Ruochong (<i>Nanyang Technological University</i>); Gao, Fei* (<i>ShanghaiTech University</i>)	
09:00-09:15	SaAT10.5
Pattern-Learning-Based Noise Elimination Algorithm in Photoacoustic Sensing and Imaging	4808-4811
Tu, Zhi (<i>ShanghaiTech University</i>); Wang, Boshi (<i>ShanghaiTech University</i>); Duan, Tingyang (<i>ShanghaiTech University</i>); Gao, Fei* (<i>ShanghaiTech University</i>)	

SaAT11: 08:00-09:30	Meeting Room 319B
Neural Signal Processing (III) (Theme 6) (Oral Session)	

08:00-08:15	SaAT11.1
Individual Working Memory Capacity Traced from Multivariate Pattern Classification of EEG Spectral Power	4812-4815
Astrand, Elaine* (<i>Mälardalen University</i>)	
08:15-08:30	SaAT11.2
Decoding Synergy-Based Hand Movements using Electroencephalography	4816-4819
Patel, Vrajeshri (<i>Stevens Institute of Technology</i>); Burns, Martin (<i>Stevens Institute of Technology</i>); Pei, Dingyi (<i>Stevens Institute of Technology</i>); Vinjamuri, Ramana* (<i>Stevens Institute of Technology</i>)	
08:30-08:45	SaAT11.3
Estimation of Finger Joint Angle based on Neural Drive Extracted from High-Density Electromyography	4820-4823
Dai, Chenyun* (<i>University of North Carolina at Chapel Hill</i>); Cao, Yizhou (<i>University of North Carolina at Chapel Hill</i>); Hu, Xiaogang (<i>University of North Carolina-Chapel Hill</i>)	
08:45-09:00	SaAT11.4
Semi-Simulation Experiments for Quantifying the Performance of SSVEP-Based BCI after Reducing Artifacts from Trapezius Muscles	4824-4827
Kanoga, Suguru* (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>); Nakanishi, Masaki (<i>University of California San Diego</i>); Murai, Akihiko (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>); Tada, Mitsunori (<i>National Institute of Advanced Industrial Science and Technology</i>); Kanemura, Atsunori (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>)	

SaAT12: 08:00-09:30	Meeting Room 321A
Cardiac Electrophysiology (Theme 5) (Oral Session)	

08:00-08:15	SaAT12.1
A Machine Learning Approach to Reconstruction of Heart Surface Potentials from Body Surface Potentials	4828-4831
Malik, Avinash* (<i>University of Auckland</i>); Trew, Mark L. (<i>University of Auckland</i>); Peng, Tommy (<i>University of Auckland</i>)	
08:15-08:30	SaAT12.2
Follow the Light – From Low-Energy Defibrillation to Multi-Site Photostimulation	4832-4835
Diaz-Maue, Laura (<i>Max Planck Institute for Dynamics and Self-organization</i>); Schwaerzle, Michael (<i>University of Freiburg</i>); Ruther, Patrick (<i>University of Freiburg</i>); Luther, Stefan (<i>Max Planck Institute for Dynamics and Self-Organization</i>); Richter, Claudia* (<i>Max Planck Institute for Dynamics and Self-Organization</i>)	

08:30-08:45 SaAT12.3
Invasive Optical Pacing in Perfused, Optogenetically Modified Mouse Heart using Stiff Multi-LED Optical Probes 4836-4839
 Ayub, Suleman* (*IMTEK, University of Freiburg*); Ruther, Patrick (*University of Freiburg*); Paul, Oliver (*University of Freiburg*); Kohl, Peter (*University of Oxford*); Johnston, Callum Michael (*University of Auckland*)

08:45-09:00 SaAT12.4
Cardiac Conduction Velocity Estimation during Wavefront Collision 4840-4843
 Shariat, Mohammad Hassan* (*Queen's Univ., Kingston, Ontario, Canada*); Redfearn, Damian P (*Queen's Univ.*)

SaAT13: 08:00-09:30	Meeting Room 321B
Cardiovascular Signal Processing (Theme 5) (Oral Session)	

08:00-08:15 SaAT13.1
The Accuracy of Atrial Fibrillation Detection from Wrist Photoplethysmography. A Study on Post-Operative Patients 4844-4847
 Tarniceriu, Adrian* (*PulseOn SA*); Harju, Jarkko (*Tampere University Hospital*); Rezaeiyousefi, Zeinab (*PulseOn Ltd.*); Vehkaoja, Antti (*Tampere University of Technology*); Parak, Jakub (*Tampere University of Technology*); Yli-Hankala, Arvi (*University of Tampere*); Korhonen, Ilkka (*Tampere University of Technology*)

08:15-08:30 SaAT13.2
Short-Term Model-Based Multiscale Complexity Analysis of Cardiac Control Provides Complementary Information to Single-Scale Approaches 4848-4851
 Porta, Alberto* (*Università degli Studi di Milano*); De Maria, Beatrice (*IRCCS Fondazione Salvatore Maugeri, Milano*); Cairo, Beatrice (*Università degli Studi di Milano*); Vaini, Emanuele (*IRCCS Policlinico San Donato*); Bari, Vlasta (*IRCCS Policlinico San Donato*)

08:30-08:45 SaAT13.3
Automatic T-Wave Alternans Identification in Indirect and Direct Fetal Electrocardiography 4852-4855
 Marcantoni, Ilaria (*Università Politecnica delle Marche*); Sbrillini, Agnese (*Università Politecnica delle Marche*); Burattini, Luca (*Università Politecnica delle Marche*); Morettini, Micaela (*Università Politecnica delle Marche*); Fioretti, Sandro (*Università Politecnica delle Marche*); Burattini, Laura* (*Università Politecnica delle Marche*)

08:45-09:00 SaAT13.4
Phase Relation between Depolarization and Repolarization Alternans in ECG 4856-4859
 Alaei Varnoosfaderani, Sahar* (*University of Kentucky*); Wasemiller, David (*University of Kentucky*); Wang, Siqi (*University of Kentucky*); Anaya, Paul (*University of Kentucky*); Patwardhan, Abhijit (*University of Kentucky*)

09:00-09:15 SaAT13.5
Respiratory Sinus Arrhythmia Quantified with Linear and Non-Linear Techniques to Classify Dilated and Ischemic Cardiomyopathy 4860-4863
 Giraldo, Beatriz* (*Univ. Politècnica de Catalunya*); Pericas, Maria Francisca (*Technical Univ. of Catalonia*); Schroeder, Rico (*Univ. of Applied Sciences Jena*); Voss, Andreas (*Univ. of Applied Sciences Jena*)

09:15-09:30 SaAT13.6
A Novel Artifact Reconstruction Method Applied to Blood Pressure Signals 4864-4867
 Giraldo, Beatriz* (*Universitat Politècnica de Catalunya*); Rodriguez, Javier (*Institut de Bioenginyeria de Catalunya (IBEC)*)

SaAT14: 08:00-09:30	Meeting Room 322AB
Diagnostic Devices and Physiological Monitoring (I) (Theme 9) (Oral Session)	

08:00-08:15 SaAT14.1
Design of a Microbiota Sampling Capsule using 3D-Printed Bistable Mechanism 4868-4871
 Ben Salem, Mouna (*Université de Montpellier*); Aiche, Guillaume (*Université de Montpellier*); Rubbert, Lennart (*INSA Strasbourg*); Renaud, Pierre* (*INSA Strasbourg*); Haddab, Yassine (*Université de Montpellier*)

08:15-08:30 SaAT14.2
Remote Estimation of Video-Based Vital Signs in Emotion Invocation Studies 4872-4876
 Kwasniewska, Alicja* (*Gdansk University of Technology*); Ruminski, Jacek (*Gdansk University of Technology*); Szankin, Maciej (*Intel Corp.*); Czuszyński, Krzysztof (*Gdansk University of Technology*)

08:30-08:45 SaAT14.3
Daytime Sleepiness Affects Gait Auditory Synchronization Ability 4877-4880
 Umemura, Guilherme Silva (*University of São Paulo*); Pinho, João Pedro (*University of São Paulo*);
 Forner-Cordero, Arturo* (*Escola Politécnica da Universidade de São Paulo*)

08:45-09:00 SaAT14.4
Neonatal EEG Interpretation and Decision Support Framework for Mobile Platforms 4881-4884
 O'Sullivan, Mark* (*Univ. College Cork*); Gómez Quintana, Sergi (*UCC*); O'Shea, Alison (*Univ. College Cork*);
 Salgado, Edu (*UCC*); Huilca, Kevin (*UCC*); Mathieson, Sean (*Univ. College Cork*); Boylan, Geraldine (*Univ. College Cork*); Popovici, Emanuel (*Univ. College Cork*); Temko, Andriy (*Univ. College Cork*)

09:00-09:15 SaAT14.5
Development and Pilot Testing of a Novel Electromechanical Device to Measure Wrist Rigidity in Parkinson's Disease 4885-4888
 Zito, Giuseppe Angelo (*University Hospital Inselspital*); Gerber, Stephan Moreno* (*University of Bern*); Urwyler, Prabhitha (*University of Bern, ARTORG*); Shamsollahi, Mohammad J (*University of Bern, ARTORG Center for BioMedical Engineering Research, Gerontechnology & Rehabilitation*); Pal, Natassja (*Clinical NeuroSciences, Centre Hospitalier Universitaire Vaudois, Lausanne*); Benninger, David (*Clinical NeuroSciences, Centre Hospitalier Universitaire Vaudois, Lausanne*); Nef, Tobias (*Gerontechnology and Rehabilitation, ARTORG Center for Bioemdcial Engineering Research, University of Bern, Switzerland*)

09:15-09:30 SaAT14.6
Manometric Recordings Bring Out Post-Stimulus Refractory States in the Anal Canal in Neonates 4889-4892
 López, Manuel (*Virgen del Rocío Infants' Hospital*); Ribas, Juan (*Dept. of Medical Physiology and Biophysics*); Barriga-Rivera, Alejandro* (*University Pablo de Olavide*)

SaAT15: 08:00-09:30 Meeting Room 323A
Computational Modeling and Treatment Planning (Theme 9) (Oral Session)
Chair: Dokos, Socrates (*University of New South Wales*)
Co-Chair: Holmes, David (*Mayo Clinic*)

08:00-08:15 SaAT15.1
Image-Based Computational Fluid Dynamic Analysis for Surgical Planning of Sequential Grafts in Coronary Artery Bypass Grafting 4893-4896
 Kolli, Kranthi* (*Weill Cornell Medical College*); Min, James (*Weill Cornell Medical College*)

08:15-08:30 SaAT15.2
Estimating the Intensity and Anisotropy of Tumor Treating Fields using Singular Value Decomposition. Towards a More Comprehensive Estimation of Anti-Tumor Efficacy 4897-4900
 Korshoej, Anders R.* (*Aarhus University Hospital*); Thielscher, Axel (*Copenhagen University Hospital Hvidovre, Denmark & BioMedical Engineering Section*)

08:30-08:45 SaAT15.3
Effective Diffusion and Tortuosity in Brain White Matter 4901-4904
 Vidotto, Marco* (*Politecnico di Milano*); Dini, Daniele (*Imperial College London*); De Momi, Elena (*Politecnico di Milano*)

08:45-09:00 SaAT15.4
Long-Acting Insulin in Diabetes Therapy: In Silico Clinical Trials with the UVA/Padova Type 1 Diabetes Simulator 4905-4908
 Visentin, Roberto* (*University of Padova*); Schiavon, Michele (*University of Padova*); Giegerich, Clemens (*Sanofi-Aventis Deutschland GmbH, Translational Informatics/Translational Medicine and Early Development, Frankfurt, Germany*); Klabunde, Thomas (*Sanofi-Aventis Deutschland GmbH, R&D LGCR/Structure, Design & Informatics, Frankfurt, Germany*); Dalla Man, Chiara (*University of Padova*); Cobelli, Claudio (*University of Padova*)

09:00-09:15 SaAT15.5
Automatic Screening to Detect 'At Risk' Child Speech Samples using a Clinical Group Verification Framework 4909-4913
 Kothalkar, Prasanna (*University of Texas at Dallas*); Rudolph, Johanna (*University of Texas at Dallas*); Dollaghan, Christine (*University of Texas at Dallas*); McGlothlin, Jenny (*University of Texas at Dallas*); Campbell, Thomas (*UTD Callier Center*); Hansen, John H.L.* (*University of Texas at Dallas*)

09:15-09:30 SaAT15.6
Mapping ADL Motion Capture Data to BLUE SABINO Exoskeleton Kinematics and Dynamics 4914-4919
 Bitikofer, Christopher* (*University of Idaho*); Wolbrecht, Eric (*University of Idaho*); Perry, Joel C. (*University of Idaho*)

SaAT16: 08:00-09:30 Meeting Room 323B
General and Theoretical Informatics – Machine Learning (I) (Theme 10) (Oral Session)
Chair: Colbaugh, Richard (*Volv Global*)
Co-Chair: Glass, Kristin (*Volv Global*)

08:00-08:15 SaAT16.1
A New Fully Automated Random-Forest Algorithm for Sleep Staging 4920-4923
 Klok, Aske Bluhme* (*Technical University of Denmark*); Edin, Joakim (*Technical University of Denmark*); Cesari, Matteo (*Technical University of Denmark*); Olesen, Alexander Neergaard (*Technical University of Denmark*); Jennum, Poul (*University of Copenhagen, Demnar*); Sorensen, Helge B D (*Technical University of Denmark*)

08:15-08:30 SaAT16.2
Early Identification of Patentable Medical Innovations 4924-4926
 Colbaugh, Richard (*Volv Global*); Glass, Kristin* (*Volv Global*)

08:30-08:45 SaAT16.3
A Deep Deterministic Policy Gradient Approach to Medication Dosing and Surveillance in the ICU 4927-4931
 Lin, Rongmei* (1990); Ghassemi, Mohammad (*Massachusetts Institute of Technology*); Nemat, Shamim (*Emory University School of Medicine*)

08:45-09:00 SaAT16.4
Prediction of ICU Readmissions using Data at Patient Discharge 4932-4935
 Pakbin, Arash* (*Texas A&M University*); Rafi, Parvez (*Texas A&M University*); Hurley, Nate (*Texas A&M University*); Schulz, Wade (*Yale University*); Krumholz, Harlan (*Yale University School of Medicine*); Mortazavi, Bobak (*Texas A&M University*)

09:00-09:15 SaAT16.5
Using Machine Learning Algorithms to Enhance the Management of Suicide Ideation 4936-4939
 Colic, Sinisa* (*University of Toronto*); Richardson, Don (*Western University*); Reilly, James (*McMaster University*); Hasey, Gary (*McMaster University*)

09:15-09:30 SaAT16.6
Undersampling and Bagging of Decision Trees in the Analysis of Cardiorespiratory Behavior for the Prediction of Extubation Readiness in Extremely Preterm Infants 4940-4944
 Kanbar, Lara* (*McGill University*); Onu, Charles Chijioke (*McGill University*); Shalish, Wissam (*McGill University*); Brown, Karen (*McGill University*); Sant'Anna, Guilherme Mendes (*McGill University*); Precup, Doina (*McGill University*); Kearney, Robert Edward (*McGill University*)

SaAT17: 08:00-09:30 Meeting Room 323C
Wearable Technology (Theme 7) (Oral Session)

08:00-08:15 SaAT17.1
Medhere: A Smartwatch-Based Medication Adherence Monitoring System using Machine Learning and Distributed Computing 4945-4948
 Woodbridge, Diane* (*University of San Francisco*); Ma, Jinxin (*University of San Francisco*); Ovalle, Anaelia (*University of San Francisco*)

08:15-08:30 SaAT17.2
Monitoring the Effect of Contact Pressure on Bioimpedance Measurements 4949-4952
 Ruiz-Vargas, Albert* (*Flinders Univ.*); Ivorra, Antoni (*Univ. Pompeu Fabra*); Arkwright, John (*Flinders Univ.*)

08:30-08:45	SaAT17.3
Exploring the Feasibility of EMG based Interaction for Assessing Cognitive Capacity in Virtual Reality	4953-4956
Wirth, Markus* (<i>Friedrich Alexander Univ. Erlangen-Nuremberg</i>); Gradl, Stefan (<i>Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU)</i>); Poimann, Dino (<i>Institute of Sport Science and Sport, Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU)</i>); Richer, Robert (<i>Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU), Germany</i>); Ottmann, Jenny (<i>Machine Learning and Data Analytics Lab, Dept. of Computer Science, Friedrich-Alexander-Univ. Erlangen-Nürnberg (FAU)</i>); Eskofier, Bjoern M (<i>Friedrich-Alexander-Univ. Erlangen-Nürnberg</i>)	
08:45-09:00	SaAT17.4
Performance of Conformable, Dry EEG Sensors	4957-4960
Bradford, J. Courtney* (<i>U.S. Army Research Lab</i>); Burke, Benjamin (<i>U.S. Army Research Lab</i>); Nguyen, Christina (<i>U.S. Army Research Lab</i>); Slipher, Geoffrey A. (<i>U.S. Army Research Lab</i>); Mrozek, Randy (<i>U.S. Army Research Lab</i>); Hairston, W. David (<i>U.S. Army Research Lab</i>)	
09:00-09:15	SaAT17.5
Feasibility of Noninvasive Blood Pressure Measurement using a Chest-Worn Patch Sensor	4961-4964
Selvaraj, Nandakumar* (<i>VitalConnect, Inc.</i>); Reddivari, Hithesh (<i>Qualcomm Technologies Inc</i>)	
09:15-09:30	SaAT17.6
Signal Quality and Electrode-Skin Impedance Evaluation in the Context of Wearable Electroencephalographic Systems	4965-4968
Zhao, Zhichun (<i>Chengdu University of Technology, Chengdu</i>); Ivanov, Kamen (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China</i>); Lubich, Ludwig (<i>Technical University of Sofia</i>); Omisore, Olatunji Mumini* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Mei, Zhanyong (<i>Shenzhen Institutes of Advanced Technology</i>); Fu, Nan (<i>Shenzhen Institutes of Advanced Technology, Shenzhen, China</i>); Chen, Jinying (<i>Chengdu University of Technology</i>); Wang, Lei (<i>Shenzhen Institutes of Advanced Technology</i>)	
SaAT18: 08:00-09:30 Meeting Room 324	
Point of Care – Detection and Monitoring (Theme 12) (Oral Session)	
Chair: Lash, Tiffani (<i>National Institutes of Health, NIBIB</i>)	
08:00-08:15	SaAT18.1
Smartphone-Based Compression-Induced Scope with Temperature Sensor for Inflammatory Breast Cancer Screening	4969-4972
Saleheen, Firdous (<i>Temple University</i>); Goldstein, Jesse (<i>Temple University</i>); Rajan, Reshma (<i>Temple University</i>); Caroline, Dina (<i>Temple University Hospital</i>); Pascarella, Suzanne (<i>Temple University Hospital</i>); Won, Chang-Hee* (<i>Temple University</i>)	
08:15-08:30	SaAT18.2
Estimation of Spherical Refractive Errors using Virtual Reality Headset	4973-4976
Goyal, Ashish* (<i>Samsung Research Institute, Bangalore, Karnataka</i>); Bopardikar, Ajit (<i>Samsung Research India, Bangalore, Karnataka</i>); Tiwari, Vijay Narayan (<i>Samsung Research India, Bangalore</i>)	
08:30-08:45	SaAT18.3
NOS.E: A New Fast Response Electronic Nose Health Monitoring System	4977-4980
Zhang, Wentian (<i>University of Technology Sydney</i>); Taoping, Liu (<i>University of Technology Sydney</i>); Zhang, Miao (<i>Beijing Institute of Technology</i>); Zhang, Yi (<i>University of Electronic Science and Technology of China</i>); Li, Huiqi (<i>Beijing Institute of Technology</i>); Maiken, Ueland (<i>University of Technology Sydney</i>); Shari, Forbes (<i>University of Technology Sydney</i>); Wang, Rosalind (<i>CSIRO</i>); Su, Steven Weidong* (<i>University of Technology, Sydney</i>)	
08:45-09:00	SaAT18.4
On the Effective Differentiation and Monitoring of Variable Degrees of Hyperbilirubinemia Severity through Noninvasive Screening Protocols	4981-4986
Baranoski, Gladimir Valerio Guimaraes* (<i>University of Waterloo</i>); Chen, Tenn Francis (<i>University of Waterloo</i>); Varsa, Petri (<i>University of Waterloo</i>)	
09:00-09:15	SaAT18.5
EmoSense: Automatically Sensing Emotions from Speech by Multi-Way Classification	4987-4990
Vempada, Ramu Reddy (<i>TCS Research & Innovation Lab</i>); Viraraghavan, Venkata Subramanian* (<i>Tata Consultancy Services Ltd.</i>)	

09:15-09:30 SaAT18.6
A Data-Driven Human Activity Classification Method for an Intelligent Hospital Bed 4991-4996
 Lu, Limin (*Zhejiang University*); Zhao, Chunhui (*Zhejiang University*); Fu, Yongji* (*Hill-Rom*)

SaAT19: 08:00-09:30 Meeting Room 325A
Sensor Informatics – Sensors and Sensor Systems (Theme 10) (Oral Session)

08:00-08:15 SaAT19.1
Change Detection of Sleeping Conditions based on Multipoint Ambient Sensing of Comforter on Bed .. 4997-5001
 Umetani, Tomohiro* (*Konan University*); Ishii, Mayuko (*Konan University*); Tamura, Yuichi (*Konan University*);
 Saiwaki, Naoki (*Nara Women's University*); Yokoyama, Kiyoko (*Nagoya City University*)

08:15-08:30 SaAT19.2
InstaBP: Cuff Less Blood Pressure Monitoring on Smartphone using Single PPG Sensor 5002-5005
 Dey, Jishnu* (*Samsung R&D Institute India, Bangalore*); Gaurav, Aman (*Samsung Research Institute, Bangalore*);
 Tiwari, Vijay Narayan (*Samsung Research India, Bangalore*)

08:30-08:45 SaAT19.3
Vision-Based Bed Detection for Hospital Patient Monitoring System 5006-5009
 Inoue, Madoka* (*Aiphone Co., Ltd.*); Taguchi, Ryo (*Nagoya Institute of Technology*);
 Umezaki, Taizo (*Nagoya Institute of Technology*)

08:45-09:00 SaAT19.4
Thermal Camera based Physiological Monitoring with an Assistive Robot 5010-5013
 Cosar, Serhan (*University of Lincoln*); Yan, Zhi (*University of Technology of Belfort-Montbéliard*); Zhao, Feng
 (*Liverpool John Moores University*); Lambrou, Tryphon (*University of Lincoln*); Yue, Shigang (*University of Lincoln*);
 Bellotto, Nicola* (*University of Lincoln*)

09:00-09:15 SaAT19.5
Classification of sEMG Signals for the Detection of Vocal Fatigue based on VFI Scores 5014-5017
 Gao, Yixiang* (*University of Missouri - Columbia*); Dietrich, Maria (*University of Missouri*); Melinda, Pfeiffer
 (*University of Missouri - Columbia*); DeSouza, G. N. (*University of Missouri - Columbia*)

09:15-09:30 SaAT19.6
Deniosing Autoencoder-Based Modification of RRI Data with Premature Ventricular Contraction for Precise Heart Rate Variability Analysis 5018-5021
 Miyatani, Shota (*Kyoto University*); Fujiwara, Koichi* (*Kyoto University*); Kano, Manabu (*Kyoto University*)

SaAT20: 08:00-09:30 Meeting Room 325B
Biological Networks (Theme 4) (Oral Session)

08:00-08:15 SaAT20.1
Spatial Patterning from an Integrated Wnt/ β -Catenin and Notch/Delta Gene Circuit 5022-5025
 Mines, Robert Carl* (*Duke University*); Dohlman, Anders (*Dept. of BioMedical Engineering, Duke University*);
 Lim, Sze-Xian (*Dept. of BioMedical Engineering, Duke University*); Tung, Kuei-Ling (*Dept. of Biological and Environmental Engineering, Cornell University*);
 Wang, Ergang (*Dept. of BioMedical Engineering, Duke University*); Shen, Xiling (*Cornell University*)

08:15-08:30 SaAT20.2
Stochastic Modeling of the Co-Regulation between Early and E8 Promoters in Human Papillomavirus 5026-5029
 Giaretta, Alberto* (*University of Padova, Dept. of Information Engineering*)

08:30-08:45 SaAT20.3
Automated Extension of Cell Signaling Models with Genetic Algorithm 5030-5033
 Sayed, Khaled* (*University of Pittsburgh*); Bocan, Kara (*University of Pittsburgh*); Miskov-Zivanov, Natasa
 (*University of Pittsburgh*)

08:45-09:00 SaAT20.4
Identifying Progressive Gene Network Perturbation from Single-Cell RNA-Seq Data 5034-5040
 Mukherjee, Sumit (*University of Washington*); Carignano, Alberto* (*University of Washington*); Seelig, Georg
 (*University of Washington*); Lee, Su-In (*Dept. of Computer Science & Engineering*)

09:00-09:15	SaAT20.5
Improving the Detection of Protein Complexes by Predicting Novel Missing Interactome Links in the Protein-Protein Interaction Network	
Zaki, Nazar* (<i>United Arab Emirates University</i>); Alashwal, Hany (<i>UAEU</i>)	5041-5044
09:15-09:30	SaAT20.6
Smart Data Analytics Approach to Model Complex Biochemical Oscillations in Hippocampal Neurons	
Miriyala, Srinivas Soumitri (<i>Indian Institute of Technology Hyderabad</i>); Pantula, Priyanka* (<i>Indian Institute of Technology, Hyderabad</i>); Giri, Lopamudra (<i>Indian Institute of Technology, Hyderabad</i>); Mitra, Kishalay (<i>Indian Institute of Technology Hyderabad</i>)	5045-5048
SaBT1: 10:00-11:30 Meeting Room 311	
Neural Interfaces (IV) (Theme 6) (Oral Session)	
Chair: Butera, Robert (<i>Georgia Institute of Technology</i>)	
10:00-10:15	SaBT1.1
In Situ Measurement of Stimulus Induced pH Changes using Thin-Film Embedded IrOx pH Electrodes .	
Pfau, Jennifer* (<i>Univ. of Freiburg, Dept. of Microsystems Engineering IMTEK</i>); Leal Ordonez, José (<i>Albert-Ludwigs-Univ. of Freiburg, Dept. of Microsystems Engineering, IMTEK</i>); Stieglitz, Thomas (<i>Univ. of Freiburg</i>)	5049-5052
10:15-10:30	SaBT1.2
Investigating Upper Limb Movement Classification on Users with Tetraplegia as a Possible Neuroprosthesis Interface	
Fonseca, Lucas* (<i>Universidade de Brasília</i>); Padilha Lanari Bó, Antônio (<i>Universidade de Brasília</i>); Guiraud, David (<i>INRIA</i>); Navarro, Benjamin (<i>LIRMM, Montpellier</i>); Gélis, Anthony (<i>PROPARA Clinical Center, Montpellier</i>); Azevedo-Coste, Christine (<i>INRIA/LIRMM</i>)	5053-5056
10:30-10:45	SaBT1.3
A Novel μECoG Electrode Interface for Comparison of Local and Common Averaged Referenced Signals	
Williams, Ashley* (<i>Duke University</i>); Trumpis, Michael (<i>Duke University</i>); Bent, Brinnae (<i>Duke University</i>); Chiang, Ken Chia-Han (<i>Duke University</i>); Viventi, Jonathan (<i>Duke University</i>)	5057-5060
10:45-11:00	SaBT1.4
In Vitro Reactive-Accelerated-Aging (RAA) Assessment of Tissue-Engineered Electronic Nerve Interfaces (TEENI)	
Kuliasha, Cary (<i>University of Florida</i>); Judy, Jack* (<i>University of Florida</i>)	5061-5064
11:00-11:15	SaBT1.5
On-Chip Detection of Single Vesicle Release from Neuroblastoma Cells using Monolithic CMOS Bioelectronics	
White, Kevin A. (<i>University of Central Florida</i>); Mulberry, Geoffrey (<i>University of Central Florida</i>); Sugaya, Kiminobu (<i>University of Central Florida</i>); Kim, Brian N.* (<i>University of Central Florida</i>)	5065-5068
11:15-11:30	SaBT1.6
Carbon Fiber Electrodes for in Vivo Spinal Cord Recordings	
Cetinkaya, Esma (<i>New Jersey Institute of Technology</i>); Gok, Sinan (<i>New Jersey Institute of Technology</i>); Sahin, Mesut* (<i>New Jersey Institute of Technology</i>)	5069-5072
SaBT2: 10:00-11:30 Meeting Room 312	
Signal Processing and Classification for BCIs and Motor Imagery (Theme 1) (Oral Session)	
Chair: Harrer, Stefan (<i>IBM Research</i>)	
Co-Chair: Song, Dong (<i>University of Southern California</i>)	
10:00-10:15	SaBT2.1
A Modified Common Spatial Pattern Algorithm Customized for Feature Dimensionality Reduction in fNIRS-Based BCIs	
Jiang, Xinyu* (<i>Fudan University</i>); Gu, Xiao (<i>Fudan University</i>); Mei, Zhenning (<i>Fudan University</i>); Ren, Haoran (<i>Fudan University</i>); Chen, Wei (<i>Fudan University</i>)	5073-5076

10:15-10:30	SaBT2.2
Realization of Direction Selective Motor Learning in the Artificial Cerebellum: Simulation on the Vestibuloocular Reflex Adaptation	5077-5080
Takatori, Shogo (<i>Chubu Univ.</i>); Inagaki, Keiichiro* (<i>Chubu Univ.</i>); Hirata, Yutaka (<i>Chubu Univ., College of Eng</i>)	
10:30-10:45	SaBT2.3
A Randomised Ensemble Learning Approach for Multiclass Motor Imagery Classification using Error Correcting Output Coding	5081-5084
Bera, Sutanu (<i>Indian Institute of Technology, Kharagpur</i>); Roy, Rinku (<i>IIT Kharagpur</i>); Sikdar, Debdeep (<i>IIT Kharagpur</i>); Kar, Apendu (<i>Indian Institute of Technology Kharagpur</i>); Mahadevappa, Manjunatha (<i>Indian Institute of Technology Kharagpur</i>); Mukhopadhyay, Rupsha* (<i>Indian Institute of Technology, Kharagpur</i>)	
10:45-11:00	SaBT2.4
A Deep Convolutional Neural Network based Classification of Multi-Class Motor Imagery with Improved Generalization	5085-5088
Kar, Apendu (<i>Indian Institute of Technology Kharagpur</i>); Bera, Sutanu (<i>Indian Institute of Technology, Kharagpur</i>); Karri, Sri Phani Krishna (<i>Indian Institute of Technology Kharagpur</i>); Mahadevappa, Manjunatha (<i>Indian Institute of Technology Kharagpur</i>); Sheet, Debdoot (<i>Indian Institute of Technology Kharagpur</i>); Ghosh, Sudipta* (<i>Indian Institute of Technology, Kharagpur</i>)	
11:00-11:15	SaBT2.5
A Robust Low-Cost EEG Motor Imagery-Based Brain-Computer Interface	5089-5092
Yohanandan, Shivanthan* (<i>IBM Research</i>); Kiral-Kornek, Filiz Isabell (<i>IBM Research Australia</i>); Tang, Jianbin (<i>IBM Research Australia</i>); Mashford, Benjamin Scott (<i>IBM Research Australia</i>); Asif, Umar (<i>IBM</i>); Harrer, Stefan (<i>IBM Research</i>)	
11:15-11:30	SaBT2.6
Current Source Density Estimates Improve the Discriminability of Scalp-Level Brain Connectivity Features Related to Motor-Imagery Tasks	5093-5096
Rathee, Dheeraj* (<i>Ulster University</i>); Cecotti, Hubert (<i>California State University Fresno</i>); Prasad, Girijesh (<i>University of Ulster</i>)	
SaBT3: 10:00-11:30 Meeting Room 314	
Image Reconstruction (Theme 2) (Oral Session)	
Chair: Ambrosanio, Michele (<i>University of Napoli Parthenope</i>)	
10:00-10:15	SaBT3.1
Group Sparsity based Sparse-Sampling CT Reconstruction	5097-5100
Bao, Peng (<i>Sichuan University</i>); Zhou, Jiliu (<i>Chengdu University of Information Technology</i>); Zhang, Yi* (<i>Sichuan University</i>)	
10:15-10:30	SaBT3.2
Discrete Heat Kernel Smoothing in Irregular Image Domains	5101-5104
Chung, Moo K.* (<i>University of Wisconsin-Madison</i>); Wang, Yanli (<i>Institute of Applied Physics and Computational Mathematics, Beijing</i>); Wu, Guorong (<i>University of North Carolina at Chapel Hill</i>)	
10:30-10:45	SaBT3.3
A Novel 3D Connection Algorithm of Mitochondria from ATUM-SEM Stacks based on Segmentation Information in Context	5105-5108
Li, Weifu (<i>Institute of Automation, Chinese Academy of Sciences</i>); Liu, Jing (<i>Institute of Automation, Chinese Academy of Sciences</i>); Xiao, Chi (<i>Institute of Automation, Chinese Academy of Sciences</i>); Deng, Hao (<i>Institute of Automation, Chinese Academy of Sciences</i>); Xie, Qiwei* (<i>Institute of Automation, Chinese Academy of Sciences</i>); Han, Hua (<i>Institute of Automation, Chinese Academy of Sciences</i>)	
10:45-11:00	SaBT3.4
Compressive Sensing for Breast Microwave Imaging	5109-5112
Ambrosanio, Michele* (<i>University of Napoli Parthenope</i>); Pascazio, Vito (<i>University of Napoli Parthenope, Dipartimento di Ingegneria</i>)	

11:00-11:15 SaBT3.5
Scanning Acoustic Microscopy Image Super-Resolution using Bilateral Weighted Total Variation Regularization 5113-5116
 Khalilian-Gourtani, Amirhossein* (*New York University*); Wang, Yao (*Polytechnic Institute of New York University*); Mamou, Jonathan (*Riverside Research*)

11:15-11:30 SaBT3.6
Low-Dose CT Denoising with Dilated Residual Network 5117-5120
 Gholizadeh-Ansari, Maryam (*Ryerson University*); Alirezaie, Javad* (*Ryerson University, University of Waterloo*); Babyn, Paul (*University of Saskatchewan*)

SaBT4: 10:00-11:30 Meeting Room 315
New Sensing Techniques (Theme 7) (Oral Session)
Chair: Jovanov, Emil (*University of Alabama in Huntsville*)

10:00-10:15 SaBT4.1
A Radiating Near-Field 24 GHz Radar Stethoscope 5121-5124
 Aumann, Herbert* (*University of Maine*); Emanetoglu, Nuri (*University of Maine*)

10:15-10:30 SaBT4.2
A Model for Waveform Dissimilarities in Dual-Depth Reflectance-PPG 5125-5130
 Moco, Andreia* (*Eindhoven University of Technology*); Stuijk, Sander (*TU Eindhoven*); de Haan, Gerard (*Philips Innovation Group, Philips Research, Eindhoven*); Wang, Ruikang (*Oregon Health & Science University*); Verkrusse, Wim (*Philips Innovation Group, Philips Research, Eindhoven*)

10:30-10:45 SaBT4.3
BioEssence: A Wearable Olfactory Display that Monitors Cardio-Respiratory Information to Support Mental Wellbeing 5131-5134
 Amores Fernandez, Judith* (*MIT*); Hernandez, Javier (*Massachusetts Institute of Technology*); Dementyev, Artem (*MIT*); Wang, Xiqing (*MIT Media Lab*); Maes, Pattie (*MIT Media Lab*)

10:45-11:00 SaBT4.4
Evaluation of a Visual Localization System for Environment Awareness in Assistive Devices 5135-5141
 Rai, Vijeth* (*University of Washington*); Rombokas, Eric (*University of Washington*)

11:00-11:15 SaBT4.5
A New Method to Prevent Unintentional Child Poisoning 5142-5145
 Bahar Talukder, Bashir Mohammad Sabquat (*University of Alabama in Huntsville*); Jovanov, Emil* (*University of Alabama in Huntsville*); Schwebel, David C (*University of Alabama at Birmingham*); Evans, William (*George Washington University*)

11:15-11:30 SaBT4.6
Use of Average Vertical Velocity and Difference in Altitude for Improving Automatic Fall Detection from Trunk based Inertial and Barometric Pressure Measurements 5146-5149
 Musngi, Magnus Michael (*Simon Fraser University*); Aziz, Omar (*Simon Fraser University*); Zihajehzadeh, Shaghayegh (*Simon Fraser University*); Nazareth, Ginelle Claire (*International Submarine Engineering Ltd.*); Tae, Chul-Gyu (*Bigmotion Technologies*); Park, Edward J.* (*Simon Fraser University*)

SaBT5: 10:00-11:30 Meeting Room 316A
Image Compression and Synthesis (Theme 2) (Oral Session)

10:00-10:15 SaBT5.1
Pseudo CT Estimation using Patch-Based Joint Dictionary Learning 5150-5153
 Yang, Xiaofeng* (*Emory University*)

10:15-10:30 SaBT5.2
Data-Driven Synthetic Cerebrovascular Models for Validation of Segmentation Algorithms 5154-5157
 Nowak, Michael* (*Texas A&M University*); Choe, Yoonsuck (*Texas A&M University*)

10:30-10:45 SaBT5.3
Lossless Compression of Angiogram Foreground with Visual Quality Preservation of Background 5158-5161
 Ahmadi, Mahdi (*Isfahan University of Technology*); Emami, Ali (*Isfahan University of Technology*); Hajabdollahi, Mohsen (*Isfahan University of Technology*); Soroushmehr, S.M.Reza (*University of Michigan, Ann Arbor*); Karimi, Nader (*Isfahan University of Technology*); Samavi, Shadrokh* (*McMaster University*); Najarian, Kayvan (*University of Michigan - Ann Arbor*)

10:45-11:00 SaBT5.4
Significant Dimension Reduction of 3D Brain MRI using 3D Convolutional Autoencoders 5162-5165
 Arai, Hayato (*Hosei University*); Chayama, Yusuke (*Hosei University*); Iyatomi, Hitoshi* (*Hosei University*); Oishi, Kenichi (*Johns Hopkins University School of Medicine*)

SaBT6: 10:00-11:30 Meeting Room 316B
Neuromuscular Systems (II) (Theme 6) (Oral Session)
Chair: Perreault, Eric (*Northwestern University*)

10:00-10:15 SaBT6.1
A Simulated Inverted Pendulum to Investigate Human Sensorimotor Control 5166-5169
 Cesonis, Justinas (*Technical University of Munich*); Franklin, Sae (*Institute for Cognitive Systems, Technical University of Munich*); Franklin, David W.* (*Technical University of Munich*)

10:15-10:30 SaBT6.2
Influence of Visual Feedback on the Sensorimotor Control of an Inverted Pendulum 5170-5173
 Franklin, Sae (*Institute for Cognitive Systems, Technical University of Munich*); Cesonis, Justinas (*Technical University of Munich*); Franklin, David W.* (*Technical University of Munich*)

10:30-10:45 SaBT6.3
Myoelectric Signals and Pattern Recognition from Implanted Electrodes in Two TMR Subjects with an Osseointegrated Communication Interface 5174-5177
 Mastinu, Enzo* (*Chalmers - University of technology*); Brånemark, Rickard (*Gothenburg University*); Aszmann, Oskar (*Medical University of Vienna*); Ortiz-Catalan, Max (*Chalmers University of Technology*)

10:45-11:00 SaBT6.4
Effects of Mapping Uncertainty on Visuomotor Adaptation to Trial-by-Trial Perturbations with Proportional Myoelectric Control 5178-5181
 Lyons, Kenneth* (*University of California, Davis*); Joshi, Sanjay (*University of California, Davis*)

11:00-11:15 SaBT6.5
Reconstructing Neural Activity and Kinematics using a Systems-Level Model of Sensorimotor Control 5182-5186
 Saxena, Shreya (*Columbia University*); D'Aleo, Raina (*Johns Hopkins University*); Schieber, Marc (*University of Rochester*); Dahleh, munther (*MIT*); Sarma, Sridevi V.* (*Johns Hopkins University*)

11:15-11:30 SaBT6.6
Quantification of Upper-Extremity Movement Pattern in Patients with Stroke using Touchscreen: A Pilot Study 5187-5190
 Zhang, Xiao (*Ruijin Rehabilitation Hospital*); Bao, Yong (*Dept. of Rehabilitation Medicine, Ruijin Rehabilitation Hospital*); Xie, Qing (*Ruijin Hospital Shanghai Jiao Tong University School of Medicine*); Niu, Chuanxin M.* (*Ruijin Hospital, School of Medicine, Shanghai Jiao Tong University*)

SaBT7: 10:00-11:30 Meeting Room 316C
Signal Processing and Classification of Video Signals (Theme 1) (Oral Session)
Chair: Kearney, Robert Edward (*McGill University*)
Co-Chair: Tsujikawa, Masanori (*NEC Corp.*)

10:00-10:15 SaBT7.1
A Maximum Likelihood Formulation to Exploit Heart Rate Variability for Robust Heart Rate Estimation from Facial Video 5191-5194
 K T, Raseena* (*Indian Institute of Science, Bangalore*); Ghosh, Prasanta (*Indian Institute of Science*)

10:15-10:30 SaBT7.2
Eyelid and Blink Tracking in an Animal Model of Facial Palsy 5195-5198
 Tsror, Guy* (*McGill University*); Guarin, Diego Luis (*Harvard Medical School*); Jowett, Nathan (*Harvard University*); Kearney, Robert Edward (*McGill University*)

10:30-10:45 SaBT7.3
Head-Motion Robust Video-Based Heart Rate Estimation using Facial Feature Point Fluctuations 5199-5202
 Umematsu, Terumi* (*NEC Corp.*); Tsujikawa, Masanori (*NEC Corp.*)

10:45-11:00 SaBT7.4
Drowsiness Estimation from Low-Frame-Rate Facial Videos using Eyelid Variability Features 5203-5206
 Tsujikawa, Masanori* (*NEC Corp.*); Onishi, Yoshifumi (*NEC Corp.*); Kiuchi, Yukihiro (*NEC Corp.*); Ogatsu, Toshinobu (*NEC Corp.*); Nishino, Atsushi (*DAIKIN Industries, Ltd.*); Hashimoto, Satoshi (*DAIKIN Industries, Ltd.*)

11:00-11:15 SaBT7.5
A Neural-Network-Based Investigation of Eye-Related Movements for Accurate Drowsiness Estimation 5207-5210
 Sun, Mingfei (*Hong Kong University of Science and Technology*); Tsujikawa, Masanori* (*NEC Corp.*); Onishi, Yoshifumi (*NEC Corp.*); Ma, Xiaojuan (*Hong Kong University of Science and Technology*); Nishino, Atsushi (*DAIKIN Industries, Ltd.*); Hashimoto, Satoshi (*DAIKIN Industries, Ltd.*)

11:15-11:30 SaBT7.6
Investigating Bodily Responses to Unknown Words: A Focus on Facial Expressions and EEG 5211-5215
 Zhang, Xinlei* (*MIT Media Lab; University of Tokyo*); Kosmyna, Nataliya (*MIT Media Lab*); Maes, Pattie (*MIT Media Lab*); Rekimoto, Jun (*University of Tokyo*)

SaBT9: 10:00-11:30 Meeting Room 318B
Biomedical Signal Classification: Electromyography (I) (Theme 1) (Oral Session)

10:00-10:15 SaBT9.1
An EMG Pattern Classification Method based on a Mixture of Variance Distribution Models 5216-5219
 Furui, Akira* (*Hiroshima University*); Hayashi, Hideaki (*Kyushu University*); Tsuji, Toshio (*Hiroshima University*)

10:15-10:30 SaBT9.2
Performance of Combined Surface and Intramuscular EMG for Classification of Hand Movements 5220-5223
 Rehman, Muhammad Zia ur* (*National University of Science and Technology, Islamabad Pakistan*); Omer Gilani, Syed (*National University of Science and Technology*); Waris, Asim (*Aalborg University, Denmark*); Jochumsen, Mads (*Center for Sensory-Motor Interaction, Dept. of Health Science and Technology, Aalborg University, Denmark*); Niazi, Imran Khan (*HST, Aalborg University and Center for Chiropractic Research (CfCR), New Zealand College of Chiropractic (NZCC)*); Kamavuako, Ernest Nlandu (*Aalborg University*)

10:30-10:45 SaBT9.3
Using Antonyan Vardan Transform and Extreme Learning Machines for Accurate sEMG Signal Classification 5224-5227
 Cene, Vinicius H. (*UFRGS*); Ruschel dos Santos, Raphael* (*Universidade Federal do Rio Grande do Sul*); Balbinot, Alexandre (*Federal University of Rio Grande do Sul (UFRGS)*)

10:45-11:00 SaBT9.4
Optimal Feature Set for Finger Movement Classification based on sEMG 5228-5231
 Ahmed, Ahmed* (*University of Technology Sydney*); Al-Jumaily, Adel (*University of Technology Sydney*)

11:00-11:15 SaBT9.5
Isometric Finger Pose Recognition with Sparse Channel Spatio-Temporal EMG Imaging 5232-5235
 Stephenson, Robert* (*University of Technology Sydney*); Chai, Rifai (*Swinburne University of Technology*); Eager, David (*UTS*)

11:15-11:30 SaBT9.6
An Investigation of Temporally Inspired Time Domain Features for Electromyographic Pattern Recognition 5236-5240
 Phinyomark, Angkoon (*University of New Brunswick*); Scheme, Erik* (*University of New Brunswick*)

10:00-10:15		SaBT10.1
	Grid Generation for Rendering Realistic X-Ray Images of Narrow Blood Vessels in Real-Time Angiography Simulation	5241-5244
	Lee, Jongbeom (<i>KAIST (Korea Advanced Institute of Science and Technology)</i>); Kim, Myeongjin (<i>KAIST (Korea Advanced Institute of Science and Technology)</i>); Lee, Doo Yong* (<i>KAIST</i>)	

10:15-10:30		SaBT10.2
	K-Edge Spectral Computed Tomography with a Photon Counting Detector and Discrete Reconstruction	5245-5248
	Brun, Francesco* (<i>Istituto Nazionale di Fisica Nucleare (INFN)</i>); Di Trapani, Vittorio (<i>University of Siena & INFN</i>); Dreossi, Diego (<i>Elettra - Sincrotrone Trieste S.C.p.A.</i>); Longo, Renata (<i>University of Trieste & INFN, Dept. of Physics</i>); Delogu, Pasquale (<i>University of Siena & INFN</i>); Rigon, Luigi (<i>University of Trieste & INFN</i>)	

10:30-10:45		SaBT10.3
	Respiratory Motion Correction using a Novel Positron Emission Particle Tracking Technique: A Framework towards Individual Lesion-Based Motion Correction	5249-5252
	Tumpa, Tasmia Rahman* (<i>University of Tennessee, Grad School of Medicine</i>); Acuff, Shelley (<i>University of Tennessee, Grad School of Medicine</i>); Gregor, Jens (<i>University of Tennessee, Dept. of Electrical Engineering and Computer Science</i>); Lee, Sanghyeb (<i>Independent Consultant</i>); Hu, Dongming (<i>Independent Consultant</i>); Osborne, Dustin (<i>University of Tennessee</i>)	

10:00-10:15		SaBT12.1
	Validation and Application of a Physically Nonlinear 1D Computational Model for Bifurcated Arterial Networks	5253-5256
	Seyed Vahedein, Yashar* (<i>Rochester Institute of Technology</i>); Liberson, Alexander (<i>Rochester Institute of Technology</i>)	

10:15-10:30		SaBT12.2
	Regulation of Maternal-Fetal Heart Rates and Coupling in Mice Fetuses	5257-5260
	Khandoker, Ahsan H* (<i>Khalifa University of Science, Technology and Research</i>); Yoshida, Chihiro (<i>Tohoku University</i>); Kasahara, Yoshiyuki (<i>Tohoku University</i>); Funamoto, Kiyoe (<i>Tohoku University</i>); Nakanishi, Kana (<i>Tohoku University</i>); Fukase, Miyabi (<i>Tohoku University</i>); Kanda, Keiichi (<i>Tohoku University</i>); Haroun, Isra (<i>Khalifa University</i>); Niizeki, Kyuichi (<i>Yamagata University</i>); Kimura, Yoshitaka (<i>Tohoku University</i>)	

10:30-10:45		SaBT12.3
	Three-Element Fractional-Order Viscoelastic Arterial Windkessel Model	5261-5266
	Bahloul, Mohamed A.* (<i>KAUST</i>); Laleg, Taous-Meriem (<i>King Abdullah Univ. of Science and Tech. (KAUST)</i>)	

10:45-11:00		SaBT12.4
	An Enhanced Mechanistic Model for Capnography, with Application to CHF-COPD Discrimination	5267-5272
	Karasan, Ekin* (<i>Massachusetts Institute of Technology</i>); Abid, Abubakar (<i>Massachusetts Institute of Technology</i>); Mieloszyk, Rebecca (<i>Philips Healthcare, University of Washington</i>); Krauss, Baruch (<i>Harvard Medical School</i>); Heldt, Thomas (<i>Massachusetts Institute of Technology</i>); Vergheze, George (<i>Massachusetts Institute of Technology</i>)	

11:00-11:15		SaBT12.5
	Experimental Validation of a Closed-Loop Respiratory Control Model using Dynamic Clamp	5273-5276
	Diekman, Casey* (<i>New Jersey Institute of Technology</i>); Thomas, Peter (<i>Case Western Reserve University</i>); Wilson, Christopher (<i>Loma Linda University</i>)	

11:15-11:30		SaBT12.6
	In-Vitro Evaluation of Cardiac Energetics and Coronary Flow with Volume Displacement and Rotary Blood Pumps	5277-5281
	Wu, Eric* (<i>Critical Care Research Group, The Prince Charles Hospital</i>); Tansley, Geoff (<i>Griffith University, Queensland, Australia</i>); Fraser, John F. (<i>Prince Charles Hospital, Brisbane, Queensland</i>); Gregory, Shaun David (<i>Queensland University of Technology</i>)	

Cardiorespiratory Medical Applications (Theme 5) (Oral Session)

- 10:00-10:15 SaBT13.1
Respiratory Rate Derived from Pulse Photoplethysmographic Signal by Pulse Decomposition Analysis 5282-5285
 Lázaro, Jesús* (*University of Zaragoza*); Kontaxis, Spyridon (*BSICoS Group, I3A, IIS Arag'ón, University of Zaragoza, Spain*); Bailon, Raquel (*University of Zaragoza*); Laguna, Pablo (*Zaragoza University and CIBER-BBN*); Gil, Eduardo (*Zaragoza University and CIBER-BBN*)
- 10:15-10:30 SaBT13.2
Investigating the Relationship between the Ratings of Perceived Exertion and Tone-Entropy of Heart Rate Variability during a Graded Exercise 5286-5289
 Azz, Mouad (*Khalifa University*); Khandoker, Ahsan H* (*Khalifa University of Science, Technology and Research*); Jelinek, Herbert Franz (*Charles Sturt University*)
- 10:30-10:45 SaBT13.3
Stress Resilience Measurement with Heart-Rate Variability during Mental and Physical Stress 5290-5293
 Dong, Suh-Yeon (*KIST*); Lee, Miran (*Korea Institute of Science and Technology*); Park, Heesu (*Korea Institute of Science and Technology*); Youn, Inchan* (*Korea Institute of Science and Technology*)
- 10:45-11:00 SaBT13.4
A Fast Principal Component Analysis Method for Calculating the ECG Derived Respiration 5294-5297
 Sadr, Nadi* (*University of Sydney*); de Chazal, Philip (*University of Sydney*)
- 11:00-11:15 SaBT13.5
Cardiorespiratory Phase Synchronization Increases during Certain Mental Stimuli in Healthy Subjects 5298-5301
 Solà-Soler, Jordi* (*Universitat Politècnica de Catalunya*); Cuadros, Alba (*Universitat Politècnica de Catalunya*); Giraldo, Beatriz (*Universitat Politècnica de Catalunya*)
- 11:15-11:30 SaBT13.6
Myocardial Ischemia Diagnosis using a Reduced Lead System 5302-5305
 Aranda, Alfonso* (*Medtronic & Maastricht University*); Bonizzi, Pietro (*Maastricht University*); Karel, Joël (*Maastricht University*); Peeters, Ralf (*Maastricht University*)

Diagnostic Devices and Physiological Monitoring 2 (Theme 9) (Oral Session)**Chair:** Fletcher, Richard Ribon (*Massachusetts Institute of Technology*)

- 10:00-10:15 SaBT14.1
In-Vivo Measurements of Tissue Impedivity by Electrical Impedance Spectroscopy 5306-5309
 Meroni, Davide* (*Politecnico di Milano*); Bovio, Dario (*Politecnico di Milano*); Gualtieri, Massimo (*University of Milan*); Aliverti, Andrea (*Politecnico di Milano*)
- 10:15-10:30 SaBT14.2
Automated Versatile DIY Microscope Platform 5310-5312
 Pylatiuk, Christian* (*Karlsruhe Institute of Technology*); Vogt, Marcel (*Institute for Automation and Applied Informatics (IAI) - Karlsruhe Institute of Technology (KIT)*); Scheikl, Paul (*Institute for Anthropomatics and Robotics (IAR) - Intelligent Process Automation and Robotics Lab (IPR) - Karlsruhe Institute of*); Gottwald, Eric (*Institute of Functional Interfaces (IFG) - Karlsruhe Institute of Technology (KIT)*)
- 10:30-10:45 SaBT14.3
Clinical Application of Multiple Vital Signs-Based Infection Screening System in a Mongolian Hospital: Optimization of Facial Temperature Measurement by Thermography at Various Ambient Temperature Conditions using Linear Regression Analysis 5313-5316
 Dagdanpurev, Sumiyakhand* (*Tokyo Metropolitan University*); Sun, Guanghao (*The University of Electro-Communications*); Choimaa, Lodoiravsal (*National University of Mongolia*); Abe, Shigeto (*Takasaka Clinic*); Matsui, Takemi (*Tokyo Metropolitan University*)

10:45-11:00	SaBT14.4
Arterial Pulse Waveform Characteristics Difference between the Three Trimesters in a Healthy Pregnancy	5317-5320
Li, Kunyan (<i>Beijing University of Technology</i>); Zhang, Song (<i>Beijing University of Technology</i>); Chi, Zhenyu (<i>Beijing University of Technology</i>); Yang, Yimin* (<i>Beijing University of Technology</i>); Jiang, Hongqing (<i>Haidian Maternal & Child Health Hospital</i>); Yang, Lin (<i>Beijing University of Technology</i>); Wang, Anran (<i>Beijing University of Technology</i>); Zhang, Lei (<i>Beijing University of Technology</i>); Chen, Fei (<i>Southern University of Science and Technology</i>); Zheng, Dingchang (<i>Anglia Ruskin University</i>)	
11:00-11:15	SaBT14.5
Optimization of Tetrapolar Impedance Electrodes in Microfluidic Devices for Point of Care Diagnostics using Finite Element Modeling	5321-5324
Hantschke, Martin* (<i>City, University of London</i>); Sideris, Dimitrios (<i>Genetic Microdevices Ltd.</i>); Kyriacou, Panayiotis (<i>City University London</i>); Triantis, Iasonas (<i>City, University of London</i>)	
11:15-11:30	SaBT14.6
Low-Cost Mobile Device for Screening of Atherosclerosis and Coronary Arterial Disease	5325-5328
Pignatelli, Niccolò (<i>MIT</i>); Ma, Botong (<i>Massachusetts Institute of Technology</i>); Sengupta, Shantanu (<i>Sengupta Hospital and Research Institute</i>); Sengupta, Partho (<i>True Vision</i>); Fletcher, Richard Ribon* (<i>Massachusetts Institute of Technology</i>)	
SaBT15: 10:00-11:30 Meeting Room 323A	
BioMEMS and Microfluidics – (Theme 3) (Oral Session)	
10:00-10:15	SaBT15.1
3D Bioprinting of Cyanobacteria for Solar-Driven Bioelectricity Generation in Resource-Limited Environments	5329-5332
Liu, Lin* (<i>State University of New York at Binghamton</i>); Gao, Yang (<i>State University of New York at Binghamton</i>); Lee, Sungjun (<i>Pensees, Inc</i>); Choi, Seokheun (<i>State University of New York at Binghamton</i>)	
10:15-10:30	SaBT15.2
Donation of Neural Stem Cells? Post Mortal Viability of Spinal Cord Neuronal Cells	5333-5337
Mikhailov, Andrey* (<i>University of Tsukuba</i>); Sankai, Yoshiyuki (<i>University of Tsukuba</i>)	
10:30-10:45	SaBT15.3
Using Cell-Seeded Electrospun Patch for Myocardial Injury: In-Vitro and in Rat Model	5338-5341
Chen, Wei-Ling (<i>Kaohsiung Veterans General Hospital</i>); Kan, Chung-Dann* (<i>National Cheng Kung University Hospital, Dept. of Surgery</i>)	
10:45-11:00	SaBT15.4
Digital High-Resolution Melt Platform for Rapid and Parallelized Molecule-by-Molecule Genetic Profiling	5342-5345
O'Keefe, Christine (<i>Johns Hopkins University</i>); Wang, Tza-Huei* (<i>Johns Hopkins University</i>)	
11:00-11:15	SaBT15.5
Integrated Bacterial Identification and Antimicrobial Susceptibility Testing for Polymicrobial Infections using Digital PCR and Digital High-Resolution Melt in a Microfluidic Array Platform	5346-5349
Athamanolap, Pornpat (<i>Johns Hopkins University</i>); Hsieh, Kuangwen (<i>Johns Hopkins University</i>); Wang, Tza-Huei* (<i>Johns Hopkins University</i>)	
11:15-11:30	SaBT15.6
Active or Passive On-Demand Droplet Merging in a Microfluidic Valve-Based Trap	5350-5353
Babahosseini, Hesam* (<i>National Institutes of Health</i>); DeVoe, Don L. (<i>University of Maryland</i>); Misteli, Tom (<i>National Cancer Institute, National Institutes of Health</i>)	

SaBT16: 10:00-11:30	Meeting Room 323B
General and Theoretical Informatics – Predictive Analytics (Theme 10) (Oral Session)	
Chair: Vettoretti, Martina (<i>University of Padova</i>)	

10:00-10:15	SaBT16.1
Seizure Prediction in EEG Records based on Spatial-Frequency Features and Preictal Period Selection	5354-5357
Wang, Qun* (<i>Beijing Institute of Technology</i>); Tian, Xin (<i>Beijing Institute of Technology</i>); Liu, Zhiwen (<i>Beijing Institute of Technology</i>)	
10:15-10:30	SaBT16.2
Importance of Recalibrating Models for Type 2 Diabetes Onset Prediction: Application of the Diabetes Population Risk Tool on the Health and Retirement Study	5358-5361
Vettoretti, Martina* (<i>University of Padova</i>); Longato, Enrico (<i>University of Padova</i>); Di Camillo, Barbara (<i>University of Padova</i>); Facchinetti, Andrea (<i>University of Padova</i>)	
10:30-10:45	SaBT16.3
Improving Young Stroke Prediction by Learning with Active Data Augmenter in a Large-Scale Electronic Medical Claims Database	5362-5365
Hung, Chen-Ying* (<i>National Tsing Hua University</i>); Lin, Ching-Heng (<i>Dept. of Medical Research, Taichung Veterans General Hospital</i>); Lee, Chi-Chun (<i>National Tsing Hua University</i>)	
10:45-11:00	SaBT16.4
Predictive Value of Prothrombin Time for All-Cause Mortality in Acute Myocardial Infarction Patients	5366-5369
Wang, Xurong (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Chen, Runge (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Li, Ye (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>); Miao, Fen* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>)	
11:00-11:15	SaBT16.5
Robust Prediction of Treatment Times in Concurrent Patient Care	5370-5373
Fricks, Rafael* (<i>Duke University</i>); Henry, Tseng (<i>Duke University</i>); Veihl, Marjorie (<i>Duke University Health System</i>); Trivedi, Kishor (<i>Duke University</i>); Barr, Roger (<i>Duke University</i>)	
11:15-11:30	SaBT16.6
Cancer Type Prediction and Classification based on RNA-Sequencing Data	5374-5377
Hsu, Yi-Hsin (<i>University of Washington Bothell</i>); Si, Dong* (<i>University of Washington</i>)	

SaBT17: 10:00-11:30	Meeting Room 323C
Body Area Networks (Theme 7) (Oral Session)	

10:00-10:15	SaBT17.1
Fusing Non-Contact Vital Sign Sensing Modalities – First Results	5378-5381
Leonhardt, Steffen* (<i>RWTH Aachen University</i>); Teichmann, Daniel (<i>RWTH Aachen University</i>)	
10:15-10:30	SaBT17.2
Evaluation of a Real-Time Low-Power Cardiorespiratory Sensor for the IoT	5382-5385
Gatouillat, Arthur* (<i>INSA-Lyon</i>); Massot, Bertrand (<i>INSA Lyon</i>); Badr, Youakim (<i>INSA-Lyon</i>); Sejdic, Ervin (<i>University of Pittsburgh</i>); Gehin, Claudine (<i>INSA Lyon</i>)	
10:30-10:45	SaBT17.3
Preliminary Investigations for Non-Invasive Temperature Change Detection in Thermotherapy by Means of UWB Microwave Radar	5386-5389
Ley, Sebastian* (<i>Technische Universität Ilmenau</i>); Fiser, Ondrej (<i>Czech Technical University in Prague</i>); Merunka, Iija (<i>Czech Technical University in Prague</i>); Vrba, Jan (<i>Czech Technical University in Prague</i>); Sachs, Jürgen (<i>Technische Universität Ilmenau</i>); Helbig, Marko (<i>Technische Universität Ilmenau</i>)	
10:45-11:00	SaBT17.4
Wireless Smartphone Control using Electromyography and Automated Gesture Recognition	5390-5393
Dawes, Jacob (<i>Oregon State University</i>); Brian, Makenzie (<i>Oregon State University</i>); Bialek, Hayden (<i>Oregon State University</i>); Johnston, Matthew* (<i>Oregon State University</i>)	

11:00-11:15	SaBT17.5
Body Sensor Networks Powered by a NFC-Coupled Smartphone in the Pocket	5394-5397
Masuda, Yuichi* (<i>University of Tokyo</i>); Noda, Akihito (<i>Nanzan University</i>); Shinoda, Hiroyuki (<i>University of Tokyo</i>)	
11:15-11:30	SaBT17.6
In-Field Remote Fingerprint Authentication using Human Body Communication and On-Hub Analytics	5398-5401
Das, Debayan (<i>Purdue University</i>); Maity, Shovan* (<i>Purdue University</i>); Chatterjee, Baibhab (<i>Purdue University</i>); Sen, Shreyas (<i>Purdue University</i>)	
SaBT18: 10:00-11:30	Meeting Room 324
Point of Care Technologies and Translation (I) (Theme 12) (Oral Session)	
Chair: Sacristan, Emilio (<i>Universidad Autónoma Metropolitana</i>)	
Co-Chair: Schachter, Steven (<i>Beth Israel Deaconess Medical Center, Harvard Medical School</i>)	
10:00-10:15	SaBT18.1
GearVision: Smartphone based Head Mounted Perimeter for Detection of Visual Field Defects	5402-5405
Sircar, Tushar* (<i>Samsung R&D Institute, Bangalore</i>); Mishra, Aarshee (<i>Samsung R&D Institute, Bangalore</i>); Bopardikar, Ajit (<i>Samsung Research India, Bangalore, Karnataka</i>); Tiwari, Vijay Narayan (<i>Samsung Research India, Bangalore</i>)	
10:15-10:30	SaBT18.2
High Intraocular Pressure Detection from Frontal Eye Images: A Machine Learning based Approach	5406-5409
Aloudat, Mohammad (<i>University of Bridgeport</i>); Faezipour, Miad* (<i>University of Bridgeport</i>); El-Sayed, Ahmed (<i>University of Bridgeport</i>)	
10:30-10:45	SaBT18.3
Sample Entropy of Speed Power Spectrum as a Measure of Laparoscopic Surgical Instrument Trajectory Smoothness	5410-5413
Hutchins, Andrew* (<i>Duke University</i>); Manson, Roberto (<i>Duke University Medical Center</i>); Zani, Jr., Sabino (<i>Duke University Medical Center</i>); Mann, Brian (<i>Duke University</i>)	
10:45-11:00	SaBT18.4
Craniectomy Effects on Resting State Functional Connectivity and Cognitive Performance in Immature Rats	5414-5417
Sargolzaei, Saman* (<i>University of California Los Angeles</i>); Cai, Yan (<i>UCLA Neurosurgery</i>); Hovda, David A. (<i>UCLA Neurosurgery</i>); Harris, Neil G (<i>UCLA</i>); Giza, Christopher (<i>UCLA Brain Injury Research Center, Dept of Neurosurgery and Division of Pediatric Neurology, Mattel Children's Hospital, Los Angeles</i>); Melissa J., Walker (<i>UCLA Neurosurgery</i>)	
11:00-11:15	SaBT18.5
Cancer Detection at your Fingertips: Smartphone-Enabled DNA Testing	5418-5421
Turner, Robert* (<i>Biological Dynamics, Inc.</i>); Madsen, James (<i>Biological Dynamics</i>); Simon Herrera, Pedro David (<i>Biological Dynamics</i>); Wallace, John (<i>Biological Dynamics</i>); Madrigal, Jonathan (<i>Biological Dynamics</i>); Hinestrosa, Juan (<i>Biological Dynamics</i>); Dobrovolskaia, Irina (<i>Biological Dynamics</i>); Krishnan, Raj (<i>Biological Dynamics, Inc.</i>)	
11:15-11:30	SaBT18.6
A Novel Modular Headmount Design for Non-Invasive Scalp EEG Recordings in Awake Animal Models	5422-5425
Paulson, Catherine* (<i>University of California Los Angeles</i>); Chien, Daniel (<i>UCLA</i>); Lin, Francis (<i>UCLA</i>); Seidlits, Stephanie (<i>UCLA</i>); Cai, Yan (<i>UCLA Neurosurgery</i>); Sargolzaei, Saman (<i>University of California Los Angeles</i>); Harris, Neil G (<i>UCLA</i>); Giza, Christopher (<i>UCLA Brain Injury Research Center, Dept of Neurosurgery and Division of Pediatric Neurology, Mattel Children's Hospital, Los Angeles</i>)	
SaBT19: 10:00-11:30	Meeting Room 325A
Sensor Informatics – Wearable Systems and Sensors (Theme 10) (Oral Session)	
10:00-10:15	SaBT19.1
A Comparison of Feature Selection Methods when using Motion Sensors Data: A Case Study in Parkinson's Disease	5426-5429
Javed, Farrukh (<i>Örebro University</i>); Thomas, Ilias (<i>Dalarna University</i>); Memedi, Mevludin* (<i>Örebro University</i>)	

10:15-10:30	SaBT19.2
Mobile Gait Analysis using Personalised Hidden Markov Models for Hereditary Spastic Paraplegia Patients	5430-5433
Martindale, Christine F* (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg</i>); Roth, Nils (<i>Friedrich Alexander University Erlangen Nuremberg</i>); Gaßner, Heiko (<i>Universitätsklinikum Erlangen, Dept. of Molecular Neurology</i>); Jensen, Dennis (<i>Universitätsklinikum Erlangen, Dept. of Molecular Neurology</i>); Kohl, Zacharias (<i>Universitätsklinikum Erlangen, Dept. of Molecular Neurology</i>); Eskofier, Bjoern M (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg</i>)	
10:30-10:45	SaBT19.3
Artificial Neural Network for Laparoscopic Skills Classification using Motion Signals from Apple Watch	5434-5437
Laverde, Rubbermaid* (<i>Pontifical Bolivarian University</i>); Rueda, Claudia (<i>Pontifical Bolivarian University</i>); Amado, Lusvin (<i>Centro Industrial de Mantenimiento Integral and Pontifical Bolivarian University</i>); Rojas, David (<i>The Wilson Centre</i>); Altuve, Miguel (<i>Pontifical Bolivarian University</i>)	
10:45-11:00	SaBT19.4
A Binary Classification of Cardiovascular Abnormality using Time-Frequency Features of Cardio-Mechanical Signals	5438-5441
Yang, Chenxi* (<i>Stevens Institute of Technology</i>); Aranoff, Nicole (<i>Yeshiva University</i>); Green, Philip (<i>Columbia University Medical Center</i>); Tavassolian, Negar (<i>Stevens Institute of Technology</i>)	
11:00-11:15	SaBT19.5
Simple Gait Symmetry Measures based on Foot Angular Velocity: Analysis in Post Stroke Patients	5442-5445
Zhang, Wei* (<i>EPFL</i>); Smuck, Matthew (<i>Stanford University</i>); Legault, Catherine (<i>Stanford Stroke Center, Stanford University</i>); Ith, Ma Agnes (<i>Wearable Health Lab, Dept. of Orthopaedic Surgery, Stanford University</i>); Muaremi, Amir (<i>Novartis</i>); Aminian, Kamiar (<i>Ecole Polytechnique Federale de Lausanne</i>)	

SaBT20: 10:00-11:30	Meeting Room 325B
Cardiovascular Models (Theme 4) (Oral Session)	
Chair: Barr, Roger (<i>Duke University</i>)	
Co-Chair: Dokos, Socrates (<i>University of New South Wales</i>)	

10:00-10:15	SaBT20.1
Electromechanical Model to Predict Cardiac Resynchronization Therapy	5446-5449
Albatat, Mohammad* (<i>Univ. of Oslo; Oslo Univ. Hospital</i>); King, David Ryan (<i>Virginia Polytechnic Institute and State Univ.</i>); Unger, Laura Anna (<i>Institute of BioMedical Engineering, Karlsruhe Institute of Technology</i>); Arevalo, Hermenegild (<i>Simula Research Lab</i>); Wall, Samuel (<i>Dept. of Scientific Computing, Simula Research Lab</i>); Sundnes, Joakim (<i>Simula Research Lab</i>); Bergsland, Jacob (<i>Intervention Centre, Univ. Hospital Oslo</i>); Balasingham, Ilango (<i>Oslo Univ. Hospital and Norwegian Univ. of Science and Technology</i>)	
10:15-10:30	SaBT20.2
Propagation of Parametric Uncertainty in Aliev-Panfilov Model of Cardiac Excitation	5450-5453
Son, Jeongeun (<i>Clarkson University</i>); Du, Yuncheng (<i>Clarkson University</i>); Du, Dongping* (<i>Texas Tech University</i>)	
10:30-10:45	SaBT20.3
Computational Fluid Dynamics Analysis to Predict Endothelial Cells Migration during Flow Exposure Experiment with Placement of Two Stent Wires	5454-5457
Putra, Narendra Kurnia* (<i>Tohoku University</i>); Wang, Zi (<i>Tohoku University</i>); Anzai, Hitomi (<i>Tohoku University</i>); Ohta, Makoto (<i>University of Tohoku</i>)	
10:45-11:00	SaBT20.4
Global Sensitivity Analysis of a Cardiovascular Model for the Study of the Autonomic Response to Head-Up Tilt Testing	5458-5461
Calvo, Mireia (<i>Univ. de Rennes 1</i>); Le Rolle, Virginie (<i>Univ. of Rennes 1</i>); Romero Pérez, Daniel (<i>Univ. de Rennes 1</i>); Béhar, Nathalie (<i>Univ. de Rennes 1</i>); Gomis, Pedro (<i>Technical Univ. of Catalonia</i>); Mabo, Philippe (<i>Univ. de Rennes 1</i>); Hernández, Alfredo I* (<i>Univ. of Rennes 1 and INSERM U1099</i>)	
11:00-11:15	SaBT20.5
Computational Analysis of the Action of Chloroquine on Short QT Syndrome Variant 1 and Variant 3 in Human Ventricles	5462-5465
Luo, Cunjin* (<i>Southwest Medical University</i>); Wang, Kuanquan (<i>Harbin Institute of Technology</i>); Liu, Tong (<i>Tianjin Medical University</i>); Zhang, Henggui (<i>Harbin Institute of Technology, School of Computer Science and Technology</i>)	

11:15-11:30 SaBT20.6
Design of an Interactive Simulation Environment for Arrays of Cardiac Cells 5466-5469
 Barr, Roger* (*Duke University*)

SaCT1: 13:30-15:00 Meeting Room 311
Neural Interfaces (V) (Theme 6) (Oral Session)

13:30-13:45 SaCT1.1
Real-Life Dry-Contact Ear-EEG 5470-5474
 Kappel, Simon Lind* (*Aarhus University, Denmark*); Kidmose, Preben (*Aarhus University, Denmark*)

13:45-14:00 SaCT1.2
Stimulation of Peripheral Nerves using Conductive Hydrogel Electrodes 5475-5478
 Gilmour, Aaron (*University of New South Wales*); Goding, Josef (*Imperial College London*); Aregueta-Robles, Ulises Alejandro (*University of New South Wales*); Staples, Naomi (*University of New South Wales*); Byrnes-Preston, Philip (*The University of New South Wales*); Morley, John William (*University of Western Sydney*); Lovell, Nigel H. (*University of New South Wales*); Chew, Daniel (*GlaxoSmithKline*); Green, Rylie Adelle* (*Imperial College London*)

14:00-14:15 SaCT1.3
Novel Techniques for Large-Scale Manipulations of Cortical Networks in Non-Human Primates 5479-5482
 Yazdan-Shahmorad, Azadeh* (*University of Washington*); Silversmith, Daniel (*University of California, San Francisco*); Sabes, Philip N. (*University of California, San Francisco*)

14:15-14:30 SaCT1.4
Investigation of the Efficiency of the Shape of Chopped Pulses using Earthworm Model 5483-5486
 Dali, Melissa* (*INRIA, LIRMM, University of Montpellier*); Guiho, Thomas (*University of Montpellier (LIRMM)*); Maciejasz, Pawel (*AXONIC, MXM*); Rossel, Olivier (*LIRMM - UMII/CNRS*); Guiraud, David (*INRIA*)

14:30-14:45 SaCT1.5
A Wireless Platform to Support Pre-Clinical Trial of Neural Implant for Spinal Cord Injury 5487-5490
 Massachi, Jonathan* (*University of California Los Angeles*); Lo, Yi-Kai (*University of California Los Angeles*); Wang, Po-Min (*UCLA*); Liu, Wentai (*University of California Los Angeles*)

14:45-15:00 SaCT1.6
Design and Assessment of Stimulation Parameters for a Novel Peripheral Nerve Interface 5491-5494
 Patrick, Erin (*University of Florida*); Currilin, Seth (*University of Florida*); Kundu, Aritra (*University of Florida*); Delgado, Francisco (*University of Florida*); Fahmy, Ahmed S. (*Cairo University*); Madler, Ryan (*University of Florida*); Maghari, Nima (*University of Florida*); Bashirullah, Rizwan (*University of Florida*); Gunduz, Aysegul (*University of Florida*); Otto, Kevin* (*University of Florida*)

SaCT2: 13:30-15:00 Meeting Room 312
Signal Processing and Classification for Wearable Systems and Smartphones (Theme 1) (Oral Session)
Chair: Porta, Alberto (*Università degli Studi di Milano*)

13:30-13:45 SaCT2.1
Real-Time Mental State Recognition using a Wearable EEG 5495-5498
 Richer, Robert* (*Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany*); Zhao, Nan (*MIT Media Lab*); Amores, Judith (*MIT Media Lab*); Eskofier, Bjoern M (*Friedrich-Alexander-Universität Erlangen-Nürnberg*)

13:45-14:00 SaCT2.2
SpiroConfidence: Determining the Validity of Smartphone based Spirometry using Machine Learning 5499-5502
 Viswanath, Varun* (*University of Washington*); Garrison, Jake (*University of Washington*); Patel, Shwetak (*University of Washington*)

14:00-14:15 SaCT2.3
Smartphone based Real-Time Super Gaussian Single Microphone Speech Enhancement to Improve Intelligibility for Hearing Aid Users using Formant Information 5503-5506
 Shreedhar Bhat, Gautam* (*University of Texas at Dallas*); Karadagur Ananda Reddy, Chandan (*University of Texas at Dallas*); Shankar, Nikhil (*University of Texas at Dallas*); Panahi, Issa (*University of Texas at Dallas*)

14:15-14:30 SaCT2.4
Effect of Parkinsonism on Proximal Unstructured Movement Captured by Inertial Sensors 5507-5510
 Phan, Dung* (*Deakin University*); Horne, Malcolm (*Florey Institute of Neuroscience and Mental Health*); Pathirana, Pubudu N. (*Deakin University*); Farzanehfar, Parisa (*Florey Institute of Neuroscience and Mental Health*)

14:30-14:45 SaCT2.5
End-to-End Learning for Measuring In-Meal Eating Behavior from a Smartwatch 5511-5514
 Kyritsis, Konstantinos (*Aristotle University of Thessaloniki*); Diou, Christos (*Aristotle University of Thessaloniki*); Delopoulos, Anastasios* (*Aristotle University of Thessaloniki*)

14:45-15:00 SaCT2.6
Robust Estimation of Pulse Rate from a Wrist-Type PPG during Intensive Exercise 5515-5518
 Pittara, Melpo (*University of Cyprus*); Orphanidou, Christina* (*University of Cyprus*)

SaCT3: 13:30-15:00 Meeting Room 314
Functional Image Analysis (Theme 2) (Oral Session)
Chair: Chan, Kevin C. (*New York University*)
Co-Chair: Toschi, Nicola (*University of Rome*)

13:30-13:45 SaCT3.1
Functional MRI of Sensory Substitution in the Blind 5519-5522
 Chan, Kevin C.* (*New York University*); Murphy, Matthew (*Mayo Clinic*); Bang, Ji Won (*New York University School of Medicine*); Sims, Jeffrey (*New York University School of Medicine*); Kashkoush, Jasmine (*New York University School of Medicine*); Nau, Amy C. (*University of Pittsburgh*)

13:45-14:00 SaCT3.2
Improved Application of Sparse Representation Classifier in fMRI-Based Brain State Decoding 5523-5526
 Guo, Zhaoxi (*Beijing Normal Univ., State Key Lab of Cognitive Neuroscience and Learning & IDG/McGovern Institute for Brain Research*); Long, Zhiying* (*Beijing Normal Univ.*); Zhang, Jing (*Beijing Normal Univ., State Key Lab of Cognitive Neuroscience and Learning & IDG/McGovern Institute for Brain Research*); Xia, Maogeng (*Beijing Normal Univ., State Key Lab of Cognitive Neuroscience and Learning & IDG/McGovern Institute for Brain Research*); Li, Yao (*College of Information Science and Technology, Beijing Normal Univ.*)

14:00-14:15 SaCT3.3
Functional MRI Investigation of Audiovisual Interactions in Auditory Midbrain 5527-5530
 Dong, Celia M. (*University of Hong Kong*); Leong, Alex T. L. (*University of Hong Kong*); Manno, Francis AM (*City University of Hong Kong*); Lau, Condon (*City University of Hong Kong*); Ho, Leon C. (*University of Hong Kong*); Chan, Russell W. (*Stanford University*); Feng, Yanqiu (*Southern Medical University*); Gao, Patrick P. (*University of Hong Kong*); Wu, Ed X.* (*University of Hong Kong*)

14:15-14:30 SaCT3.4
Auditory-Visual Convergence at the Superior Colliculus in Rat using Functional MRI 5531-5536
 Lau, Condon (*City University of Hong Kong*); Manno, Francis AM (*City University of Hong Kong*); Dong, Celia M. (*University of Hong Kong*); Chan, Kevin C. (*New York University*); Wu, Ed X.* (*University of Hong Kong*)

14:30-14:45 SaCT3.5
A Realistic Neuronal Network and Neurovascular Coupling Model for the Study of Multivariate Directed Connectivity in fMRI Data 5537-5540
 Duggento, Andrea* (*University of Rome "Tor Vergata"*); Passamonti, Luca (*University of Cambridge*); Guerrisi, Maria (*University of Rome "Tor Vergata"*); Toschi, Nicola (*University of Rome "Tor Vergata", Faculty of Medicine*)

14:45-15:00 SaCT3.6
Regularized Spatial Filtering Method (R-SFM) for Detection of Attention Deficit Hyperactivity Disorder (ADHD) from Resting-State Functional Magnetic Resonance Imaging (rs-fMRI) 5541-5544
 M S Aradhya, Abhay* (*Nanyang Technological University*); Subbaraju, Vigneshwaran (*Agency for Science Technology and Research, Singapore*); Sundaram, Suresh (*Nanyang Technological University*); Sundararajan, Narasimhan (*Nanyang Technological University*)

13:30-13:45 SaCT4.1
Influence of Wilson Center Terminal on Fetal Electrocardiography Acquisition 5545-5548
 Charlier, Pierre* (*University of Lille (France)*); Logier, Regis (*CHRU de Lille*); De Jonckheere, Julien (*CHRU de Lille*)

13:45-14:00 SaCT4.2
A Low-Power, Low-Cost Ingestible and Wearable Sensing Platform to Measure Medication Adherence and Physiological Signals 5549-5553
 Weeks, William A.* (*Proteus Digital Health*); Dua, Aditya (*Proteus Digital Health*); Hutchison, James B. (*Proteus Digital Health, Inc.*); Joshi, Renu (*Proteus Digital Health*); Li, Ronny (*Proteus Digital Health*); Szejer, Jessica (*Proteus Digital Health*); Azevedo, Robert G. (*Proteus Digital Health*)

14:00-14:15 SaCT4.3
A Low-Power Dynamic-Range Relaxed Analog Front End for Photoplethysmogram Acquisition 5554-5557
 Zhang, Hao (*Shenzhen Institutes of Advanced Technology*); Junxiang, Wang (*Shenzhen Institutes of Advanced Technology*); Li, Ye* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences*)

14:15-14:30 SaCT4.4
Measuring Weight and Location of Individual Bites using a Sensor Augmented Smart Plate 5558-5561
 Mertes, Gert* (*KU Leuven*); Christiaensen, Glenn (*KU Leuven*); Hallez, Hans (*KU Leuven*); Verslype, Sammy (*KU Leuven*); Chen, Wei (*Fudan University*); Vanrumste, Bart (*Katholieke Universiteit Leuven*)

14:30-14:45 SaCT4.5
Motion Artefact Free Magnetoplethysmogram 5562-5565
 Kumar V, Jagadeesh* (*Indian Institute of Technology, Madras*); Suresh, Rezuana (*Indian Institute of Technology, Madras*); Sivaprakasam, Mohanasankar (*Indian Institute of Technology Madras*)

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14:45-15:00 SaCT4.6
A 5-ms Error, 22-uA Photoplethysmography Sensor using Current Integration Circuit and Correlated Double Sampling 5566-5569
 Watanabe, Kento* (*Kobe University*); Izumi, Shintaro (*Kobe University*); Yano, Yuji (*Kobe University*); Kawaguchi, Hiroshi (*Kobe University*); Yoshimoto, Masahiko (*Kobe University*)

13:30-13:45 SaCT5.1
Limited-View CT Reconstruction based on Autoencoder-Like Generative Adversarial Networks with Joint Loss 5570-5574
 Bai, Jianan (*College of Geographic and Biologic Information, Nanjing University of Posts and Telecommunications*); Dai, Xiubin* (*Nanjing University of Posts and Telecommunications*); Wu, Qingjiang (*College of Geographic and Biologic Information, Nanjing University of Posts and Telecommunications*); Xie, Lizhe (*Jiangsu Province Key Lab of Oral Disease, Nanjing Medical University*)

13:45-14:00 SaCT5.2
Evaluation of Different Types of Filters in Magnetic Resonance Imaging using Compressive Sensing with Pre-Filtering 5575-5578
 Lima, Jonathan Alis* (*Universidade de Brasilia*); Miosso, Cristiano (*University of Brasilia at Gama*); Farias, Mylène (*University of Brasilia (UnB)*); von Borries, Ricardo F. (*The University of Texas at El Paso*)

14:00-14:15 SaCT5.3
A New ROI-Based Performance Evaluation Method for Image Denoising using the Squared Eigenfunctions of the Schrödinger Operator 5579-5582
 Chahid, Abderrazak* (*King Abdullah University of Science and Technology*); Serrai, Hacene (*Institute for Biodiagnostics - National Research Council Canada*); Achten, Eric (*University of Gent*); Laleg, Taous-Meriem (*King Abdullah University of Science and Technology (KAUST)*)

14:15-14:30 SaCT5.4
KSR-NLM: A Non Local Means Despeckling Filter for Ultrasound Images based on Ratio Patch and KS Distance 5583-5585
 Ambrosanio, Michele* (*University of Napoli Parthenope*); Baselić, Fabio (*University of Napoli Parthenope*); Ferraioli, Giampaolo (*University of Napoli Parthenope, Dipartimento di Scienze e Tecnologie*)

SaCT6: 13:30-15:00 Meeting Room 316B
Neuromuscular Systems (III) (Theme 6) (Oral Session)

13:30-13:45 SaCT6.1
Applying Entropy to Human Center of Foot Pressure Data to Assess Attention Investment in Balance Control 5586-5589
 Franco, Céline (*TIMC-IMAG*); Fleury, Anthony* (*IMT Lille Douai*); Diot, Bruno (*IDS SA*); Vuillerme, Nicolas (*University Grenoble Alpes, AGEIS, France*)

13:45-14:00 SaCT6.2
A Neuro-Musculo-Skeletal Model of Human Standing Combining Muscle-Reflex Control and Virtual Model Control 5590-5593
 Suzuki, Yasuyuki* (*Osaka University*); Geyer, Hartmut (*Carnegie Mellon University*)

14:00-14:15 SaCT6.3
Improving Perception of Perturbations and Balance using a Novel Dynamic Computerized Biofeedback based Intervention after Traumatic Brain Injury 5594-5597
 Tanis, Daniel (*Kessler Foundation*); Pilkar, Rakesh* (*Kessler Foundation - Rutgers NJMS*); Ibironke, Oluwaseun (*Kessler Foundation*); Nolan, Karen J. (*Kessler Foundation*)

14:15-14:30 SaCT6.4
Assessment of Attention Demand for Balance Control using a Smartphone: Implementation and Evaluation 5598-5601
 Fleury, Anthony* (*IMT Lille Douai*); Mourcou, Quentin (*WEGOTO*); Franco, Céline (*TIMC-IMAG*); Vuillerme, Nicolas (*University Grenoble Alpes, AGEIS, France*); Diot, Bruno (*IDS SA*)

14:30-14:45 SaCT6.5
Emergence of Lissajous Patterns as a Function of a Perturbation Frequency in Postural Responses to the Short Sinusoidal Translations of Varying Frequencies 5602-5605
 Pilkar, Rakesh* (*Kessler Foundation - Rutgers NJMS*); Robinson, Charles (*Clarkson University*)

14:45-15:00 SaCT6.6
Information Encoding Methods for Balance Assist Device using Vibrotactile Feedback 5606-5609
 Fukuoka, Yutaka* (*Kogakuin Univ.*); Nozawa, Tatsuya (*Kogakuin Univ.*); Fukuda, Yosuke (*Kogakuin Univ.*)

SaCT7: 13:30-15:00 Meeting Room 316C
Signal Processing and Classification: Heart Rate Variability (Theme 1) (Oral Session)
Chair: Barbieri, Riccardo (*Politecnico di Milano*)

13:30-13:45 SaCT7.1
Reliability of Short-Term Heart Rate Variability Indexes Assessed through Photoplethysmography 5610-5613
 Pernice, Riccardo (*Univ. of Palermo*); Javorka, Michal* (*Comenius Univ., Jessenius Faculty of Medicine*); Krohova, Jana (*Comenius Univ. in Bratislava*); Czipelova, Barbora (*Dept. of Physiology, Comenius Univ., Jessenius Faculty of Medicine*); Turianikova, Zuzana (*Dept. of Physiology, Comenius Univ., Jessenius Faculty of Medicine*); Busacca, Alessandro (*Università degli Studi di Palermo*); Faes, Luca (*Univ. of Palermo*)

13:45-14:00 SaCT7.2
Heart Rate Variability during Periods of Low Blood Pressure as a Predictor of Short-Term Outcome in Preterms 5614-5617
 Semenova, Oksana* (*University College Cork*); Carra, Giorgia (*Lab of Intensive Care Medicine, KU Leuven*); Lightbody, Gordon (*University College Cork*); Boylan, Geraldine (*University College Cork*); Dempsey, Eugene (*Irish Centre for Fetal and Neonatal Translational Research (INFANT), University College Cork*); Temko, Andriy (*University College Cork*)

14:00-14:15 SaCT7.3
Towards Objective Olfactory Evaluation based on Peripheral Arterial Stiffness and Heart Rate Variability Indices 5618-5623
 Totsuka, Masaaki* (*Hiroshima University*); Soh, Zu (*Dept. of System Cybernetics, Institute of Engineering, Hiroshima University*); Sasaoka, Takafumi (*Hiroshima University*); Yamawaki, Shigeto (*Hiroshima University*); Tsuji, Toshio (*Hiroshima University*)

14:15-14:30 SaCT7.4
Continuous Pain Intensity Estimation from Autonomic Signals with Recurrent Neural Networks 5624-5627
 Lopez-Martinez, Daniel* (*Massachusetts Institute of Tech.*); Picard, Rosalind (*Massachusetts Institute of Tech.*)

14:30-14:45 SaCT7.5
ECG-Derived Sympathetic and Parasympathetic Activity in the Healthy: An Early Lower-Body Negative Pressure Study using Adaptive Kalman Prediction 5628-5631
 Valenza, Gaetano* (*University of Pisa*); Citi, Luca (*University of Essex*); Wyller, Vegard Bruun (*University of Oslo*); Barbieri, Riccardo (*Politecnico di Milano*)

14:45-15:00 SaCT7.6
Noise Detection in Electrocardiography Signal for Robust Heart Rate Variability Analysis: A Deep Learning Approach 5632-5635
 Ansari, Sardar* (*University of Michigan*); Gryak, Jonathan (*University of Michigan*); Najarian, Kayvan (*University of Michigan - Ann Arbor*)

SaCT9: 13:30-15:00 Meeting Room 318B
Biomedical Signal Classification: Electromyography (II) (Theme 1) (Oral Session)

13:30-13:45 SaCT9.1
Surface EMG Pattern Recognition using Long Short-Term Memory Combined with Multilayer Perceptron 5636-5639
 He, Yunan* (*Saga University*); Fukuda, Osamu (*Saga University*); Bu, Nan (*NIT, Kumamoto College*); Okumura, Hiroshi (*Saga University*); Yamaguchi, Nobuhiko (*Saga University*)

13:45-14:00 SaCT9.2
Rejection of Systemic and Operator Errors in a Real-Time Myoelectric Control Task 5640-5643
 Robertson, Jason William (*University of New Brunswick*); Englehart, Kevin (*University of New Brunswick*); Scheme, Erik* (*University of New Brunswick*)

14:00-14:15 SaCT9.3
Fault-Tolerant Sensor Detection of sEMG Signals: Quality Analysis using a Two-Class Support Vector Machine 5644-5647
 de Moura, Karina de Oliveira Alves (*Federal Univ. of Rio Grande do Sul (UFRGS)*); Ruschel dos Santos, Raphael* (*Univ. Federal do Rio Grande do Sul*); Balbinot, Alexandre (*Federal Univ. of Rio Grande do Sul (UFRGS)*)

14:15-14:30 SaCT9.4
Non-Invasive Detection of Low-Level Muscle Fatigue using Surface EMG with Wavelet Decomposition 5648-5651
 Zhang, Guangyi* (*Central South University*); Morin, Evelyn (*Queen's University*); Zhang, Yaoyue (*Central South University*); Etemad, S. Ali (*Queen's University*)

14:30-14:45 SaCT9.5
Improving Myoelectric Pattern Recognition Robustness to Electrode Shift by Autoencoder 5652-5655
 Lyu, Bo (*Shanghai Jiao Tong University*); Sheng, Xinjun* (*Shanghai Jiao Tong University*); Zhu, Xiangyang (*Shanghai Jiao Tong University*)

14:45-15:00 SaCT9.6
Measuring Complexity in Different Muscles during Sustained Contraction using Fractal Properties of SEMG Signal 5656-5659
 Poosapadi Arjunan, Sridhar* (*SRM Institute of Science and Technology*); Kant Kumar, Dinesh (*RMIT University*)

- 13:30-13:45 SaCT10.1
Effects of Interpatient Variance on Microwave Breast Images: Experimental Evaluation 5660-5663
 O'Loughlin, Declan* (*National University of Ireland Galway*); Oliveira, Bárbara L. (*National University of Ireland Galway*); Glavin, Martin (*National University of Ireland*); Jones, Edward (*National University of Ireland Galway*); O'Halloran, Martin (*National University of Ireland, Galway*)
- 13:45-14:00 SaCT10.2
Principal Component Analysis of Dynamic Thermography Data from Pregnant and Non-Pregnant Women 5664-5667
 Falzon, Owen* (*University of Malta*); Ciantar, Annelie (*University of Malta*); Sammut, Lara (*Mater Dei Hospital*); Schembri, Martina (*Mater Dei Hospital*); Muscat Baron, Yves (*Dept. of Obstetrics and Gynaecology*); Calleja-Agius, Jean (*Faculty of Medicine and Surgery*); Demicoli, Pierre (*University of Malta*); Camilleri, Kenneth Patrick (*University of Malta*)
- 14:00-14:15 SaCT10.3
Registration of Dynamic Thermography Data of the Abdomen of Pregnant and Non-Pregnant Women .. 5668-5671
 Ciantar, Annelie (*Univ. of Malta*); Falzon, Owen* (*Univ. of Malta*); Sammut, Lara (*Mater Dei Hospital*); Schembri, Martina (*Mater Dei Hospital*); Muscat Baron, Yves (*Dept. of Obstetrics and Gynaecology*); Calleja-Agius, Jean (*Faculty of Medicine and Surgery*); Demicoli, Pierre (*Univ. of Malta*); Camilleri, Kenneth Patrick (*Univ. of Malta*)
- 14:15-14:30 SaCT10.4
Multispectral Camera Fusion increases Robustness of ROI Detection for Biosignal Estimation with Nearables in Real-World Scenarios 5672-5675
 Scebbba, Gaetano* (*ETH Zurich*); Tüshaus, Laura Margarete (*ETH Zurich*); Karlen, Walter (*ETH Zurich*)

- 13:30-13:45 SaCT12.1
Remote Heart Rate Measurement from RGB-NIR Video based on Spatial and Spectral Face Patch Selection 5676-5680
 Kado, Shiika* (*Tokyo Institute of Technology*); Monno, Yusuke (*Tokyo Institute of Technology*); Moriwaki, Kenta (*Tokyo Institute of Technology*); Yoshizaki, Kazunori (*Olympus Corp.*); Tanaka, Masayuki (*National Institute of Advanced Industrial Science and Technology*); Okutomi, Masatoshi (*Tokyo Institute of Technology*)
- 13:45-14:00 SaCT12.2
Electrocardiogram Derived Respiratory Signal through the Segmented-Beat Modulation Method 5681-5684
 Pambianco, Benedetta (*Università Politecnica Delle Marche*); Sbröllini, Agnese (*Università Politecnica delle Marche*); Marcantoni, Ilaria (*Università Politecnica delle Marche*); Morettini, Micaela (*Università Politecnica delle Marche*); Fioretti, Sandro (*Università Politecnica delle Marche*); Burattini, Laura* (*Università Politecnica delle Marche*)
- 14:00-14:15 SaCT12.3
A Chair based Ballistocardiogram Time Interval Measurement with Cardiovascular Provocations 5685-5688
 Rajala, Satu* (*Nokia Technologies*); Ahmaniemi, Teemu (*Nokia Technologies*); Lindholm, Harri (*Nokia Technologies*); Taipalus, Tapio (*Nokia Technologies*); Müller, Kiti (*Nokia Bell Labs*)
- 14:15-14:30 SaCT12.4
R-R Interval Outlier Exclusion Method based on Statistical ECG Values Targeting HRV Analysis using Wearable ECG Devices 5689-5692
 Eguchi, Kana* (*NTT Corp.*); Aoki, Ryosuke (*NTT Corp.*); Yoshida, Kazuhiro (*NTT Service Evolution Labs*); Yamada, Tomohiro (*NTT*)
- 14:30-14:45 SaCT12.5
Consideration of Calculation Process Assuming Heart Rate Variability Analysis using Wearable ECG Devices 5693-5696
 Aoki, Ryosuke (*NTT Corp.*); Eguchi, Kana* (*NTT Corp.*); Shimauchi, Suehiro (*NTT Corp.*); Yoshida, Kazuhiro (*NTT Service Evolution Labs*); Yamada, Tomohiro (*NTT*)

14:45-15:00 SaCT12.6
Heart Rate Variability Analysis on CEBS Database Signals 5697-5700
 Siecinski, Szymon* (*Silesian Univ. of Technology, Faculty of BioMedical Engineering*); Kostka, Pawel Stanislaw (*Silesian Univ. of Technology*); Tkacz, Ewaryst (*Silesian Univ. of Tech, Faculty of BioMedical Engineering*)

SaCT14: 13:30-15:00 Meeting Room 322AB
Therapeutic Ultrasound (I) (Theme 9) (Oral Session)
Chair: Almekkawy, Mohamed (*Penn State University*)

13:30-13:45 SaCT14.1
The Effect of Tissue Physiological Variability on Transurethral Ultrasound Therapy of the Prostate 5701-5704
 Suomi, Visa* (*Turku University Hospital*); Treeby, Bradley E. (*University College London*); Jaros, Jiri (*Brno University of Technology*); Saunavaara, Jani (*Turku University Hospital*); Kiviniemi, Aida (*Turku University Hospital*); Blanco, Roberto (*Turku University Hospital*)

13:45-14:00 SaCT14.2
Ex Vivo Assessment of Multiple Parameters in High Intensity Focused Ultrasound 5705-5708
 Simoni, Virginia (*Scuola Superiore Sant'Anna*); Cafarelli, Andrea (*Scuola Superiore Sant'Anna*); Tognarelli, Selene (*Scuola Superiore Sant'Anna*); Menciassi, Arianna* (*Scuola Superiore Sant'Anna*)

14:00-14:15 SaCT14.3
Patient Specific Simulation of HIFU Kidney Tumour Ablation 5709-5712
 Abbas, Magda Abdelbasit* (*University of Oxford*); Coussios, Constantin-C (*University of Oxford*); Cleveland, Robin (*University of Oxford*)

14:15-14:30 SaCT14.4
Ultrasound Acoustic Radiation Force Impulse Imaging for High Intensity Focused Ultrasound Focal Spot Localization 5713-5716
 Cafarelli, Andrea (*Scuola Superiore Sant'Anna*); Chanel, Laure-Anaïs (*University of Strasbourg*); Di Bartolo, Francesco (*Scuola Superiore Sant'Anna*); Locteau, Hervé (*Image Guided Therapy*); Tognarelli, Selene (*Scuola Superiore Sant'Anna*); Dumont, Erik (*Image Guided Therapy*); Menciassi, Arianna* (*Scuola Superiore Sant'Anna*)

14:30-14:45 SaCT14.5
Ultrasound-Enhanced Ciclopirox Delivery for Treatment of Onychomycosis 5717-5720
 Kline-Schoder, Alina* (*George Washington University*); Le, Zung (*George Washington University*); Zderic, Vesna (*George Washington University*)

SaCT15: 13:30-15:00 Meeting Room 323A
Cell-Based Engineering (Theme 3) (Oral Session)
Chair: Hradetzky, David (*School of Life Sciences*)
Co-Chair: Sonkusale, Sameer (*Tufts University*)

13:30-13:45 SaCT15.1
Comparative Study of Pore Formation Energy by High Intensity, Nanosecond Electrical Pulse 5721-5724
 Qiu, Hao (*Fort Valley state University*); Wang, Xianping* (*Southeast Missouri State University*); Choi, Anthony (*Mercer University*); Zhao, Wenbing (*Cleveland State University*)

13:45-14:00 SaCT15.2
Method for Analysis of Electrospray for Gene Transfer and the Impact on Cell Viability of A549 Alveolar Epithelial Like Cells 5725-5728
 Hradetzky, David* (*School of Life Sciences*); Boehringer, Stephan (*University of Applied Sciences, School of Life Sciences, Institut for Medical- and Analytical Technologies*); Ruzgys, Paulius (*Vytautas Magnus University*); Šatkauskas, Saulius (*Vytautas Magnus University*); Geiser, Thomas (*University Hospital Bern, Dept. of Clinical Research*); Gazdhar, Amiq (*University Hospital Bern, Dept. of Clinical Research*)

14:00-14:15 SaCT15.3
Rapid Prototyping Method for 3D Printed Biomaterial Constructs with Vascular Structures 5729-5732
 Gullo, Maurizio R. (*University of Applied Sciences and Arts Northwestern Switzerland*); Koeser, Joachim (*University of Applied Sciences and Arts Northwestern Switzerland*); Ruckli, Oliver (*University of Applied Sciences and Arts Northwestern Switzerland*); Eigenmann, Andrej (*University of Applied Sciences and Arts Northwestern Switzerland*); Hradetzky, David* (*School of Life Sciences*)

14:15-14:30	SaCT15.4
Fabrication and Optimization of Dp44mT-Loaded Nanoparticles	5733-5736
Holley, Claire (<i>Univ. of Houston</i>); Alkhalifah, Sukaina (<i>Univ. of Houston</i>); Majd, Sheereen* (<i>Univ. of Houston</i>)	
14:30-14:45	SaCT15.5
Cost-Effective Fabrication of Chitosan Microneedles for Transdermal Drug Delivery	5737-5740
Sadeqi, Aydin (<i>Tufts University</i>); Rezaei Nejad, Hojatollah (<i>Tufts University</i>); Kiaee, Gita (<i>Tufts University</i>); Sonkusale, Sameer* (<i>Tufts University</i>)	
14:45-15:00	SaCT15.6
Microbes Culture System using Cellulose Tubes and Photocatalyst-Coated Glass Balls	5741-5744
Saito, Kaoru* (<i>Keio Univ.</i>); Fujimoto, Kazuma (<i>Keio Univ.</i>); Higashi, Kazuhiko (<i>Keio Univ.</i>); Miki, Norihisa (<i>Univ.</i>)	

SaCT16: 13:30-15:00	Meeting Room 323B
Health Informatics – Behavioral Health Informatics (Theme 10) (Oral Session)	

13:30-13:45	SaCT16.1
Time-Series Prediction of Proximal Aggression Onset in Minimally-Verbal Youth with Autism Spectrum Disorder using Physiological Biosignals	5745-5748
Ozdenizci, Ozan* (<i>Northeastern University</i>); Cumpanasoiu, Catalina (<i>Northeastern University</i>); Mazefsky, Carla (<i>University of Pittsburgh</i>); Siegel, Matthew (<i>Maine Medical Center Research Institute</i>); Erdogmus, Deniz (<i>Northeastern University</i>); Ioannidis, Stratis (<i>Northeastern University</i>); Goodwin, Matthew (<i>Northeastern University</i>)	
13:45-14:00	SaCT16.2
Citizen-Centric Web-Based Health Profiling Service: A Service Concept and a Profiling Method	5749-5752
Honka, Anita* (<i>VTT Technical Research Center of Finland</i>); Vainikainen, Sari (<i>VTT Technical Research Centre of Finland Ltd.</i>); Similä, Heidi (<i>VTT Technical Research Centre of Finland Ltd.</i>); Mattila, Elina (<i>VTT</i>); Leppänen, Juha (<i>VTT</i>); Kinnunen, Timo (<i>VTT Technical Research Centre of Finland Ltd.</i>); Ermes, Miikka (<i>VTT Technical Research Centre</i>)	
14:00-14:15	SaCT16.3
Eliminating Individual Bias to Improve Stress Detection from Multimodal Physiological Data	5753-5758
Das, Deepan* (<i>Tata Consultancy Services</i>); Datta, Shreyasi (<i>Tata Consultancy Services</i>); Bhattacharjee, Tanuka (<i>Research & Innovation, Tata Consultancy Services, India</i>); Dutta Choudhury, Anirban (<i>Tata Consultancy Services Ltd.</i>); Pal, Arpan (<i>Tata Consultancy Services</i>)	
14:15-14:30	SaCT16.4
The Importance of Field Experiments in Testing of Sensors for Dietary Assessment and Eating Behavior Monitoring	5759-5762
Doulah, Abul (<i>University of Alabama</i>); Yang, Xin (<i>University of Alabama</i>); Parton, Jason (<i>University of Alabama</i>); Higgins, Janine (<i>The University of Colorado</i>); McCrory, Megan (<i>Boston University</i>); Sazonov, Edward* (<i>University of Alabama</i>)	
14:30-14:45	SaCT16.5
Depression Severity Classification from Speech Emotion	5763-5766
Harati, Sahar* (<i>Emory University</i>); Crowell, Andrea (<i>Emory University</i>); Mayberg, Helen (<i>Emory University</i>); Nemati, Shamim (<i>Emory University School of Medicine</i>)	

SaCT17: 13:30-15:00	Meeting Room 323C
Integrated Sensor Systems (Theme 7) (Oral Session)	

13:30-13:45	SaCT17.1
Detection of Infant Motor Activity during Spontaneous Kicking Movements for Term and Preterm Infants using Inertial Sensors	5767-5770
Fry, Katelyn* (<i>Georgia Institute of Technology</i>); Chen, Yuping (<i>Georgia State University</i>); Howard, Ayanna (<i>Georgia Institute of Technology</i>)	

13:45-14:00	SaCT17.2
Center of Gravity Tracker for Operator Fatigue Detection	5771-5774
Owen, Elliot (<i>Massachusetts Institute of Technology</i>); Maeda, Tomohiro (<i>Massachusetts Institute of Technology</i>); Jiang, Ziwen (<i>Massachusetts Institute of Technology</i>); Udotong, Isaiah (<i>Massachusetts Institute of Technology</i>); Hornberger, Erik (<i>Sumitomo Heavy Industries, Ltd.</i>); Morita, Junichi (<i>Sumitomo Heavy Industries, Ltd.</i>); Hom, Gim (<i>Massachusetts Institute of Technology</i>); Hanumara, Nevan* (<i>Massachusetts Institute of Technology</i>)	
14:00-14:15	SaCT17.3
A Practical Method to Reduce Electrode Mismatch Artefacts during 4-Electrode BioImpedance Spectroscopy Measurements	5775-5779
Montalibet, Amalric (<i>INL UMR-5270 - INSA Lyon</i>); McAdams, Eric* (<i>INSA Lyon</i>)	
14:15-14:30	SaCT17.4
Design and Validation of Front-End Voltage Follower for Capacitive Electrocardiogram Measurement using Bootstrapping Technique	5780-5783
Nakamura, Hajime* (<i>Tokyo Denki Univ.</i>); Kato, Yuki (<i>Tokyo Denki Univ.</i>); Ueno, Akinori (<i>Tokyo Denki Univ.</i>)	
14:30-14:45	SaCT17.5
InPhysible: Camouflage against Video-Based Physiological Measurement	5784-5789
McDuff, Daniel Jonathan* (<i>Microsoft</i>); Hurter, Christophe (<i>ENAC French Civil Aviation Univ., Toulouse Univ.</i>)	
14:45-15:00	SaCT17.6
Qualification of Wrist Functional Performance during Dart Thrower's Movement	5790-5793
Nguyen, Nhan* (<i>Deakin University</i>); Pham, Trieu H. (<i>Deakin University</i>); Pathirana, Pubudu N. (<i>Deakin University</i>); Babazadeh, Sina (<i>Barwon Orthopaedic Research Unit, Barwon Health, University Hospital Geelong</i>); Page, Richard (<i>Barwon Orthopaedic Research Unit, Barwon Health, University Hospital Geelong</i>); Seneviratne, Aruna (<i>CSIRO's Data61</i>)	

SaCT18: 13:30-15:00	Meeting Room 324
Point of Care Technologies and Translation (II) (Theme 12) (Oral Session)	

13:30-13:45	SaCT18.1
A Touchless System for Image Visualization during Surgery: Preliminary Experience in Clinical Settings	5794-5797
Massaroni, Carlo* (<i>Università Campus Bio-Medico di Roma</i>); Giurazza, Francesco (<i>Università Campus Bio-Medico di Roma</i>); Tesei, Marco (<i>Università Campus Bio-Medico di Roma</i>); Schena, Emiliano (<i>University of Rome Campus Bio-Medico</i>); F., Corvino (<i>Interventional Radiology Dept., AORN "A. Cardarelli"</i>); Meneo, Marco (<i>Proge-Software Srl</i>); Corletti, Luigi (<i>Proge-Software s.r.l.</i>); Niola, Raffaella (<i>A.O.R.N. Cardarelli</i>); Setola, Roberto (<i>University CAMPUS Bio-Medico</i>)	
13:45-14:00	SaCT18.2
Integrated IoT Intelligent System for the Automatic Detection of Cardiac Variability	5798-5801
Martínez-Millana, Antonio (<i>Universidad Politécnica de Valencia</i>); Palao-Cruz, Carmen (<i>ITACA. Universitat Politècnica de València</i>); Fernandez-Llatas, Carlos (<i>Universidad Politécnica de Valencia</i>); de Carvalho, Paulo (<i>University of Coimbra</i>); Bianchi, Anna Maria (<i>Politecnico di Milano</i>); Traver, Vicente* (<i>ITACA - Universitat Politècnica de València</i>)	
14:00-14:15	SaCT18.3
An Interactive, Patient-Specific Virtual Surgical Planning System for Upper Airway Obstruction Treatments	5802-5805
Clipp, Rachel* (<i>Kitware, Inc.</i>); Vicory, Jared (<i>Kitware, Inc.</i>); Horvath, Samantha (<i>Kitware, Inc.</i>); Mitran, Sorin (<i>University of North Carolina</i>); Kimbell, Julia (<i>University of North Carolina at Chapel Hill</i>); Rhee, John (<i>Medical College of Wisconsin</i>); Enquobahrie, Andinet (<i>Kitware, Inc.</i>)	
14:15-14:30	SaCT18.4
Towards Mobile Gaze-Directed Beamforming: A Novel Neuro-Technology for Hearing Loss	5806-5809
Anderson, Markham (<i>University of California, Davis</i>); Yazel, Britt* (<i>University of California, Davis</i>); Stickle, Matthew (<i>University of California, Davis</i>); Espinosa, Fernando (<i>University of California, Davis</i>); Gutierrez, Nathaniel-Georg (<i>University of California, Davis</i>); Slaney, Malcolm (<i>Google</i>); Joshi, Sanjay (<i>University of California, Davis</i>); Miller, Lee (<i>University of California, Davis</i>)	

14:30-14:45 SaCT18.5
Enfold-Type Connecting System of Artificial Blood Vessels for Micro Implantable Dialysis Device 5810-5813
 Watanabe, Ai* (*Keio University*); Ota, Takashi (*Keio University*); Kanno, Yoshihiko (*Tokyo Medical University*);
 Miki, Norihisa (*University*)

14:45-15:00 SaCT18.6
Protein Separation and Hemocompatibility in Nitride Membrane Microfluidic Filtration Systems 5814-5817
 Salminen, Alec (*University of Rochester*); Hill, Kayli (*University of Rochester*); Chung, Hung Li (*Rochester Institute of Technology*); McGrath, James (*University of Rochester*); Johnson, Dean G.* (*University of Rochester*)

SaCT19: 13:30-15:00 Bioinformatics – Computational Modeling and Simulations in Biology, Physiology and Medicine (Theme 10) (Oral Session)	Meeting Room 325A
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13:30-13:45 SaCT19.1
Model-Driven Classification of Different Diabetes Types within a Personalized Diabetes Management 5818-5821
 Tols, Christian* (*Augsburg University*); Ament, Christoph (*Augsburg University*); Eberle, Claudia (*Hochschule Fulda - University of Applied Sciences*)

13:45-14:00 SaCT19.2
A Meta-Analysis of Pulse Arrival Time based Blood Pressure Estimation 5822-5825
 Polinski, Artur (*Gdansk University of Technology*); Pietrewicz, Michal (*Gdansk University of Technology*); Kocejko, Tomasz (*Gdansk University of Technology*); Bujnowski, Adam (*Gdansk University of Technology*); Ruminski, Jacek* (*Gdansk University of Technology*); Wtorek, Jerzy (*Gdansk University of Technology*)

14:00-14:15 SaCT19.3
Changes in Differential Expression of Genes in Normal and Metabolically Suppressed Mice in Response to Radiation 5826-5829
 Chen, Richard* (*University of Alaska Fairbanks*); Mora, Jason (*California State University*); Muvvala, Mohan (*Burrell College of Osteopathic Medicine*); Nemeth, Daniel (*Palo Alto High School*); Wu, Derek (*Mission San Jose High School*); Griko, Yuri (*NASA Ames Research Center*)

14:15-14:30 SaCT19.4
Robust Control Design of Heart Rate Response during Treadmill Exercise under Parametric Uncertainty 5830-5833
 Du, Yuncheng (*Clarkson University*); Du, Dongping* (*Texas Tech University*)

14:30-14:45 SaCT19.5
Bioinformatics and Regression Analyses Manifest Tumor-Specific miRNA Expression Dynamics in Pediatric Embryonal Malignancies 5834-5837
 Braoudaki, Maria (*National and Kapodistrian University of Athens, First Dept. of Pediatrics*); Koutsouris, Dimitrios (*BioMedical Engineering Lab, School of Electrical and Computer Engineering, National Technical University of Athens*); Kouris, Ioannis* (*National Technical University of Athens*); Lambrou, George I. (*National and Kapodistrian University of Athens*); Paidi, Anna (*National Technical University of Athens*); Koutsouri, Georgia (*BioMedical Engineering Lab, National Technical University of Athens*)

14:45-15:00 SaCT19.6
Effect of Gating Charges on Mediating the Dual Activation of BK Channels in Smooth Muscle Cells: A Computational Study 5838-5841
 Gupta, Suranjana* (*IIT Bombay*); Manchanda, Rohit (*IIT Bombay*)

SaCT20: 13:30-15:00 Models of Cells and Tissues (Theme 4) (Oral Session) Chair: Patton, James (<i>University Illinois at Chicago (UIC) & The Shirley Ryan AbilityLab (formerly RIC)</i>)	Meeting Room 325B
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13:30-13:45 SaCT20.1
Cellular Environment in a Bundle Modulates SEJP Characteristics in Detrusor Smooth Muscle 5842-5845
 Sengupta, Nilapratim* (*Indian Institute of Technology Bombay*); Brain, Keith L. (*University of Birmingham*); Manchanda, Rohit (*IIT Bombay*)

13:45-14:00	SaCT20.2
Understanding Ductal Carcinoma in Situ Invasion using a Multiscale Agent-Based Model	5846-5849
Butner, Joseph (<i>University of New Mexico</i>); Cristini, Vittorio (<i>University of New Mexico</i>); Wang, Zhihui* (<i>University of Texas Health Science Center at Houston McGovern Medical School</i>)	
14:00-14:15	SaCT20.3
Discontinuous Galerkin Model of Cellular Electroporation	5850-5853
Sweeney, Daniel* (<i>Virginia Tech</i>); Davalos, Rafael (<i>Virginia Tech</i>)	
14:15-14:30	SaCT20.4
Point Process Filtering Estimates of Branching Rate for Neural Dendritic Morphology Generation	5854-5857
Chou, Zane* (<i>Univ. of Southern California</i>); Yu, Gene (<i>Univ. of Southern California</i>); Berger, Theodore (<i>USC</i>)	
14:30-14:45	SaCT20.5
Modelling Nerve Compression in Carpal Tunnel Syndrome	5858-5861
Snarrenberg, Shana (<i>University of Illinois at Chicago</i>); Sevak, Brinda Nishith (<i>University of Illinois at Chicago</i>); Patton, James* (<i>University Illinois at Chicago (UIC) & The Shirley Ryan AbilityLab (formerly RIC)</i>)	
SaDT2: 15:00-16:30 Meeting Room 312	
Signal Processing and Classification in Fetal and Neonatal Physiology (Theme 1) (Oral Session)	
15:00-15:15	SaDT2.1
Investigating the Impact of CNN Depth on Neonatal Seizure Detection Performance	5862-5865
O'Shea, Alison* (<i>University College Cork</i>); Lightbody, Gordon (<i>University College Cork</i>); Boylan, Geraldine (<i>University College Cork</i>); Temko, Andriy (<i>University College Cork</i>)	
15:15-15:30	SaDT2.2
Deep Learning for Continuous Electronic Fetal Monitoring in Labor	5866-5869
Petrozziello, Alessio (<i>University of Portsmouth</i>); Jordanov, Ivan (<i>University of Portsmouth</i>); Papageorgiou, Aris (<i>Nuffield Dept. of Obstetrics and Gynaecology, John Radcliffe Hospital, University of Oxford</i>); Redman, Christopher WG (<i>University of Oxford</i>); Georgieva, Antoniya* (<i>University of Oxford</i>)	
15:30-15:45	SaDT2.3
Signal Separation for Transabdominal Non-Invasive Fetal Pulse Oximetry using Comb Filters	5870-5873
Böttrich, Marcel* (<i>Technische Universität Ilmenau</i>); Husar, Peter (<i>Ilmenau University of Technology</i>)	
15:45-16:00	SaDT2.4
Influence of Prenatal Alcohol and Smoke Exposure on Neonatal Vagal Tone in Response to Head-Up Tilt	5874-5877
Pini, Nicolò* (<i>Politecnico di Milano</i>); Lucchini, Maristella (<i>Politecnico di Milano</i>); Fifer, William P. (<i>Dept. of Psychiatry and Pediatrics, Columbia University College of Physicians & Surgeons</i>); Myers, Michael (<i>Columbia University Medical Center</i>); Signorini, Maria G. (<i>Politecnico di Milano</i>)	
16:00-16:15	SaDT2.5
Connectivity Measures of Uterine Activity using Magnetomyography	5878-5881
Escalona-Vargas, Diana Irazú* (<i>University of Arkansas for Medical Sciences</i>); Zhang, Mengxue (<i>Washington University in St. Louis</i>); Nehorai, Arye (<i>Washington University in St Louis</i>); Eswaran, Hari (<i>University of Arkansas for Medical Sciences</i>)	
16:15-16:30	SaDT2.6
Extracting Transients from Cerebral Oxygenation Signals of Preterm Infants: A New Singular-Spectrum Analysis Method	5882-5885
O'Toole, John M.* (<i>University College Cork</i>); Dempsey, Eugene (<i>Irish Centre for Fetal and Neonatal Translational Research (INFANT), University College Cork</i>); Boylan, Geraldine (<i>University College Cork</i>)	

15:00-15:15		SaDT3.1
	ENS-Unet: End-to-End Noise Suppression U-Net for Brain Tumor Segmentation	5886-5889
	Meng, Zhu (<i>Beijing University of Posts and Telecommunications</i>); Fan, Zhongyue (<i>Beijing University of Posts and Telecommunications</i>); Zhao, Zhicheng* (<i>Beijing University of Posts and Telecommunications</i>); Su, Fei (<i>Beijing University of Posts and Telecommunications</i>)	
15:15-15:30		SaDT3.2
	Extraction of Aortic Knuckle Contour in Chest Radiographs using Deep Learning	5890-5893
	Xue, Zhiyun* (<i>National Library of Medicine</i>); Long, L. Rodney (<i>National Library of Medicine</i>); Jaeger, Stefan (<i>National Institutes of Health</i>); Folio, Les (<i>National Institutes of Health Clinical Center</i>); Thoma, George (<i>National Library of Medicine, NIH</i>); Antani, Sameer (<i>National Library of Medicine</i>)	
15:30-15:45		SaDT3.3
	Deep Learning and Multi-Sensor Fusion for Glioma Classification using Multistream 2D Convolutional Networks	5894-5897
	Ge, Chenjie* (<i>Chalmers University of Technology</i>); Gu, Irene Y.H. (<i>Chalmers University of Technology</i>); Jakola, Asgeir S. (<i>Sahlgrenska Academy / St. Olavs University Hospital</i>); Yang, Jie (<i>Shanghai Jiao Tong University</i>)	
15:45-16:00		SaDT3.4
	Automatic Delineation of the Clinical Target Volume in Rectal Cancer for Radiation Therapy using Three-Dimensional Fully Convolutional Neural Networks	5898-5901
	Larsson, Rasmus (<i>Shanghai Jiao Tong University</i>); Xiong, Junfeng (<i>Shanghai Jiao Tong University</i>); Song, Ying (<i>West China Hospital</i>); Fu, Ling (<i>Shanghai Jiao Tong University</i>); Chen, Yizhi (<i>Shanghai Jiao Tong University</i>); Xu, Xiaowei (<i>Shanghai Jiao Tong University</i>); Zhang, Puming (<i>Shanghai Jiao Tong University</i>); Zhao, Jun* (<i>Shanghai Jiao Tong University</i>)	
16:00-16:15		SaDT3.5
	Hematoma Segmentation using Dilated Convolutional Neural Network	5902-5905
	Yao, Heming* (<i>University of Michigan</i>); Williamson, Craig (<i>University of Michigan</i>); Soroushmehr, S.M.Reza (<i>University of Michigan, Ann Arbor</i>); Gryak, Jonathan (<i>University of Michigan</i>); Najarian, Kayvan (<i>University of Michigan - Ann Arbor</i>)	
16:15-16:30		SaDT3.6
	A Fully Convolutional Deep Neural Network for Lung Tumor Boundary Tracking in MRI	5906-5909
	Tahmasebi, Nazanin* (<i>University of Alberta</i>); Boulanger, Pierre (<i>University of Alberta</i>); Noga, Michelle (<i>University of Alberta</i>); Punithakumar, Kumaradevan (<i>University of Alberta</i>)	

15:00-15:15		SaDT4.1
	Electrode Placement for Calf Bioimpedance Measurements during Hemodialysis	5910-5913
	Delano, Maggie K.* (<i>Swarthmore College</i>); Sodini, Charles G. (<i>Massachusetts Institute of Technology</i>)	
15:15-15:30		SaDT4.2
	AERO: An Objective Peripheral Edema Measurement Device	5914-5917
	Williams, Keith (<i>East Carolina University</i>); Han, Muhong (<i>East Carolina University</i>); Hardin, Sonya (<i>East Carolina University</i>); George, Stephanie (<i>East Carolina University</i>); Yao, Jianchu* (<i>East Carolina University</i>)	
15:30-15:45		SaDT4.3
	The Importance of Posture and Skin-Site Selection on Remote Measurements of Neck Pulsations: An Ultrasonographic Study	5918-5921
	Moco, Andreia* (<i>Eindhoven University of Technology</i>); Hamelmann, Paul (<i>Eindhoven University of Technology</i>); Stuijk, Sander (<i>TU Eindhoven</i>); de Haan, Gerard (<i>Philips Innovation Group, Philips Research, Eindhoven</i>)	

15:45-16:00	SaDT4.4
Ambulatory Sensor for Circumference Monitoring of Lower Limbs	5922-5925
Gehin, Claudine* (<i>INSA Lyon</i>); Grenier, Etienne (<i>Sigvaris</i>); Chaigneau, Cyril (<i>Sigvaris</i>); Massot, Bertrand (<i>INSA Lyon</i>); Claude, Arthur (<i>INSA Lyon</i>); Montalibet, Amalric (<i>INL UMR-5270 - INSA Lyon</i>); McAdams, Eric (<i>INSA Lyon</i>)	
16:00-16:15	SaDT4.5
Contactless Investigation of Dielectric Samples with a High-Q Millimeter-Wave Sensor	5926-5929
Wessel, Jan (<i>IHP</i>); Schmalz, Klaus (<i>IHP</i>); Jamal, Farabi Ibne (<i>IHP</i>); Kissinger, Dietmar* (<i>IHP</i>)	
16:15-16:30	SaDT4.6
Vital Sign Monitoring using Capacitive Sensing	5930-5933
Jovanov, Emil* (<i>University of Alabama in Huntsville</i>)	

SaDT5: 15:00-16:30	Meeting Room 316A
Ophthalmic and Retinal Imaging (II) (Theme 2) (Oral Session)	

15:00-15:15	SaDT5.1
DISCERN: Generative Framework for Vessel Segmentation using Convolutional Neural Network and Visual Codebook	5934-5937
Chudzik, Piotr* (<i>University of Lincoln</i>); Al-Diri, Bashir (<i>The University of Lincoln</i>); Caliva', Francesco (<i>University of Lincoln</i>); Hunter, Andrew (<i>University of Lincoln</i>)	
15:15-15:30	SaDT5.2
Introducing a Novel Layer in Convolutional Neural Network for Automatic Identification of Diabetic Retinopathy	5938-5941
Khojasteh, Parham* (<i>RMIT University</i>); Aliahmad, Behzad (<i>RMIT University</i>); Poosapadi Arjunan, Sridhar (<i>SRM Institute of Science and Technology</i>); Kant Kumar, Dinesh (<i>RMIT University</i>)	
15:30-15:45	SaDT5.3
A Unified Optic Nerve Head and Optic Cup Segmentation using Unsupervised Neural Networks for Glaucoma Screening	5942-5945
Ghassabi, Zeinab* (<i>Stein Eye Institute, University of California Los Angeles (UCLA)</i>); Shanbehzadeh, Jamshid (<i>Dept. of Computer Engineering, Kharazmi University</i>); Nouri Mahdavi, kouros (<i>Stein Eye Institute, University of California Los Angeles (UCLA)</i>)	
15:45-16:00	SaDT5.4
Real-Time Retinal Processing for High-Resolution Optogenetic Stimulation Device	5946-5949
El Zarif, Nizar* (<i>Polystim Neurotech Lab</i>); Montazeri, Leila (<i>Polystim Neurotech Lab</i>); Sawan, Mohamad (<i>Polytechnique Montreal</i>)	
16:00-16:15	SaDT5.5
Automated Detection of Malarial Retinopathy in Retinal Fundus Images Obtained in Clinical Settings ...	5950-5953
Joshi, Vinayak* (<i>VisionQuest BioMedical LLC</i>); Wigdahl, Jeffrey (<i>1982</i>); Nemeth, Sheila (<i>Visionquest BioMedical LLC</i>); Manda, Chatonda (<i>University of Malawi</i>); Lewallen, Susan (<i>Kilimanjaro Centre for Community Ophthalmology</i>); Taylor, Terrie (<i>Michigan State University</i>); MacCormick, Ian J (<i>The University of Edinburgh</i>); Harding, Simon (<i>University of Liverpool</i>); Soliz, Peter (<i>VisionQuest BioMedical LLC</i>)	
16:15-16:30	SaDT5.6
Optic Disc Segmentation from Retinal Fundus Images via Deep Object Detection Networks	5954-5957
Sun, Xu (<i>Guangzhou Shiyuan Electronics Co., Ltd. (CVTE)</i>); Xu, Yanwu* (<i>Guangzhou Shiyuan Ltd. Co</i>); Zhao, Wei (<i>Guangzhou Shiyuan Electronics Co., Ltd.</i>); You, Tianyuan (<i>Guangzhou Shiyuan Electronics Co., Ltd.</i>); Liu, Jiang (<i>Ningbo Institute of Materials Technology and Engineering, CAS</i>)	

SaDT6: 15:00-16:30	Meeting Room 316B
Neuromuscular Systems (IV) (Theme 6) (Oral Session)	
Chair: Patton, James (<i>University Illinois at Chicago (UIC) & The Shirley Ryan AbilityLab (formerly RIC)</i>)	

15:00-15:15	SaDT6.1
Development of a Clonus Management System: A Case Study of Sit-to-Stand Learning in a Stroke Patient	5958-5961
Shiraishi, Ryoichiro* (<i>Cyberdyne, Inc.</i>); Kawamoto, Hiroaki (<i>Univ. of Tsukuba</i>); Sankai, Yoshiyuki (<i>Univ. of Tsukuba</i>)	

15:15-15:30	SaDT6.2
Mechanisms of Bone-Conducted Ultrasonic Perception Assessed by Measurements of Acoustic Fields in the Outer Ear Canal and Vibrations of the Tympanic Membrane	5962-5965
Nakagawa, Seiji* (<i>Chiba University</i>); Ito, Kazuhito (<i>National Institute of Advanced Industrial Science and Technology (AIST)</i>)	
15:30-15:45	SaDT6.3
Synergistic Recruitment of Multi-Scale Myoelectric Oscillations of Upper Limb during Infant Crawling	5966-5969
Hou, Wensheng* (<i>Bioengineering Inst of Chongqing University</i>); Gao, Zhixian (<i>Chongqing University</i>)	
15:45-16:00	SaDT6.4
On the Impact of Muscle Shortening on Non-Negative Matrix Factorization of Dynamic Surface Electromyograms	5970-5973
Šavc, Martin* (<i>University of Maribor</i>); Holobar, Ales (<i>University of Maribor, Faculty of Electrical Engineering and Computer Science</i>); Glaser, Vojko (<i>University of Maribor, Faculty of Electrical Engineering and Computer Science</i>)	
16:00-16:15	SaDT6.5
Characterizing Residual Muscle Properties in Lower Limb Amputees using High Density EMG Decomposition: A Pilot Study	5974-5977
Fylstra, Bretta* (<i>North Carolina State University and University of North Carolina - Chapel Hill</i>); Dai, Chenyun (<i>University of North Carolina at Chapel Hill</i>); Hu, Xiaogang (<i>University of North Carolina-Chapel Hill</i>); Huang, He (<i>North Carolina State University and University of North Carolina at Chapel Hill</i>)	
16:15-16:30	SaDT6.6
Adjacent Features for High-Density EMG Pattern Recognition	5978-5981
Donovan, Ian (<i>San Francisco State University</i>); Okada, Kazunori (<i>San Francisco State University</i>); Zhang, Xiaorong* (<i>San Francisco State University</i>)	

SaDT7: 15:00-16:30	Meeting Room 316C
Signal Processing for Atrial Fibrillation (Theme 1) (Oral Session)	

15:00-15:15	SaDT7.1
Atrial Fibrillation Detection in Short Single Lead ECG Recordings using Wavelet Transform and Artificial Neural Networks	5982-5985
Hernandez, Fabio (<i>UPB Bucaramanga</i>); Méndez Abad, Dilio José (<i>Universidad Pontificia Bolivariana</i>); Amado, Lusvin (<i>Centro Industrial de Mantenimiento Integral and Pontifical Bolivarian University</i>); Altuve, Miguel* (<i>Pontifical Bolivarian University</i>)	
15:15-15:30	SaDT7.2
Evaluation of Multiscale Frequency Approach for Visualizing Rotors in Patients with Atrial Fibrillation	5986-5989
Ravikumar, Vasanth (<i>University of Minnesota</i>); Annoni, Elizabeth (<i>University of Minnesota</i>); Mulpuru, Siva (<i>Mayo Clinic</i>); Roukoz, Henri (<i>University of Minnesota</i>); Tolkacheva, Elena* (<i>University of Minnesota</i>)	
15:30-15:45	SaDT7.3
Intrinsic Mode Function Complexity Index using Empirical Mode Decomposition Discriminates Normal Sinus Rhythm and Atrial Fibrillation on a Single Lead ECG	5990-5993
Shivaram, Suganti (<i>Mayo Clinic</i>); Siva Baala Sundaram, Divaakar (<i>Mayo Clinic</i>); Balasubramani, Rogith (<i>Velalar College of Engineering and Technology</i>); Muthyala, Anjani (<i>Mayo Clinic</i>); Poigai Arunachalam, Shivaram* (<i>Mayo Clinic</i>)	
15:45-16:00	SaDT7.4
Bispectrum and Histogram Features for the Identification of Atrial Fibrillation based on Electrocardiogram ...	5994-5997
Lin, Yu-Zhe (<i>National Chung Cheng University</i>); Yu, Sung-Nien* (<i>National Chung Cheng University</i>)	
16:00-16:15	SaDT7.5
Detection of Atrial Fibrillation from RR Intervals and PQRST Morphology using a Neural Network Ensemble	5998-6001
Khamis, Heba* (<i>UNSW Sydney</i>); Chen, Jiayu (<i>Swiss Federal Institute of Technology Zürich</i>); Redmond, Stephen James (<i>University of New South Wales</i>); Lovell, Nigel H. (<i>University of New South Wales</i>)	

SaDT9: 15:00-16:30		Meeting Room 318B
Artefact Removal for Biosignals (Theme 1) (Oral Session)		
15:00-15:15		SaDT9.1
Removal of Baseline Wander Noise in ECG Signal using Asymmetrical Frequency-Response Masking Bandpass Filters		6002-6005
Shang, Zhongxia* (<i>York University</i>); Zhao, Yang (<i>York University</i>); Lian, Yong (<i>York University</i>)		
15:15-15:30		SaDT9.2
Modelling and Synthesizing Motion Artifacts in Unobtrusive Multimodal Sensing using Copulas		6006-6009
Berief, Felix Balthasar (<i>RWTH Aachen University</i>); Leonhardt, Steffen (<i>RWTH Aachen University</i>); Hoog Antink, Christoph* (<i>RWTH Aachen University, Aachen, Germany</i>)		
15:30-15:45		SaDT9.3
A Blind Source-Based Method for Automated Artifact-Correction in Standard Sleep EEG		6010-6013
Waser, Markus* (<i>AIT Austrian Institute of Technology GmbH</i>); Garn, Heinrich (<i>AIT Austrian Institute of Technology GmbH</i>); Jennum, Poul (<i>University of Copenhagen, Denmark</i>); Sorensen, Helge B D (<i>Technical University of Denmark</i>)		
15:45-16:00		SaDT9.4
A Novel Algorithm for Removing Artifacts from EEG Data		6014-6017
Li, Yongcheng* (<i>University of California, Irvine</i>); Wang, Po T. (<i>University of California Irvine</i>); Vaidya, Mukta (<i>University of Chicago</i>); Liu, Charles Y. (<i>Keck Hospital of the University of Southern California</i>); Slutzky, Marc (<i>Northwestern University</i>); Do, An H. (<i>University of California Irvine</i>)		
16:00-16:15		SaDT9.5
Cochlear Implant Artifact Reduction on One Channel Mismatch Negativity Recordings based on Ensemble Empirical Mode Decomposition and Independent Component Analysis		6018-6021
Martinez-Camacho, Mauricio Arturo* (<i>Universidad Autónoma Metropolitana-Iztapalapa</i>); Castaneda-Villa, Norma (<i>Universidad Autónoma Metropolitana-Iztapalapa</i>)		
SaDT12: 15:00-16:30		Meeting Room 321A
Sleep Apnea Diagnosis and Therapy (Theme 5) (Oral Session)		
Chair: Penzel, Thomas (<i>Charite Universitätsmedizin Berlin</i>)		
Co-Chair: de Chazal, Philip (<i>University of Sydney</i>)		
15:00-15:15		SaDT12.1
On the Generalizability of ECG-Based Obstructive Sleep Apnea Monitoring: Merits and Limitations of the Apnea-ECG Database		6022-6025
Papini, Gabriele* (<i>Eindhoven Univ. of Technology</i>); Fonseca, Pedro (<i>Philips Research and Eindhoven Univ. of Technology</i>); Margarito, Jenny (<i>Philips Research</i>); van Gilst, Merel (<i>Eindhoven Univ. of Technology</i>); Overeem, Sebastiaan (<i>Kempnhaeghe Foundation, Sleep Medicine Centre</i>); Bergmans, Johannes Wilhelmus Maria (<i>Eindhoven Univ. of Technology</i>); Vullings, Rik (<i>Eindhoven Univ. of Technology</i>)		
15:15-15:30		SaDT12.2
Optimising the Apnoea Classification Performance of a Neural Network Classifier Processing ECG-Oximetry Signals		6026-6029
de Chazal, Philip* (<i>University of Sydney</i>); Naiwala Pathirannehelage, Madhuka (<i>University of Sydney</i>); Sadr, Nadi (<i>University of Sydney</i>)		
15:30-15:45		SaDT12.3
A Sleep Apnea Therapy Device Uses No Added Pressure		6030-6035
Webster, John G* (<i>University of Wisconsin-Madison</i>); Shokouejad, Mehdi (<i>University of Wisconsin - Madison</i>); Wang, Fa (<i>University of Wisconsin-Madison</i>)		

15:45-16:00 SaDT12.4
Apnea and Hypopnea Events Classification using Amplitude Spectrum Trend Feature of Snores 6036-6039
 Sun, Jingpeng (*Univ. of Chinese Academy of Sciences*); Hu, Xiyuan* (*Institute of Automation, Chinese Academy of Sciences, Univ. of Chinese Academy of Sciences*); Zhao, Yingying (*South Campus of Guanganmen Hospital, China Academy of Chinese Medical*); Sun, Shuchen (*Guanganmen Hospital, China Academy of Chinese Medical*); Chen, Chen (*Chinese Academy of Sciences, Univ. of Chinese Academy of Sciences*); Peng, Silong (*Institute of Automation, Chinese Academy of Sciences, Univ. of Chinese Academy of Sciences*)

16:00-16:15 SaDT12.5
Prediction of MAS Therapy Response in Obstructive Sleep Apnoea Patients using Clinical Data 6040-6043
 Naiwala Pathirannehelage, Madhuka* (*University of Sydney*); de Chazal, Philip (*University of Sydney*)

16:15-16:30 SaDT12.6
In-Home Sleep Apnea Severity Classification using Contact-Free Load Cells and an AdaBoosted Decision Tree Algorithm 6044-6047
 Mosquera-Lopez, Clara* (*Oregon Health & Science University*); Leitschuh, Joseph (*Oregon Health & Science University*); Condon, John (*Pro-tech*); Hagen, Chad (*Oregon Health & Science University*); Hanks, Cody (*Portland State University*); Jacobs, Peter G. (*Oregon Health & Science University*)

SaDT14: 15:00-16:30 Meeting Room 322AB
Therapeutic Ultrasound (II) (Theme 9) (Oral Session)

15:00-15:15 SaDT14.1
Gas Embolization in a Rodent Model of Hepatocellular Carcinoma using Acoustic Droplet Vaporization 6048-6051
 Harmon, Jonah (*Tulane University*); Kabinejadian, Foad (*Tulane University*); Seda, Robinson (*University of Michigan*); Fabiilli, Mario (*University of Michigan*); Kuruvilla, Sibin (*Stanford University*); Greve, Joan (*University of Michigan*); Fowlkes, Brian (*University of Michigan*); Bull, Joseph* (*Tulane University*)

15:15-15:30 SaDT14.2
Design of a Novel Wearable LIPUS Treatment Device for Mental Health Treatment 6052-6055
 Qi, Shiang (*University of Alberta*); Li, Yufeng (*University of Alberta*); Zhang, Wei (*University of Alberta*); Chen, Jie* (*University of Alberta*)

15:30-15:45 SaDT14.3
Transcranial Ultrasound Improves Behavioral Performance via Anti-Neuroinflammation 6056-6059
 Yang, Feng-Yi* (*National Yang-Ming University*); Chen, Tao-Tao (*National Yang-Ming University*)

15:45-16:00 SaDT14.4
Ultrasound-Induced Insulin Release as a Potential Novel Treatment for Type 2 Diabetes Mellitus 6060-6063
 Singh, Tania* (*George Washington University*); Suarez Castellanos, Ivan (*George Washington University*); Klimas, Aleks (*George Washington University*); Entcheva, Emilia (*Stony Brook University*); Cohen, Joshua (*GW Medical Faculty Associates*); Chatterjee Bhowmick, Diti (*George Washington University*); Jeremic, Aleksandar (*George Washington University*); Zderic, Vesna (*George Washington University*)

16:00-16:15 SaDT14.5
Histotripsy for Non-Invasive Ablation of Hepatocellular Carcinoma (HCC) Tumor in a Subcutaneous Xenograft Murine Model 6064-6067
 Worlikar, Tejaswi* (*University of Michigan*); Vlasisavljevich, Eli (*Virginia Tech*); Gerhardson, Tyler (*University of Michigan*); Greve, Joan (*University of Michigan*); Wan, Shanshan (*NYU Langone Health*); Kuruvilla, Sibin (*Stanford University*); Lundt, Jonathan (*University of Michigan*); Ives, Kimberly (*University of Michigan*); Hall, Timothy (*University of Michigan*); Welling, Theodore (*NYU Langone Health*); Lee Jr., Fred T. (*University of Wisconsin-Madison*); Xu, Zhen (*University of Michigan*)

16:15-16:30 SaDT14.6
Real-Time Optical Imaging of Microbubble Destruction with an Acoustic Lens Attached Ultrasonic Diagnostic Probe in Microfluidic Capillary Models 6068-6071
 Oh, Min Tack (*Korea Institute of Science and Technology*); Kim, Hong Nam (*Korea Institute of Science and Technology*); Ko, Hanseok (*Korea University*); Lee, Seunghyun (*Seoul National University Hospital*); Kim, Jung Hoon (*Seoul National University Hospital*); Lee, Byung Chul* (*Korea Institute of Science and Technology*)

SaDT15: 15:00-16:30	Meeting Room 323A
Micro and Nanotechnology (Theme 3) (Oral Session)	
Chair: Abidian, Mohammad Reza (<i>University of Houston</i>)	
Co-Chair: Slaughter, Gymama (<i>University of Maryland Baltimore County</i>)	

15:00-15:15 SaDT15.1
A Portable Device Integrated with Aligned Carbon Nanotubes for Sensitive Virus Capture and Detection 6072-6075
Yeh, Yin-Ting* (*Pennsylvania State University*); Lu, Huaguang (*The Pennsylvania State University*);
Zheng, Si-Yang (*Pennsylvania State University*); Terrones, Mauricio (*The Pennsylvania State University*)

15:15-15:30 SaDT15.2
A Fully-Papertronic Biosensing Array for High-Throughput Characterization of Microbial Electrogenicity 6076-6079
Tahernia, Mehdi* (*Binghamton University*); Mohammadifar, Maedeh (*State University of New York at Binghamton*); Hassett, Daniel J. (*University of Cincinnati College of Medicine*); Choi, Seokheun (*State University of New York at Binghamton*)

15:30-15:45 SaDT15.3
Aligned Conducting Polymer Nanotubes for Neural Prostheses 6080-6083
Khorrami, Milad (*University of Houston*); Abidian, Mohammad Reza* (*University of Houston*)

15:45-16:00 SaDT15.4
Fabrication and Testing of Multielectrode Matrix of Disordered Si Nanowires for Brain Tissue Sensing . 6084-6087
Quiroga-González, Enrique* (*Benemérita Universidad Autónoma de Puebla*); Arzola Flores, Jesús Andrés (*Benemérita Universidad Autónoma de Puebla*); Soto Eguibar, Enrique (*Benemérita Universidad Autónoma de Puebla*); Ortega Ramírez, Audrey Magdalena (*Benemérita Universidad Autónoma de Puebla*); González Petlacalco, Octavio (*Benemérita Universidad Autónoma de Puebla*)

16:00-16:15 SaDT15.5
Cross-Linked Electrospun Gelatin Nanofibers for Cell-Based Assays 6088-6091
Ghassemi, Zahra (*UMBC*); Slaughter, Gymama* (*University of Maryland Baltimore County*)

SaDT16: 15:00-16:30	Meeting Room 323B
Health Informatics – Decision Support Methods and Systems (Theme 10) (Oral Session)	
Chair: Shah, Syed Ahmar (<i>Postdoctoral Scientist, University of Oxford</i>)	

15:00-15:15 SaDT16.1
Physical Activity and Sleep Analysis of Heart Failure Patients using Multi-Sensor Patches 6092-6095
O'Donnell, Johanna (*University of Oxford*); Velardo, Carmelo (*University of Oxford*); Shah, Syed Ahmar (*Postdoctoral Scientist, University of Oxford*); Khorshidi, Reza (*University of Oxford*); Salvi, Dario* (*University of Oxford*); Rahimi, Kazem (*University of Oxford*); Tarassenko, Lionel (*University of Oxford*)

15:15-15:30 SaDT16.2
Applying Data Preprocessing Methods to Predict Premature Birth 6096-6099
Esty, Alana* (*Carleton University*); Frize, Monique (*Carleton University*); Gilchrist, Jeff (*Carleton University*); Bariciak, Erika (*University of Ottawa*)

15:30-15:45 SaDT16.3
Key Marker Selection for the Detection of Early Parkinson's Disease using Importance-Driven Models 6100-6103
Xiao, Chun (*University of Sydney*); Liu, Yingchao (*Dept. of Neurosurgery, Provincial Hospital Affiliated to Shandong University, China*); Feng, Dagan (*University of Sydney*); Wang, Xiu Ying* (*University of Sydney*)

15:45-16:00 SaDT16.4
Onset Detection of Epileptic Seizures from Accelerometry Signal 6104-6107
Kusmakar, Shitanshu* (*University of Melbourne*); Karmakar, Chandan (*Deakin University*); Yan, Bernard (*The Royal Melbourne Hospital*); O'Brien, Terence (*The Royal Melbourne Hospital*); Muthuganapathy, Ramanathan (*Indian Institute of Technology Madras*); Palaniswami, Marimuthu (*University of Melbourne*)

16:00-16:15	SaDT16.5
A Machine Learning Approach for the Prediction of the Progression of Cardiovascular Disease based on Clinical and Non-Invasive Imaging Data	6108-6111
Kigka, Vassiliki (<i>University of Ioannina</i>); Georga, Eleni I. (<i>University of Ioannina</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Material Science, University of Ioannina</i>); Tachos, Nikolaos (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Andrikos, Ioannis (<i>University of Ioannina</i>); Tsompou, Panagiota (<i>Unit of Medical Technology and Intelligent Information Systems, Dept. of Materials Science and Engineering, University of Ioannina</i>); Rocchiccioli, Silvia (<i>Institute of Clinical Physiology, National Research Council</i>); Pelosi, Gualtiero (<i>Institute of Clinical Physiology, National Research Council</i>); Parodi, Oberdan (<i>CNR Clinical Physiology Institute - Milan</i>); Michalis, Lampros (<i>University of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
16:15-16:30	SaDT16.6
Deploying Predictive Models in a Healthcare Environment – An Open Source Approach	6112-6116
Murphree, Dennis* (<i>Mayo Clinic</i>); Quest, Daniel (<i>Mayo Clinic</i>); Allen, Ryan (<i>Mayo Clinic</i>); Ngufor, Che (<i>Mayo Clinic</i>); Storlie, Curtis (<i>Mayo Clinic</i>)	

SaDT19: 15:00-16:30	Meeting Room 325A
Models of Neurons and Neural Tissues (Theme 4) (Oral Session)	

15:00-15:15	SaDT19.1
A Multi-Domain Continuum Model of Electrical Stimulation of Healthy and Degenerate Retina	6117-6120
Alqahtani, Abdulrahman (<i>University of New South Wales</i>); Al Abed, Amr (<i>University of New South Wales</i>); Anderson, Emily Elizabeth* (<i>University of New South Wales</i>); Lovell, Nigel H. (<i>University of New South Wales</i>); Dokos, Socrates (<i>University of New South Wales</i>)	
15:15-15:30	SaDT19.2
A Cerebellar Spiking Neural Model for Phase Reversal of Vestibulo-Ocular Reflex	6121-6124
Zhou, Zhanhong (<i>City University of Hong Kong</i>); Zhai, Xiaolong (<i>City University of Hong Kong</i>); Tin, Chung* (<i>City University of Hong Kong</i>)	
15:30-15:45	SaDT19.3
Clustering based Kernel Reinforcement Learning for Neural Adaptation in Brain-Machine Interfaces	6125-6128
Zhang, Xiang* (<i>The Hong Kong University of Science and Technology</i>); Principe, Jose (<i>University of Florida</i>); Wang, Yiwen (<i>Hong Kong University of Science and Technology</i>)	
15:45-16:00	SaDT19.4
Modeling Nonlinear Synaptic Dynamics: A Laguerre-Volterra Network Framework for Improved Computational Efficiency in Large Scale Simulations	6129-6132
Hu, Eric* (<i>University of Southern California</i>); Yu, Gene (<i>University of Southern California</i>); Song, Dong (<i>University of Southern California</i>); Bouteiller, Jean-Marie Charles (<i>University of Southern California</i>); Berger, Theodore (<i>University of Southern California</i>)	
16:00-16:15	SaDT19.5
A Tractography Analysis for Electroconvulsive Therapy	6133-6136
Riel, Stefanie (<i>Technical University of Munich</i>); Bashiri, Mohammad (<i>Technical University of Munich</i>); Hemmert, Werner (<i>Technical University of Munich</i>); Bai, Siwei* (<i>Technical University of Munich</i>)	
16:15-16:30	SaDT19.6
Decoding Position to Analyze Spatial Information Encoding in a Large-Scale Neuronal Network Model of Rat Dentate Gyrus	6137-6140
Yu, Gene* (<i>University of Southern California</i>); Bouteiller, Jean-Marie Charles (<i>University of Southern California</i>); Song, Dong (<i>University of Southern California</i>); Berger, Theodore (<i>University of Southern California</i>)	

Models of Medical Devices, Therapies and Systems (Theme 4) (Oral Session)**Chair:** Makarov, Sergey (*Electrical and Computer Engineering, Worcester Polytechnic Institute*)**Co-Chair:** Bomzon, Ze'ev (*Novocure Ltd.*)

15:00-15:15

SaDT20.1

Simulating the Outcome of Heart Allocation Policies using Deep Neural Networks 6141-6144Medved, Dennis* (*Lund University*); Nugues, Pierre (*Lund University*); Nilsson, Johan (*Dept. Clinical Sciences Lund, CardioThoracic Surgery, Lund University, Lund*)

15:15-15:30

SaDT20.2

Influence of the Cochlear Implant Electrode Array Placement on the Current Spread in the Cochlea 6145-6148Schäfer, Friederike (*Technical University of Munich*); Enke, Jörg (*Technical University of Munich*); Böhnke, Frank (*Technical University of Munich*); Hemmert, Werner (*Technical University of Munich*); Bai, Siwei* (*Technical University of Munich*)

15:30-15:45

SaDT20.3

Brachytherapy Absorbed Organ Dose Estimation using Monte Carlo Simulations of**Realistic Patient Models** 6149-6152Morató, Sergio (*Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM)*); Juste, Belen* (*Polytechnic University of Valencia*); Peris, Sandra (*The Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM) at the Universitat Politècnica de València*); Miró, Rafael (*Polytechnic University of Valencia*); Verdú, Gumersindo (*Polytechnic University of Valencia*); Ballester, Facundo (*Medical Physics Research Group UV - La Fe of the Universitat de València*); Vijande, Javier (*Medical Physics Research Group UV - La Fe of the Universitat de València*); Pérez, Jose (*Hospital Politècnic i Universitari La Fe de València*)

15:45-16:00

SaDT20.4

Unveiling the Impact of Distinct Melanosome Arrangements on the Attenuation of**Cancer-Inducing Ultraviolet Radiation** 6153-6157Baranoski, Gladimir Valerio Guimaraes* (*University of Waterloo*); Chen, Tenn Francis (*University of Waterloo*); Van Leeuwen, Spencer Richard (*University of Waterloo*)

16:00-16:15

SaDT20.5

Molecular Dynamics Simulation Study of Electrokinetics Transport of Aqueous Solution through**Functionalized Carbon Nanotubes: A New Membrane Model for Nanopours based Biosensors** 6158-6161Panahi, Abbas (*York University, Toronto*); Ghafar-Zadeh, Ebrahim* (*York University*); Magierowski, Sebastian (*York University*); Sabour, Mohammad H. (*University of Tehran*)

16:15-16:30

SaDT20.6

Mathematical Modeling of Bacteria-Enabled Drug Delivery System Penetration into**Multicellular Tumor Spheroids** 6162-6165Suh, Seungbeum (*Korea Institute of Science & Technology*); Leaman, Eric (*Virginia Tech*); Zhan, Ying (*Virginia Tech*); Behkam, Bahareh* (*Dept. of Mechanical Engineering*)