

**2017 39th Annual International
Conference of the IEEE
Engineering in Medicine and
Biology Society (EMBC 2017)**

**Jeju Island, South Korea
11-15 July 2017**

Pages 1-478



**IEEE Catalog Number: CFP17EMB-POD
ISBN: 978-1-5090-2810-8**

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IEEE Catalog Number:	CFP17EMB-POD
ISBN (Print-On-Demand):	978-1-5090-2810-8
ISBN (Online):	978-1-5090-2809-2
ISSN:	1557-170X

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Wednesday, 12 July 2017

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Co-Chair: Heldt, Thomas (*Massachusetts Institute of Technology*)

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Chair: Chbat, Nicolas W. (*Center of Excellence in Critical Care Innovation*)

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14:20-14:35 WeBT13.1
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15:05-15:20 WeBT13.4
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Kim, Hyun (*Seoul National University*); Kim, Pyojin (*Seoul National University*); Seo, Jong Mo* (*Seoul National University, School of Engineering*)

15:20-15:35 WeBT13.5
Ampoule and Nozzle Development for Needle-Free Injections 304-308
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15:35-15:50 WeBT13.6
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Majd, Sheereen* (*University of Houston*)

WeBT14: 14:20-15:50 Schaldach Room
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Chair: Gonzalez Ballester, Miguel Angel (*Universitat Pompeu Fabra*)

14:20-14:35 WeBT14.1
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Huang, Su (*Institute for Infocomm Research, A*STAR, Singapore*); Lu, Zhongkang (*Institute for Infocomm Research*); Lin, Zhiping (*Nanyang Technological University*)

14:35-14:50 WeBT14.2
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14:50-15:05 WeBT14.3
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15:05-15:20 WeBT14.4
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Tahmasebi, Nazanin* (*University of Alberta*); Boulanger, Pierre (*University of Alberta*); Punithakumar, Kumaradevan (*University of Alberta*)

15:20-15:35 WeBT14.5
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Reyneke, Corius (*University of Capetown*); Douglas, Tania S (*University of Cape Town*);
Mutsvangwa, Tinashe Ernest Muzvidzwa* (*University of Cape Town*)

WeBT15: 14:20-15:50 Webster Room
Pulmonary Systems (Oral Session)
Chair: Heldt, Thomas (*Massachusetts Institute of Technology*)
Co-Chair: Jané, Raimon (*Institute for Bioengineering de Catalunya (IBEC)*)

14:20-14:35 WeBT15.1
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Laviola, Marianna* (*University of Nottingham*); Das, Anup (*University of Warwick*); Chikhani, Marc (*University of Nottingham*); Bates, Declan Gerard (*University of Warwick*); Hardman, Jonathan G. (*University of Nottingham*)

14:35-14:50 WeBT15.2
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 García-Castellote, Daniel (*Universitat Politècnica de Catalunya*); Torres, Abel* (*Institute for Bioengineering of Catalonia (IBEC) - BarcelonaTech*); Estrada, Luis (*Institute for Bioengineering de Catalunya*); Sarlabous, Leonardo (*Institute for Bioengineering of Catalonia (IBEC)*); Jané, Raimon (*Institute for Bioengineering de Catalunya (IBEC)*)

14:50-15:05 WeBT15.3
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 Mieloszyk, Rebecca (*Philips Healthcare, University of Washington*); Krauss, Baruch (*Harvard Medical School*); Montagu, Diana (*Tufts University School of Dental Medicine*); Andolfatto, Gary (*University of British Columbia, Lions Gate Hospital*); Barbi, Egidio (*IRCCS Burlo Garofolo Children's Hospital, Trieste*); Verghese, George (*Massachusetts Institute of Technology*); Heldt, Thomas* (*Massachusetts Institute of Technology*)

15:05-15:20 WeBT15.4
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 Jang, Geuk Young (*Dept. of Biomedical Engineering, Graduate School, Kyung Hee*); Kim, Young-Bok (*Kyung-Hee Univ, IIRC*); Wi, Hun (*Kyunghee University*); Oh, Tong In (*Kyunghee University*); Chi Ryang, Chung (*Samsung Medical Center, Sungkyunkwan University School of Medici*); Suh, Gee Young (*Samsung Medical Center, Sungkyunkwan University School of Medici*); Woo, Eung Je* (*Kyung Hee University*)

15:20-15:35 WeBT15.5
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 Hochhausen, Nadine* (*RWTH Aachen University, Section Medical Technology at The Depart*); Dohmeier, Henriette (*RWTH Aachen University, Section Medical Technology at The Depart*); Rossaint, Rolf (*RWTH Aachen University, Dept. of Anesthesiology*); Czaplik, Michael (*University Hospital RWTH Aachen*)

WeBT16: 14:20-15:50	Rushmer Room
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14:20-14:35 WeBT16.1
A Novel Method for Segmentation of Infrared Scanning Laser Ophthalmoscope (ir-Slo) Images of Retina 356-359
 Ajaz, Aqsa* (*RMIT University*); Aliahmad, Behzad (*RMIT University*); Kant Kumar, Dinesh (*RMIT University*)

14:35-14:50 WeBT16.2
A Fluid-Dynamic based Approach to Reconnect the Retinal Vessels in Fundus Photography 360-364
 Calivà, Francesco* (*Univ. of Lincoln*); Hunter, Andrew (*Univ. of Lincoln*); Chudzik, Piotr (*Univ. of Lincoln*); Ometto, Giovanni (*Aarhus Univ. Hospital*); Antiga, Luca (*Orobix srl*); Al-Diri, Bashir (*The Univ. of Lincoln*)

14:50-15:05 WeBT16.3
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 Ali, Aziah* (*Universiti Kebangsaan Malaysia*); Hussain, Aini (*Universiti Kebangsaan Malaysia*); Wan Zaki, Wan Mimi Diyana (*Universiti Kebangsaan Malaysia*)

15:05-15:20 WeBT16.4
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15:20-15:35 WeBT16.5
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 Hatanaka, Yuji* (*University of Shiga Prefecture*); Tajima, Mikiya (*University of Shiga Prefecture*); Kawasaki, Ryo (*Yamagata University*); Saito, Koko (*Shinoda General Hospital*); Ogohara, Kazunori (*University of Shiga Prefecture*); Muramatsu, Chisako (*Gifu University*); Sunayama, Wataru (*The University of Shiga Prefecture*); Fujita, Hiroshi (*Gifu University*)

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Hernandez-Matas, Carlos* (<i>FORTH</i>); Zabulis, Xenophon (<i>Foundation for Resrch & Technology</i>); Argyros, Antonis (<i>University of Crete</i>)	

WeCT1-01: 16:10-17:10	Roentgen Hall
Myographic Signal Analysis I (Poster Session)	

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Chen, XiaoBin (<i>Southeast University</i>); Zhou, Yuxuan (<i>School of Basic Medical Science, Nanjing Medical University</i>); Wang, Haipeng (<i>Southeast University, Institute of RF- & OE-ICs</i>); Lü, Xiaoying* (<i>Southeast University</i>); Wang, Zhigong (<i>Southeast University</i>)	

16:12-16:14	WeCT1-01.2
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Saidane, Yosra* (<i>SUP'COM</i>); Ben Jebara, Sofia (<i>SUP'COM</i>)	

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Tosin, Maurício C (<i>UFRGS</i>); Majolo, Mariano (<i>UFRGS</i>); Chedid, Raissan (<i>UFRGS</i>); Cene, Vinicius H. (<i>UFRGS</i>); Favieiro, Gabriela Winkler* (<i>Federal University of Rio Grande do Sul (UFRGS)</i>); Balbinot, Alexandre (<i>Federal University of Rio Grande do Sul (UFRGS)</i>)	

16:16-16:18	WeCT1-01.4
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Atri, Roozbeh* (<i>Florida International University</i>); Marquez, Juan S. (<i>Florida International University</i>); Bai, Ou (<i>Florida International University</i>)	

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16:20-16:22	WeCT1-01.6
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Rodrigues, Carlos M. B.* (<i>INESCTEC - Technology & Science Associate Laboratory</i>); Correia, Miguel (<i>Universidade do Porto, Faculdade de Engenharia</i>); Abrantes, João M. C. S. (<i>MovLab - ULHT</i>); Rodrigues, Marco Aurélio Benedetti (<i>Federal Univ. of Pernambuco</i>); Nadal, Jurandir (<i>Federal Univ. of Rio de Janeiro</i>)	

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16:24-16:26	WeCT1-01.8
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16:10-16:12		WeCT1-02.1
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	Kesner, Filip* (<i>Faculty of Information Technology, Brno University of Technology</i>); Sekanina, Lukas (<i>Faculty of Information Technology, Brno University of Technology</i>); Brazdil, Milan (<i>Masaryk University Brno</i>)	
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	Gomez, Carlos* (<i>University of Valladolid</i>); Vaquerizo-Villar, Fernando (<i>Biomedical Engineering Group, University of Valladolid</i>); Poza, Jesus (<i>University of Valladolid</i>); Ruiz, Saúl J. (<i>Biomedical Engineering Group, University of Valladolid</i>); Tola-Arribas, Miguel A. (<i>Dept. of Neurology, Hospital Universitario Río Hortega</i>); Cano, Mónica (<i>Dept. of Clinical Neurophysiology, Hospital Universitario R</i>); Hornero, Roberto (<i>University of Valladolid</i>)	
16:16-16:18		WeCT1-02.4
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16:18-16:20		WeCT1-02.5
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	Glaser, Vojko* (<i>University of Maribor, Faculty of Electrical Engineering and Comp</i>); Holobar, Ales (<i>University of Maribor, Faculty of Electrical Engineering and Compu</i>)	

16:10-16:12		WeCT1-03.1
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	Desai, Usha* (<i>NMAM Institute of Technology Nitte</i>); Nayak, C Gurudas (<i>Manipal Institute of Technology, Manipal University</i>); Seshikala, G (<i>REVA University</i>); Martis, Roshan Joy (<i>Ngee Ann Polytechnic</i>)	
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	Boussé, Martijn* (<i>KU Leuven</i>); Goovaerts, Griet (<i>KU Leuven</i>); Vervliet, Nico (<i>KU Leuven</i>); Debals, Otto (<i>KU Leuven</i>); Van Huffel, Sabine (<i>Katholieke Universiteit Leuven</i>); De Lathauwer, Lieven (<i>KU Leuven</i>)	
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	O'Leary, Heather* (<i>Boston Children's Hospital</i>); Mayor Torres, Juan Manuel (<i>Boston Children's Hospital</i>); Poon, Chi-Sang (<i>Massachusetts Institute of Technology</i>); Kaufmann, Walter (<i>Greenwood Genetic Center</i>); Sahin, Mustafa (<i>Boston Children's Hospital</i>)	
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	Sung, Dongsuk (<i>Seoul National University</i>); Kim, Jeehoon (<i>Seoul National University</i>); Koh, Myungjun (<i>Seoul National University</i>); Park, Kwang S.* (<i>Seoul National University</i>)	
16:18-16:20		WeCT1-03.5
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	Ferdinando, Hany* (<i>Univ. of Oulu</i>); Seppänen, Tapio (<i>Univ. of Oulu</i>); Alasaarela, Esko (<i>Univ. of Oulu</i>)	

16:20-16:22	WeCT1-03.6
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Kim, Hanvit* (<i>Ulsan National Institute of Science and Tech.</i>); Nguyen, Minh Phuong (<i>Ulsan National Institute of Science and Tech. (UNIST)</i>); Chun, Se Young (<i>Ulsan National Institute of Science and Tech. (UNIST)</i>)	
16:22-16:24	WeCT1-03.7
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Schrumpf, Fabian* (<i>Leipzig University of Applied Sciences (HTWK)</i>); Bausch, Gerold (<i>Leipzig University of Applied Sciences</i>); Sturm, Matthias (<i>Leipzig University of Applied Sciences (HTWK)</i>); Fuchs, Mirco (<i>Laboratory for Biosignal Processing, Leipzig University of Appli</i>)	
WeCT1-04: 16:10-17:10	Roentgen Hall
Signal Pattern Classification – EEG II (Poster Session)	
16:10-16:12	WeCT1-04.1
EEG Emotion Recognition using Reduced Channel Wavelet Entropy and Average Wavelet Coefficient Features with Normal Mutual Information Method	463-466
Candra, Henry (<i>University of Technology Sydney</i>); Yuwono, Mitchell (<i>University of Technology Sydney</i>); Chai, Rifai (<i>University of Technology, Sydney</i>); Nguyen, Hung T.* (<i>University of Technology, Sydney</i>); Su, Steven Weidong (<i>University of Technology, Sydney</i>)	
16:12-16:14	WeCT1-04.2
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Fukami, Tadanori* (<i>Yamagata University</i>); Shimada, Takamasa (<i>Tokyo Denki University</i>); Ishikawa, Bunnoshin (<i>Hotoku-kai Utsunomiya Hospital</i>)	
16:14-16:16	WeCT1-04.3
Rotational Data Augmentation for Electroencephalographic Data	471-474
Krell, Mario Michael (<i>University of California Berkeley</i>); Kim, Su Kyoung* (<i>German Research Center for Artificial Intelligence (DFKI) GmbH</i>)	
16:16-16:18	WeCT1-04.4
Surface and Intracranial EEG Spike Detection based on Discrete Wavelet Decomposition and Random Forest Classification	475-478
Le Douget, Jean-Eudes* (<i>Bioelectrics Lab, ICM Paris & Bioserenity</i>); Fouad, Amal (<i>Faculty of Medicine, Ain-Shams University</i>); Maskani Filali, Mohamed (<i>Bioelectrics Lab, ICM Paris & Bioserenity</i>); Pyrzowski, Jan (<i>Bioelectrics Lab, ICM Paris & Bioserenity</i>); Le Van Quyen, Michel (<i>ICM Research Center</i>)	
16:18-16:20	WeCT1-04.5
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Xiangjun, Sun (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Li, Huihui* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Du, Wenjing (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Wenmin, Chen (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Zhou, Fang (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Wang, Lei (<i>Shenzhen Institutes of Advanced Technology</i>)	
16:20-16:22	WeCT1-04.6
EEG-Based Auditory Attention Decoding using Unprocessed Binaural Signals in Reverberant and Noisy Conditions	484-488
Aroudi, Ali* (<i>Univ. of Oldenburg, Dept. of Medical Physics and Acoustics</i>); Doclo, Simon (<i>Univ. of Oldenburg</i>)	
16:22-16:24	WeCT1-04.7
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Guo, Kairui* (<i>University of Technology, Sydney</i>); Candra, Henry (<i>University of Technology Sydney</i>); Yu, Hairong (<i>University of Technology, Sydney</i>); Li, Huiqi (<i>Beijing Institute of Technology</i>); Nguyen, Hung T. (<i>University of Technology, Sydney</i>); Su, Steven Weidong (<i>University of Technology, Sydney</i>)	

16:10-16:12	WeCT2-01.1
A Radiomics Evaluation of 2D and 3D MRI Texture Features to Classify Brain Metastases from Lung Cancer and Melanoma	493-496
Ortiz-Ramón, Rafael (<i>Universitat Politècnica de València</i>); Larroza, Andres (<i>Universidad de Valencia</i>); Arana, Estanislao (<i>Radiology Dept., Fundación Instituto Valenciano de Oncología</i>); Moratal, David* (<i>Universitat Politècnica de València</i>)	
16:12-16:14	WeCT2-01.2
Investigating BOLD Spectral Power of Intrinsic Connectivity Networks in Fibromyalgia: A Multivariate Analysis of Resting-State fMRI Data	497-500
Jarrahi, Behnaz* (<i>Stanford University</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>)	
16:14-16:16	WeCT2-01.3
Atlas based Sparse Logistic Regression for Alzheimer's Disease Classification	501-504
Barros, Helena (<i>ISR - Institute for Systems and Robotics, Instituto Superior Técnico</i>); Silveira, Margarida* (<i>Institute for Systems and Robotics - Instituto Superior Técnico</i>)	
16:16-16:18	WeCT2-01.4
PEAR: PERiodic and ApeRiodic Signal Separation for Fast fMRI	505-508
Weizman, Lior* (<i>Technion, Israel Institute of Technology</i>); Miller, Karla (<i>Oxford University Centre for Functional MRI of The Brain (FMRIB)</i>); Eldar, Yonina (<i>Technion, Israel Institute of Technology</i>); Maayan, Osher (<i>Technion, Israel Institute of Technology</i>); Chiew, Mark (<i>Oxford University Centre for Functional MRI of The Brain (FMRIB)</i>)	
16:18-16:20	WeCT2-01.5
Cortical Response of the Projected-Thumb Tactile Sensation under TENS by MEG	509-512
Chen, Ying (<i>Shanghai Jiaotong University</i>); Li, Mengnan (<i>Shanghai Jiaotong University</i>); Cao, Chunyan (<i>Dept. of Functional Neurosurgery, RuiJin Hospital Shanghai</i>); Zhu, Xiaolei (<i>Dept. of Radiology, RuiJin Hospital Shanghai Jiao Tong Univ</i>); Sui, Xiaohong* (<i>Shanghai Jiao Tong University</i>)	
16:20-16:22	WeCT2-01.6
Precise Localization of Silicone-Based Intercranial Planar Electrodes in Magnetic Resonance Imaging	513-516
Erhardt, Johannes B.* (<i>Univ. of Freiburg</i>); Koenig, Kathrin (<i>Univ. of Freiburg</i>); Leupold, Jochen (<i>Univ. of Freiburg</i>); Pasluosta, Cristian Federico (<i>Univ. of Freiburg</i>); Stieglitz, Thomas (<i>Univ. of Freiburg</i>)	
16:22-16:24	WeCT2-01.7
A Study of Feature Extraction for Alzheimer's Disease based on Resting-State fMRI	517-520
Mao, Shuai (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Zhang, Changle (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Gao, Na (<i>Harbin Institute of Technology</i>); Wang, Yan (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Yang, YanWu (<i>HITSZ, ShenZhen, GuangDong Province, China</i>); Guo, Xin (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Ma, Heather Ting* (<i>Harbin Institute of Technology Shenzhen Graduate School</i>)	
16:24-16:26	WeCT2-01.8
Music and the Brain – Design of an MEG Compatible Piano	521-524
Chacon-Castano, Julian (<i>Massachusetts Institute of Technology</i>); Rathbone, Daniel (<i>Massachusetts Institute of Technology</i>); Hoffman, Rachel (<i>Massachusetts Institute of Technology</i>); Yang, Heng (<i>Massachusetts Institute of Technology</i>); Pantazis, Dimitrios (<i>MIT</i>); Yang, Jason (<i>Massachusetts Institute of Technology</i>); Hornberger, Erik (<i>Sumitomo Heavy Industries, Ltd.</i>); Hanumara, Nevan* (<i>Massachusetts Institute of Technology</i>)	
16:26-16:28	WeCT2-01.9
Three-Way ROC Validation of RS-fMRI Visual Information Propagation Transfer Functions used to Differentiate between RRMS and CIS Optic Neuritis Patients	525-528
Shahrabi Farahani, Ehsan (<i>University of Calgary</i>); Choudhury, Samiul (<i>University of Calgary</i>); Cortese, Filomeno (<i>University of Calgary</i>); Costello, Fiona (<i>University of Calgary</i>); Goodyear, Brad (<i>University of Calgary</i>); Smith, Michael* (<i>University of Calgary</i>)	

16:28-16:30	WeCT2-01.10
Feasibility Study of Imaging Fast Neural Activity in Retinal Tissue using Electrical Impedance Tomography	529-532
Zhu, Danyi* (<i>The University of Sydney</i>); Fang, Xiunan (<i>School of Electrical and Information Engineering, The University</i>); Eiber, Calvin D. (<i>University of New South Wales</i>); Avery, James (<i>University College London</i>); Holder, David (<i>University College London</i>); McEwan, Alistair (<i>The University of Sydney</i>)	
16:30-16:32	WeCT2-01.11
Evaluating Network Brain Connectivity in Alcohol Postdependent State using Network-Based Statistic	533-536
Díaz-Parra, Antonio (<i>Universitat Politècnica de València</i>); Pérez-Ramírez, Úrsula (<i>Universitat Politècnica de València</i>); Pacheco, Jesús (<i>Instituto de Neurociencias, Consejo Superior de Investigaciones</i>); Pfarr, Simone (<i>Depts. of Psychopharmacology & Addiction Medicine, Central Insti</i>); Sommer, Wolfgang H. (<i>Depts. of Psychopharmacology & Addiction Medicine, Central Insti</i>); Moratal, David* (<i>Universitat Politècnica de València</i>); Canals, Santiago (<i>Instituto de Neurociencias, Consejo Superior de Investigaciones</i>)	
16:32-16:34	WeCT2-01.12
Relationship between Amplitude of Resting-State fNIRS Global Signal and EEG Vigilance Measures	537-540
Chen, Yuxuan (<i>University of Oklahoma</i>); Farrand, Jesse (<i>University of Oklahoma</i>); Tang, Julia (<i>University of Oklahoma</i>); Chen, Yafen (<i>University of Oklahoma</i>); O'Keeffe, Johnny (<i>The University of Oklahoma</i>); Shou, Guofa (<i>University of Oklahoma</i>); Ding, Lei (<i>University of Oklahoma</i>); Yuan, Han* (<i>University of Oklahoma</i>)	
16:34-16:36	WeCT2-01.13
Assessment of Chemoradiotherapy Response in Glioma with Magnetic Resonance Amide Proton Transfer Imaging in a Rodent Model	541-543
Zhao, Jing (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Chen, Yinsheng (<i>Sun Yat-Sen University</i>); Zhao, Yiyang (<i>Sun Yat-Sen University</i>); Yang, Shasha (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Chen, Zhongping (<i>Sun Yat-Sen University</i>); Wu, Yin* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>)	
16:36-16:38	WeCT2-01.14
EEG Source Estimation Accuracy in Presence of Simulated Cortical Lesions	544-547
Caschera, Stefano* (<i>Sapienza Univ. of Rome</i>); Petti, Manuela (<i>Univ. of Rome "Sapienza", Neuroelectrical Imaging and BCI Lab IR</i>); Mattia, Donatella (<i>Fondazione Santa Lucia IRCCS</i>); Astolfi, Laura (<i>Univ. of Rome Sapienza</i>)	
WeCT2-02: 16:10-17:10 Cho Room	
X-Ray and CT Imaging II (Poster Session)	
16:10-16:12	WeCT2-02.1
Structure and Location Preserving Topological Representation with Applications on CT Segmentation	548-551
Awawdeh, Shatha Fawzi (<i>BMIT Research Group, School of Information Technologies, Unvers</i>); Cui, Hui* (<i>The University of Sydney</i>); Wang, Xiu Ying (<i>The University of Sydney</i>); Feng, Dagan (<i>The University of Sydney</i>)	
16:12-16:14	WeCT2-02.2
Monte Carlo Simulation of Radiation Dose Distribution in X-Ray Imaging at Shanghai Synchrotron Radiation Facility	552-555
Bai, Huiping (<i>Shanghai Jiao Tong Univ.</i>); Chen, Yi (<i>Shanghai Jiao Tong Univ.</i>); Guo, Han (<i>Shanghai Synchrotron Radiation Facility</i>); Zhao, Jun (<i>Shanghai Jiao Tong Univ.</i>); Sun, Jianqi* (<i>Shanghai Jiao Tong Univ.</i>)	
16:14-16:16	WeCT2-02.3
A Novel Pixel Value Space Statistics Map of the Pulmonary Nodule for Classification in Computerized Tomography Images	556-559
Jiang, Hongyang (<i>Sino-Dutch Biomedical and Information Engineering School, Northe</i>); Ma, He* (<i>Northeastern University</i>); Qian, Wei (<i>Northeastern University</i>); Wei, Guohui (<i>Northeastern University</i>); Zhao, Xinzhuo (<i>Northeastern University</i>); Gao, Mengdi (<i>Sino-Dutch Biomedical and Information Engineering School, Northe</i>)	
16:16-16:18	WeCT2-02.4
Dose Calculation in Computerized Tomography	560-563
Morató, Sergio* (<i>Institute for Industrial, Radiophysical and Environmental Safety</i>); García, Clara (<i>ISIRYM</i>); Juste, Belen (<i>Polytechnic University of Valencia</i>); Miró, Rafael (<i>Polytechnic University of Valencia</i>); Verdú, Gumersindo (<i>Polytechnic University of Valencia</i>)	

16:18-16:20	WeCT2-02.5
Intervertebral Disc Detection in X-Ray Images using Faster R-CNN	564-567
Sa, Ruhan* (<i>State University of New York (SUNY) at Buffalo</i>); Owens Jr, William (<i>State University of New York (SUNY) at Buffalo</i>); Wiegand, Raymond (<i>Spine Metrics, Inc.</i>); Studin, Mark (<i>University of Bridgeport College of Chiropractic</i>); Capoferri, Donald (<i>Academy of Chiropractic</i>); Bahooora, Kenneth (<i>Academy of Chiropractic</i>); Greaux, Alexander (<i>Academy of Chiropractic</i>); Rattray, Robbrey (<i>Academy of Chiropractic</i>); Hutton, Adam (<i>Academy of Chiropractic</i>); Cintineo, John (<i>Academy of Chiropractic</i>); Chaudhary, Vipin (<i>SUNY Buffalo</i>)	
16:20-16:22	WeCT2-02.6
Extract-and-Match Geometric Corner and Step Pattern Approach for Registration of Fluoroscopic X-Ray Sequences	568-571
Lee, Jimmy Addison* (<i>Institute for Infocomm Research, ASTAR</i>); Xu, Mengdi (<i>Institute for Infocomm Research</i>); Cheng, Jun (<i>Institute for Infocomm Research, AStar</i>); Fu, Huazhu (<i>Institute for Infocomm Research, A*STAR</i>); Wong, Damon (<i>Institute for Infocomm Research</i>); Foin, Nicolas (<i>National Heart Centre Singapore</i>)	
16:22-16:24	WeCT2-02.7
Non-Local Means Filter Denoising for DEXA Images	572-575
Al-Antari, Mugahed A. (<i>Dept. of Biomedical Engineering, College of Electronics and</i>); Al-Masni, Mohammed A. (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Kilany, Mohamed (<i>Kyung Hee University</i>); Hussain, Dildar (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Valarezo Añazco, Edwin (<i>Dept. of Biomedical Engineering, Kyung Hee University and E</i>); Rivera, Patricio (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Gi, Geon (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Jeong-min, Park (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Kim, Tae-yeon (<i>Dept. of Biomedical Engineering, Kyung Hee University</i>); Park, Se-Je (<i>B.M.Tech Worldwide Ltd. Co., Seongnam, Republic of Korea</i>); Shin, Jeong-Sik (<i>B.M.Tech Worldwide Ltd. Co., Seongnam, Republic of Korea</i>); Han, Seung-Moo (<i>Dept. of Biomedical Engineering, College of Electronics and</i>); Kim, Tae-Seong* (<i>Kyung Hee University</i>)	
16:24-16:26	WeCT2-02.8
Automatic Vertebrae Localization from CT Scans using Volumetric Descriptors	576-579
Karsten, Juan (<i>University of St Andrews</i>); Arandjelovic, Ognjen* (<i>University of St Andrews</i>)	
16:26-16:28	WeCT2-02.9
Development of Semi-Automatic Procedure for Detection and Tracking of Fiducial Markers for Orofacial Kinematics during Natural Feeding	580-583
Bunyak, Filiz (<i>University of Missouri Columbia</i>); Shiraishi, Naru (<i>Niigata University</i>); Palaniappan, Kannappan (<i>University of Missouri-Columbia</i>); Lever, Teresa (<i>University of Missouri</i>); Avivi-Arber, Limor (<i>University of Toronto</i>); Takahashi, Kazutaka* (<i>University of Chicago</i>)	
16:28-16:30	WeCT2-02.10
Patient-Specific Respiratory Motion Estimation using Sparse Motion Field Presentation	584-587
Chen, Dong (<i>Shanghai Jiao Tong University</i>); Xie, Hongzhi (<i>Peking Union Medical College Hospital</i>); Zhang, Shuyang (<i>Peking Union Medical College Hospital</i>); Chen, Weisheng (<i>Affiliated East Hospital of Xiamen University</i>); Gu, Lixu* (<i>Shanghai Jiaotong University</i>)	
16:30-16:32	WeCT2-02.11
A Novel Hybrid Approach for Reconstruction of Coronary Bifurcations using Angiography and OCT	588-591
Andrikos, Ioannis (<i>Univ. of Ioannina</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Mate</i>); Siogkas, Panagiotis (<i>FORTH-IMBB</i>); Rigas, Georgios (<i>Univ. of Ioannina</i>); Exarchos, Themis P. (<i>Unit of Medical Tech & Intelligent Info</i>); Athanasiou, Lambros (<i>Massachusetts Institute of Technology</i>); Karanasos, Antonis (<i>Medical School, Univ. of Athens</i>); Toutouzas, Kostas (<i>Medical School, Univ. of Athens</i>); Tousoulis, Dimitris (<i>Medical School, Univ. of Athens</i>); Michalis, Lampros (<i>Univ. of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>Univ. of Ioannina</i>)	
16:32-16:34	WeCT2-02.12
Characterization of Dental Pathologies using Digital Panoramic X-Ray Images based on Texture Analysis	592-595
K, Veena Divya* (<i>R.V. College of Engineering, Bengaluru</i>); Jatti, Dr.Anand (<i>RVCE, Bengaluru</i>); Joshi, Revan (<i>D.A. Pandu Memorial R.V. Dental College and Hospital,</i>); Krishna.S, Dr.Deepu (<i>Appollo Hospital, Bengaluru</i>)	

- 16:10-16:12 WeCT3-01.1
Glaucoma Classification from Retina Optical Coherence Tomography Angiogram 596-599
Ong, Ee Ping* (*Institute for Infocomm Research*); Cheng, Jun (*Institute for Infocomm Research, AStar*); Wong, Damon (*Institute for Infocomm Research*); Liu, Jiang (*Ningbo Institute of Materials Technology and Engineering, Chinese*); Tay, Elton L.T. (*Tan Tock Seng Hospital*); Yip, Leonard W.L. (*Tan Tock Seng Hospital*)
- 16:12-16:14 WeCT3-01.2
Analyzing Orientation Patterns of Human Skin Fibroblasts using Image Gradient Information 600-603
Bashar, Khayrul* (*Ochanomizu University*); Hashimoto, Kei (*Program for Leading Graduate School, Graduate School of Humaniti*); Gotoh, Mari (*Endowed Research Division of Human Welfare Sciences*); Kori, Hiroshi (*Program for Leading Graduate School, Dept. of Information S*)
- 16:14-16:16 WeCT3-01.3
Hair and Bare Skin Discrimination for Laser-Assisted Hair Removal Systems 604-607
Cayir, Sercan* (*TOBB ETÜ*); Yetik, Imam Samil (*TOBB University of Economics and Technology*)
- 16:16-16:18 WeCT3-01.4
Fully Automated Detection of Lamina Cribrosa in Optical Coherence Tomography: Framework and Illustrative Examples 608-611
Syga, Piotr* (*Faculty of Fundamental Problems of Technology, Wrocław Univ*); Sielużycki, Cezary (*Faculty of Fundamental Problems of Technology, Wrocław Univ*); Krzyżanowska-Berkowska, Patrycja (*Ophthalmology Clinic, Wrocław Medical University*); Iskander, D Robert (*Wroclaw University of Technology*)
- 16:18-16:20 WeCT3-01.5
Stability Assessment of Radiomic Features Computed on ADC Maps in Soft-Tissue Sarcoma 612-615
Bologna, Marco* (*Politecnico di Milano*); Montin, Eros (*Politecnico di Milano*); Corino, Valentina (*Politecnico di Milano*); Mainardi, Luca (*Politecnico di Milano*)
- 16:20-16:22 WeCT3-01.6
A mRMRMSRC Feature Selection Method for Radiomics Approach 616-619
Liu, Tongtong (*Fudan Univ.*); Wu, Guoqing (*Fudan Univ.*); Yu, Jinhua* (*Fudan Univ.*); Guo, Yi (*Fudan Univ.*); Wang, Yuanyuan (*Fudan Univ.*); Shi, Zhifeng (*Huanshan Hospital*); Chen, Liang (*Huanshan Hospital*)
- 16:22-16:24 WeCT3-01.7
Application of MRI Texture Analysis in the Study of the Posterior Fossa Tumors Growing Trend in Children 620-623
Li, Mengmeng* (*Zhengzhou University*); Shang, Zhigang (*Zhengzhou University*); Dong, Yonghui (*Zhengzhou University*); Zhang, Yong (*The First Affiliated Hospital of Zhengzhou University*); Li, Ya (*The First Affiliated Hospital of Zhengzhou University*)
- 16:24-16:26 WeCT3-01.8
Preoperative Parathyroid Localization using Joint Planar Imaging 624-627
Srikram, Richalannaphat (*Faculty of Engineering, Chulalongkorn University*); Jarumaneeroj, Pisit (*Chulalongkorn University*); Chaiwatanarat, Tawatchai (*Faculty of Medicine, Chulalongkorn University*); Rakvongthai, Yothin* (*Faculty of Medicine, Chulalongkorn University*)
- 16:26-16:28 WeCT3-01.9
Fully Automated Blink Detection for Uveal Melanoma Radiotherapy 628-631
Cavusculu, Melih Ege* (*TOBB ETÜ*); Yetik, Imam Samil (*TOBB University of Economics and Technology*); Yeginer, Mete (*Hacettepe University*)

- 16:10-16:12 WeCT3-02.1
Automated Ovarian Follicular Monitoring: A Novel Real-Time Approach 632-635
Faghih, Rose T.* (*University of Houston*); Styer, Aaron (*Harvard Medical School*); Brown, Emery N (*MGH-Harvard Medical School-MIT*)

16:12-16:14	WeCT3-02.2
An Embedded System for Image Segmentation and Multimodal Registration in Noninvasive Skin Cancer Screening	636-639
Diaz, Silvana (<i>University of Concepcion</i>); Soto, Javier E. (<i>Universidad de Concepción</i>); Inostroza, Fabián (<i>Universidad de Concepción</i>); Godoy, Sebastián E. (<i>Universidad de Concepción</i>); Figueroa, Miguel* (<i>Universidad de Concepcion</i>)	
16:14-16:16	WeCT3-02.3
Automated Lesion Segmentation and Dermoscopic Feature Segmentation for Skin Cancer Analysis	640-643
Pezhman Pour, Mansoureh (<i>Northumbria University</i>); Seker, Huseyin* (<i>The University of Northumbria at Newcastle</i>); Shao, Ling (<i>University of East Anglia</i>)	
16:16-16:18	WeCT3-02.4
Robust MR Image Segmentation using the Trimmed Likelihood Estimator in Asymmetric Student's-T Mixture Model	644-647
Zhou, Yi (<i>East China University of Science and Technology</i>); Zhu, Hongqing* (<i>East China University of Science and Technology</i>); Tao, Xuan (<i>East China University of Science and Technology</i>)	
16:18-16:20	WeCT3-02.5
Semi-Automated Enhanced Breast Tumor Segmentation for CT Image	648-651
Wang, Chao (<i>Harbin University of Science and Technology</i>); Li, Meng (<i>Southeast University</i>); Liu, Xia (<i>Harbin University of Science and Technology</i>); Liu, Zaiyi (<i>Dept. of Radiology, Guangdong General Hospital, Guangdong A</i>); Zang, Yali (<i>Institute of Automation, Chinese Academy of Sciences</i>); Liu, Zhenyu (<i>Institute of Automation, Chinese Academy of Sciences</i>); Dong, Di (<i>Chinese Academy of Sciences</i>); Liang, changhong (<i>Guangdong Provincial People's Hospital</i>); Tian, Jie* (<i>Chinese Academy of Sciences</i>)	
16:20-16:22	WeCT3-02.6
Cardiac Image Segmentation using Generalized Polynomial Chaos Expansion and Level Set Function	652-655
Du, Dongping* (<i>Texas Tech University</i>); Du, Yuncheng (<i>Clarkson University</i>)	
16:22-16:24	WeCT3-02.7
Using Cystoscopy to Segment Bladder Tumors with a Multivariate Approach in Different Color Spaces	656-659
Freitas, Nuno Renato* (<i>Univ. of Minho</i>); Vieira, Pedro Miguel (<i>Univ. of Minho</i>); Brandao Lima, Verissimo (<i>Universidade do Minho</i>); Lima, Estêvão (<i>ICVS/3Bs</i>); Lima, Carlos Manuel Gregorio Santos (<i>Univ. of Minho</i>)	

WeCT3-03: 16:10-17:10	Park Room
Machine Learning in Imaging III (Poster Session)	

16:10-16:12	WeCT3-03.1
Retinal Hemorrhage Detection by Rule-Based and Machine Learning Approach	660-663
Xiao, Di* (<i>Commonwealth Scientific and Industrial Research Organization</i>); Yu, Shuang (<i>Commonwealth Scientific and Industrial Research Organization</i>); Vignarajan, Janardhan (<i>CSIRO</i>); An, Dong (<i>Lions Eye institute</i>); Tay-Kearney, Mei-Ling (<i>Royal Perth Hospital</i>); Kanagasingham, Yogi (<i>The Australian eHealth Research Centre, Perth, CSIRO.</i>)	
16:12-16:14	WeCT3-03.2
Image Quality Classification for DR Screening using Deep Learning	664-667
Yu, FengLi* (<i>Nanjing University of Aeronautics and Astronautics</i>); Sun, Jing (<i>Nanjing University of Aeronautics and Astronautics</i>); Li, Annan (<i>Institute for Infocomm Research, ASTAR</i>); Cheng, Jun (<i>Institute for Infocomm Research, AStar</i>); Wan, Cheng (<i>Nanjing University of Aeronautics and Astronautics</i>); Liu, Jiang (<i>Ningbo Institute of Materials Technology and Engineering, Chinese</i>)	
16:14-16:16	WeCT3-03.3
Deep Convolutional Neural Networks for Left Ventricle Segmentation	668-671
Horan, Kelsey (<i>The Graduate Center, CUNY</i>); Molaei, Somayeh* (<i>University of Michigan</i>); Najarian, Kayvan (<i>University of Michigan - Ann Arbor</i>); Nallamothu, Brahmajee (<i>University of Michigan</i>); Kahrobaei, Delaram (<i>The Graduate Center, CUNY</i>); Ebrahim Shiri, Mohammad (<i>Amirkabir University of Technology</i>)	

16:16-16:18	WeCT3-03.4
Deep Learning based Nucleus Classification in Pancreas Histological Images	672-675
Chang, Young Hwan* (<i>Oregon Health and Science Univ.</i>); Thibault, Guillaume (<i>Oregon Health & Science Univ.</i>); Madin, Owen (<i>Oregon Health and Science Univ.</i>); Azimi, Vahid (<i>Oregon Health and Science Univ.</i>); Meyers, Cole (<i>Oregon Health and Science Univ.</i>); Johnson, Brett (<i>Oregon Health and Science Univ.</i>); Link, Jason (<i>Oregon Health and Science Univ.</i>); Margolin, Adam (<i>Oregon Health and Science Univ.</i>); Gray, Joe (<i>Oregon Health & Science Univ.</i>)	
16:18-16:20	WeCT3-03.5
Deep Tessellated Retinal Image Detection with Convolutional Neural Networks	676-680
Lyu, Xingzheng* (<i>Zhejiang University</i>); Li, Hai (<i>Zhejiang University</i>); Zhen, Yi (<i>Ophthalmic Disease Intelligent Diagnosis Joint Laboratory of Sha</i>); Ji, Xin (<i>Beijing Shangong Medical Technology Co., Ltd., Beijing, China</i>); Zhang, Sanyuan (<i>Zhejiang University</i>)	
16:20-16:22	WeCT3-03.6
Development of Automatic Retinal Vessel Segmentation Method in Fundus Images via Convolutional Neural Networks	681-684
Song, Joonyoung* (<i>Gwangju Institute of Science and Technology (GIST)</i>); Lee, Boreom (<i>Gwangju Institute of Science and Technology (GIST)</i>)	
16:22-16:24	WeCT3-03.7
Iterative Deep Convolutional Encoder-Decoder Network for Medical Image Segmentation	685-688
Kim, Jung Uk* (<i>Korea Advanced Institute of Science and Tech. (KAIST)</i>); Kim, Hak Gu (<i>Korea Advanced Institute of Science and Tech. (KAIST)</i>); Ro, Yong Man (<i>Korea Advanced Institute of Science and Tech.</i>)	
16:24-16:26	WeCT3-03.8
Ensemble of Convolutional Neural Networks for Classification of Breast Microcalcification from Mammograms	689-692
Sert, Egemen (<i>Middle East Technical University</i>); Ertekin, Seyda (<i>Middle East Technical University, Massachusetts Institute of Tec</i>); Halici, Ugur* (<i>Middle East Technical University</i>)	

WeCT4-01: 16:10-17:10	Min Room
Body Area Network Communication I (Poster Session)	

16:10-16:12	WeCT4-01.1
Comparison of Impedance Cardiogram with Continuous Wave Radar using Body-Contact Antennas	693-696
Buxi, Dilpreet (<i>Monash University</i>); Dugar, Rahul (<i>Monash University</i>); Redouté, Jean-Michel (<i>Monash University</i>); Yuce, Mehmet* (<i>Monash University</i>)	
16:12-16:14	WeCT4-01.2
A MAC Protocol with High Scalability for Motion Capture based on Frequency Division Multiple and Time Division Multiple Access	697-701
Zhao, Guoru* (<i>Shenzhen Institutes of Advanced Tech. Chinese Academy of Sci</i>); Li, Jie (<i>Wuhan University of Tech.</i>); Liang, Shengyun (<i>Shenzhen Institutes of Advanced Tech., Chinese Academy of S</i>); Yongfeng, Wang (<i>School of Mechanical Engineering, Hebei University of Tech.</i>); Ma, Yingnan (<i>Beijing Research Center of Urban System Engineering</i>); Gao, Xing (<i>Beijing Research Center of Urban System Engineering</i>)	
16:14-16:16	WeCT4-01.3
Modeling and Characterization of Different Channels based on Human Body Communication	702-705
Li, Jingzhen (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Nie, Zedong* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Liu, Yuhang (<i>Shenzhen Institute of Advanced Technology</i>); Wang, Lei (<i>Shenzhen Institutes of Advanced Technology</i>)	

WeCT4-02: 16:10-17:10	Min Room
Integrated Implantable Sensors I (Poster Session)	

16:10-16:12	WeCT4-02.1
Reever Control: A Biosignal Controlled Interface	706-709
Cene, Vinicius H. (<i>UFRGS</i>); Favieiro, Gabriela Winkler* (<i>Federal University of Rio Grande do Sul (UFRGS)</i>); Nedel, Luciana (<i>UFRGS</i>); Balbinot, Alexandre (<i>Federal University of Rio Grande do Sul (UFRGS)</i>)	

16:12-16:14 WeCT4-02.2
A 274 μ W Clock Synchronized Wireless Body Area Network IC with Super-Regenerative RSSI for Biomedical Ad-Hoc Network System 710-713
 Lee, Yongsu* (KAIST); Yoo, Hoi-Jun (KAIST)

16:14-16:16 WeCT4-02.3
A Wearable Multi-Pad Electrode Prototype for Selective Functional Electrical Stimulation of Upper Extremities 714-717
 Wang, Haipeng (Southeast University, Institute of RF- & OE-ICs); Guo, Aiwon (Southeast University); Bi, Zhengyang (Southeast University, State Key Lab of Bioelectronics); Li, Fei (Southeast University); Lü, Xiaoying (Southeast University); Wang, Zhigong* (Southeast University)

16:16-16:18 WeCT4-02.4
A Quad-Cantilevered Plate Micro-Sensor for Intracranial Pressure Measurement 718-721
 Lalkov, Vasko (New York University Abu Dhabi); Qasaimeh, Mohammad* (Division of Engineering, New York University Abu Dhabi (NYUAD))

16:18-16:20 WeCT4-02.5
A Sub 125 nW Sub-Threshold Analog Adaptive Sampler in 180 nm CMOS 722-725
 Laurenson, Callum* (Monash Univ.); Yuce, Mehmet (Monash Univ.); Redouté, Jean-Michel (Monash Univ.)

WeCT4-03: 16:10-17:10 Min Room
Optical and Photonic Systems I (Poster Session)

16:10-16:12 WeCT4-03.1
A Novel Hardware Implementation for Detecting Respiration Rate using Photoplethysmography 726-729
 Prinable, Joseph Barry Yoo Sik* (Univ. of Sydney); Jones, Peter (The Univ. of Sydney); Thamrin, Cindy (Woolcock Institute of Medical Research, Univ. of Sydney); McEwan, Alistair (The Univ. of Sydney)

16:12-16:14 WeCT4-03.2
A Video/IMU Hybrid System for Movement Estimation in Infants 730-733
 Machireddy, Archana* (Oregon Health and Science University); Van Santen, Jan (Oregon Health and Science University); Wilson, Jenny (Oregon Health & Science University); Myers, Julianne (Oregon Health & Science University); Hadders-Algra, Mijna (University of Groningen); Song, Xubo (Oregon Health & Science University)

16:14-16:16 WeCT4-03.3
Running Wavelet Archetype Aids the Determination of Heart Rate from the Video Photoplethysmogram during Motion 734-737
 Addison, Paul* (Medtronic); Foo, David Ming Hui (Medtronic); Jacquél, Dominique (Medtronic)

16:16-16:18 WeCT4-03.4
Using a New PPG Indicator to Increase the Accuracy of PTT-Based Continuous Cuffless Blood Pressure Estimation 738-741
 Lin, Wan-Hua (Shenzhen Institutes of Advanced Technology); Wang, Hui (Shenzhen Institutes of Advanced Technology, Chinese Academy of S); Samuel, Oluwarotimi Williams (Shenzhen Institutes of Advanced Technology); Li, Guanglin* (Shenzhen Institutes of Advanced Technology)

16:18-16:20 WeCT4-03.5
Predicting Food Nutrition Facts using Pocket-Size Near-Infrared Sensor 742-745
 Thong, Yoke Jia (Australia E-health research centre CSIRO); Nguyen, Thuong (CSIRO); Zhang, Qing* (CSIRO); Karunanithi, Mohanraj (CSIRO Digital Productivity Flagship); Yu, Lei (Shanxi University)

WeCT4-04: 16:10-17:10 Min Room
Physiological Modeling and Analysis I (Poster Session)

16:10-16:12 WeCT4-04.1
Affordable Sensor based Gaze Tracking for Realistic Psychological Assessment 746-750
 Gavas, Rahul (TCS Research & Innovation, Tata Consultancy Services Ltd.); Roy, Sangheeta (TCS Research & Innovations, Tata Consultancy Svcs Ltd.); Chatterjee, Debatri (TCS Innovation Lab); Tripathy, Soumya Ranjan (TCS Research & Innovation, Tata Consultancy Svcs Ltd.); Chakravarty, Kingshuk (Tata Consultancy Svcs Ltd.); Sinha, Aniruddha* (Tata Consultancy Svcs Ltd.); Lahiri, Uttama (Indian Institute of Tech., Gandhinagar)

16:12-16:14 WeCT4-04.2
Towards Precise Tracking of Electric-Mechanical Cardiac Time Intervals through Joint ECG and BCG Sensing and Signal Processing 751-754
 Zhang, Haihong* (*Institute for Infocomm Research*); Zimin, Wang (*Guilin University of Electronic Technology*); Dong, Kejun (*Nanyang Technological University*); Lin, Zhiping (*Nanyang Technological University*); Ng, Soon Huat (*Institute for Infocomm Research*)

16:14-16:16 WeCT4-04.3
Ambulatory Gastric Mucosal Slow Wave Recording for Chronic Experimental Studies 755-758
 Paskaranandavivel, Niranchan* (*The Univ. of Auckland*); Angeli, Timothy Robert (*Auckland Bioengineering Institute, Univ. of Auckland*); Stocker, Abigail (*Univ. of Louisville Hospital*); Mcelmurray, Lindsay (*Univ. of Louisville Hospital*); O'Grady, Gregory (*Univ. of Auckland*); Abell, Thomas (*The Division of Digestive Diseases, Univ. of Mississippi Me*); Cheng, Leo K (*The Univ. of Auckland*)

16:16-16:18 WeCT4-04.4
Ex Vivo Animal-Model Assessment of a Non-Invasive System for Loss of Resistance Detection during Epidural Blockade 759-762
 Carassiti, Massimiliano (*University Campus Bio-Medico of Rome*); Quarta, Rossella (*Università Campus Bio-Medico di Roma, Rome-Italy*); Mattei, Alessia (*Università Bampus Bio-Medico di Roma*); Tesei, Marco (*Università Campus Bio-Medico di Roma*); Saccomandi, Paola* (*University Campus Bio-Medico of Rome*); Massaroni, Carlo (*Università Campus Bio-Medico di Roma*); Setola, Roberto (*Univ. Campus Bio-Medico*); Schena, Emiliano (*University of Rome Campus Bio-Medico*)

16:18-16:20 WeCT4-04.5
Overnight Non-Contact Continuous Vital Signs Monitoring using an Intelligent Automatic Beam-Steering Doppler Sensor at 2.4 GHz 763-766
 Batchu, Sandeep (*Texas Tech Univ.*); Narasimhachar, Harikrishna (*Texas Tech Univ.*); Hall, Travis (*Texas Tech Univ.*); Lopez, Jerry (*Texas Tech Univ.*); Nguyen, Tam (*Texas Tech Univ. Health Sciences Center*); Banister, Ron (*Texas Tech Univ. Health Center*); Lie, Donald Yu-Chun* (*Texas Tech Univ.*)

16:20-16:22 WeCT4-04.6
Permanency Analysis on Human Electroencephalogram Signals for Pervasive Brain-Computer Interface Systems 767-770
 Sadeghi, Koosha (*Arizona State Univ.*); Lee, Junghyo* (*Arizona State Univ.*); Banerjee, Ayan (*Computer Science*); Sohankar, Javad (*Arizona State Univ.*); Gupta, Sandeep K. S. (*Arizona State Univ.*)

WeCT4-05: 16:10-17:10	Min Room
Power Efficient BSN I (Poster Session)	

16:10-16:12 WeCT4-05.1
Energy Efficient LoRa GPS Tracker for Dementia Patients 771-774
 Hadwen, Timothy Ryan (*Australian eHealth Research Centre*); Smallbon, Vanessa Jane (*CSIRO AEHRC*); Zhang, Qing* (*CSIRO*); D'Souza, Matthew (*The University of Queensland*)

16:12-16:14 WeCT4-05.2
Charge Pumping with Finger Capacitance for Body Sensor Energy Harvesting 775-778
 Zhou, Alyssa* (*University of California, Berkeley*); Maharbiz, Michel (*University of California, Berkeley*)

16:14-16:16 WeCT4-05.3
Polypyrrole RVC Biofuel Cells for Powering Medical Implants 779-782
 Roxby, Daniel Ninio* (*University of Technology, Sydney*); Ting, Simon (*University of Technology Sydney*); Nguyen, Hung T. (*University of Technology, Sydney*)

WeCT5-01: 16:10-17:10	Lee Room
Clinical Applications of Sensing Technology I (Poster Session)	

16:10-16:12 WeCT5-01.1
Development of a Wearable Support System to Aid the Visually Impaired in Independent Mobilization and Navigation 783-786
 Froneman, Tayla (*Stellenbosch University*); Van Den Heever, Dawie (*Stellenbosch University*); Dellimore, Kiran* (*Philips Research*)

16:12-16:14 WeCT5-01.2
Application of Infrared Scanning of the Neck Muscles to Control a Cursor in Human-Computer Interface 787-790
Safavi, Seyedemahya (*University of California Irvine*); Sundaram, Subramanian Meenakshi (*University of California, Irvine*); Gorji, ALi Heydari (*University of California, Irvine*); Udaiwal, Neha Satishkumar (*University of California, Irvine*); Chou, Pai H.* (*University of California, Irvine*)

16:14-16:16 WeCT5-01.3
An MRI-Compatible Force Sensor for Measuring Differential Isometric Precision Grip Force 791-794
Han, Chungmin* (*Univ. of Texas at Austin*); Oblak, Ethan (*Univ. of Texas at Austin*); Abraham, Lawrence (*Univ. of Texas at Austin*); Ferrari, Paul (*Univ. of Texas at Austin*); McManis, Mark (*Dell Children's Medical Center of Central Texas*); Schnyer, David (*Univ. of Texas, Austin*); Sulzer, James (*Univ. of Texas at Austin*)

16:16-16:18 WeCT5-01.4
Using Point Cloud Data to Improve Three Dimensional Gaze Estimation 795-798
Wang, Haofei* (*Hong Kong University of Science and Technology*); Antonelli, Marco (*Hong Kong University of Science and Technology*); Shi, Bertram E (*Hong Kong University of Science and Technology*)

16:18-16:20 WeCT5-01.5
An Efficient Color Correction Method for Smartphone Camera-Based Health Monitoring Applications 799-802
Dang, Duc* (*Texas Tech University*); Cho, Chae Ho (*Texas Tech University*); Kim, Daeik (*Chonnam National University*); Kwon, Oh Seok (*Korea Research Institute of Bioscience and Biotechnology*); Chong, Jo Woon (*Texas Tech University*)

16:20-16:22 WeCT5-01.6
Quantification Assessment of Bradykinesia in Parkinson's Disease based on a Wearable Device 803-806
Lin, Zhirong (*Quanzhou Institute of Equipment Manufacturing, Haixi Institutes,*); Dai, Houde* (*Quanzhou Institute of Equipment Manufacturing, Haixi Institutes,*); Xiong, Yongsheng (*Quanzhou Institute of Equipment Manufacturing, Haixi Institutes,*); Xia, Xuke (*Quanzhou Institute of Equipment Manufacturing, Haixi Institutes,*); Horng, Shi-Jinn (*National Taiwan University of Science and Technology*)

WeCT5-02: 16:10-17:10 Lee Room
Novel Physiological Monitoring Methods I (Poster Session)

16:10-16:12 WeCT5-02.1
Recovery of Forearm Occluded Trajectory in Kinect using a Wrist-Mounted Inertial Measurement Unit 807-812
Jatesiktat, Prayook* (*NTU*); Ang, Wei Tech (*Nanyang Technological University*)

16:12-16:14 WeCT5-02.2
Effect of Electrode Material on the Sensitivity of Interdigitated Electrodes used for Electrical Cell-Substrate Impedance Sensing Technology 813-816
Martinez Santamaria, Jaime Andres* (*Institut des Nanotechnologies de Lyon*); Montalibet, Amalric (*INL UMR-5270 - INSA Lyon*); McAdams, Eric (*INSA Lyon*); Faivre, Magalie (*Institut des Nanotechnologies de Lyon*); Ferrigno, Rosaria (*Université Claude Bernard Lyon 1*)

16:14-16:16 WeCT5-02.3
The SPLENDID Chewing Detection Challenge 817-820
Papapanagiotou, Vasileios (*Aristotle University of Thessaloniki*); Diou, Christos* (*Aristotle University of Thessaloniki*); Zhou, Lingchuan (*CSEM SA*); van den Boer, Janet (*Wageningen University*); Mars, Monica (*Wageningen University*); Delopoulos, Anastasios (*Aristotle University of Thessaloniki*)

16:16-16:18 WeCT5-02.4
Wireless Chest Wearable Vital Sign Monitoring Platform for Hypertension 821-824
Janjua, Ghalib Muhammad Waqas* (*Ulster University*); Guldenring, Daniel (*University of Ulster*); Finlay, Dewar (*University of Ulster*); McLaughlin, James (*University of Ulster*)

16:18-16:20 WeCT5-02.5
Performance of Compressive Sensing for the Reconstruction of Different QRS Pulses in ECG Signals 825-828
Pant, Jeevan Kumar (*Ryerson University*); Krishnan, Sridhar* (*Ryerson University*)

Sensing Methods and Systems I (Poster Session)

- 16:10-16:12 WeCT5-03.1
Respiratory Rate Measurements via Doppler Radar for Health Monitoring Applications 829-832
 Alemaryeen, Ala (*University of North Dakota*); Noghanian, Sima (*University of North Dakota*);
 Fazel-Rezai, Reza* (*University of North Dakota*)
- 16:12-16:14 WeCT5-03.2
Development of Wearable Muscle Fatigue Detection System using Capacitance Coupling Electrodes 833-836
 Kobayashi, Takahiro* (*Kindai Univ.*); Okada, Shima (*Faculty of Science and Engineering, Kinki Univ.*);
 Makikawa, Masaaki (*Ritsumeikan Univ.*); Shiozawa, Naruhiro (*Ritsumeikan Univ.*); Kosaka, M. (*Kindai Univ.*)
- 16:14-16:16 WeCT5-03.3
A Tracking Algorithm for Cell Motility Assays in CMOS Systems 837-840
 Martinez-Gomez, Cristina (*Instituto de Microelectrónica de Sevilla / Universidad de Sevilla*); Olmo, Alberto
 (*Universidad de Sevilla*); Huertas, Gloria (*Instituto de Microelectronica de Sevilla / Universidad de Sevilla*);
 Perez, Pablo (*Instituto de Microelectronica de Sevilla / Universidad de Sevilla*); Andres, Maldonado-Jacobi
 (*Instituto de Microelectronica de Sevilla / Universidad de Sevilla*); Yufera, Alberto* (*University of Seville*)
- 16:16-16:18 WeCT5-03.4
**Proof of Concept Laplacian Estimate Derived for Noninvasive Tripolar Concentric Ring Electrode
 with Incorporated Radius of the Central Disc and the Widths of the Concentric Rings** 841-844
 Makeyev, Oleksandr (*Diné College*); Lee, Colin (*Diné College*); Besio, W. G.* (*University of Rhode Island*)

Sensor Systems I (Poster Session)

- 16:10-16:12 WeCT5-04.1
Non-Invasive Sensor based Automated Smoking Activity Detection 845-848
 Bhandari, Babin (*Deakin University*); Lu, JianChao (*Deakin University*); Zheng, Xi (*Deakin University*);
 Rajasegarar, Sutharshan* (*Deakin University*); Karmakar, Chandan (*Deakin University*)
- 16:12-16:14 WeCT5-04.2
Rich Context Information for Just-in-Time Adaptive Intervention Promoting Physical Activity 849-852
 Cruciani, Federico* (*Ulster University*); Nugent, Chris (*University of Ulster*); Cleland, Ian (*University of Ulster*);
 McCullagh, Paul (*University of Ulster*)
- 16:14-16:16 WeCT5-04.3
Home-Based Upper Extremity Rehabilitation Support using a Contactless Ultrasonic Sensor 853-856
 Griffith, Henry* (*Michigan State University*); Biswas, Subir (*Michigan State University*)
- 16:16-16:18 WeCT5-04.4
MuSeSe – A Multisensor Armchair for Unobtrusive Vital Sign Estimation and Motion Artifact Analysis 857-860
 Hoog Antink, Christoph* (*RWTH Aachen University, Aachen, Germany*); Leonhardt, Steffen (*RWTH Aachen
 University*); Schulz, Florian (*RWTH Aachen University*); Walter, Marian (*RWTH Aachen University*)
- 16:18-16:20 WeCT5-04.5
A Low-Power High-Sensitivity Analog Front-End for PPG Sensor 861-864
 Lin, Binghui (*Shanghai Jiao Tong University*); Mohamed, Atef (*Shanghai Jiao Tong University*);
 Wang, Guoxing* (*Shanghai Jiao Tong University*)
- 16:20-16:22 WeCT5-04.6
Ultrasonic Thermal Dust: A Method to Monitor Deep Tissue Temperature Profiles 865-868
 Ozilgen, Burak Arda* (*University of California Berkeley*); Maharbiz, Michel (*University of California, Berkeley*)
- 16:22-16:24 WeCT5-04.7
**A ROIC for Mn(TPP)Cl-DOP-THF-Polyhema PVC Membrane Modified N-Channel
 Si3N4 ISFET Sensitive to Histamine** 869-872
 Samah, N. L. M. A. (*Universiti Teknologi MARA*); Lee, Khuan Y.* (*Universiti Teknologi MARA*);
 Sulaiman, S.A. (*Universiti Teknologi MARA*); Jarmin, R (*Universiti Teknologi MARA*)

16:24-16:26 WeCT5-04.8
Novel Carbon Fiber Probe for Temperature Monitoring during Thermal Therapies 873-876
Saccomandi, Paola* (*Univ. Campus Bio-Medico of Rome*); Schena, Emiliano (*Univ. of Rome Campus Bio-Medico*); Caponero, Michele Arturo (*ENEA - Centro Ricerche Frascati*); Gassino, Riccardo (*Dept. of Electronics and Telecommunications, Politecnico di*); Hernandez, Juan (*IHU-Strasbourg*); Perrone, Guido (*Dept. of Electronics and Telecommunications, Politecnico di*); Vallan, Alberto (*Dept. of Electronics and Telecommunications, Politecnico di*); Diana, Michele (*IRCAD: Research Institute against Cancer of Digestive System, St*); Costamagna, Guido (*Unit of Digestive Endoscopy, Università Cattolica del Sacro Cuor*); Marescaux, Jacques (*IRCAD*)

16:26-16:28 WeCT5-04.9
Pulse Oximetry in the Neck – A Proof of Concept 877-880
Peng, Mingxu* (*Imperial College London*); Imtiaz, Syed Anas (*Imperial College London*); Rodriguez-Villegas, Esther (*Imperial College London*)

16:28-16:30 WeCT5-04.10
Temperature Influence on the Response at Low Airflow of a Variable Orifice Flowmeter 881-884
Massaroni, Carlo (*Università Campus Bio-Medico di Roma*); Schena, Emiliano* (*University of Rome Campus Bio-Medico*); Silvestri, Sergio (*Università Campus Bio-Medico di Roma*)

WeCT6-01: 16:10-17:10 Zworykin Room
Biomaterials and Patterning II (Poster Session)

16:10-16:12 WeCT6-01.1
Functionalized Electromagnetic Actuation Method for Aggregated Nanoparticles Steering 885-888
Kafash hoshiar, Ali (*Gyeongsang National University*); Anh Le, Tuan (*Gyeongsang National University*); Ul Amin, Faiz (*Gyeongsang National University*); Kim, Myeong Ok (*Gyeongsang National University*); Yoon, Jungwon* (*Gyeongsang National University*)

WeCT6-02: 16:10-17:10 Zworykin Room
Cell and Protein Interaction with External Fields II (Poster Session)

16:10-16:12 WeCT6-02.1
Dynamic Electromechanical Control of Biomolecules using a Nano Virtual Cathode Display 889-892
Miyazako, Hiroki* (*The University of Tokyo*); Mabuchi, Kunihiko (*The University of Tokyo*); Hoshino, Takayuki (*University of Tokyo*)

WeCT7-01: 16:10-17:10 Herrick Room
BioRobotics and Biomechanics I (Poster Session)

16:10-16:12 WeCT7-01.1
Development and Testing of a New Cognitive Technological Tool for Episodic Memory: A Feasibility Study 893-896
Maselli, Martina* (*Scuola Superiore Sant'Anna*); Fiorini, Laura (*Scuola Superiore Sant'Anna*); Castro, Emanuela (*Scuola Superiore Sant'Anna*); Baldoli, Ilaria (*Scuola Superiore Sant'Anna, The BioRobotics Institute*); Tocchini, Stefania (*USL Nordovest Toscana*); Timpano Sportiello, Marco (*USL Nordovest Toscana*); Cavallo, Filippo (*Scuola Superiore Sant'Anna*); Cecchi, Francesca (*Scuola Superiore Sant'Anna*); Laschi, Cecilia (*Scuola Superiore Sant'Anna*)

16:12-16:14 WeCT7-01.2
Feasibility Study on the Assessment of Auditory Sustained Attention through Walking Motor Parameters in Mild Cognitive Impairments and Healthy Subjects 897-900
Fiorini, Laura (*Scuola Superiore Sant'Anna*); Maselli, Martina* (*Scuola Superiore Sant'Anna*); Castro, Emanuela (*Scuola Superiore Sant'Anna*); Tocchini, Stefania (*USL Nordovest Toscana*); Timpano Sportiello, Marco (*USL Nordovest Toscana*); Laschi, Cecilia (*Scuola Superiore Sant'Anna*); Cecchi, Francesca (*Scuola Superiore Sant'Anna*); Cavallo, Filippo (*Scuola Superiore Sant'Anna*)

16:14-16:16	WeCT7-01.3
Modeling and Analysis of Individual with Lower Extremity Amputation Locomotion using Prosthetic Feet and Running-Specific Prostheses	901-904
Murai, Akihiko* (<i>National Institute of Advanced Industrial Science and Technology</i>); Hobara, Hiroaki (<i>Japan Society for The Promotion of Science</i>); Hashizume, Satoru (<i>National Institute of Advanced Industrial Science and Technology</i>); Kobayashi, Yoshiyuki (<i>National Institute of Advanced Industrial Science and Technology</i>); Tada, Mitsunori (<i>National Institute of Advanced Industrial Science and Technology</i>)	
16:16-16:18	WeCT7-01.4
A Multimodal Interface to Resolve the Midas-Touch Problem in Gaze Controlled Wheelchair	905-908
Meena, Yogesh Kumar* (<i>Ulster University</i>); Cecotti, Hubert (<i>University of Ulster</i>); Wong-Lin, KongFatt (<i>University of Ulster</i>); Prasad, Girijesh (<i>University of Ulster</i>)	
16:18-16:20	WeCT7-01.5
Design, Implementation and Performance Validation of UOMPro Artificial Hand: Towards Affordable Hand Prostheses	909-912
Manodara Acharige, Nisal (<i>University of Moratuwa</i>); Ruhunage, Isuru* (<i>University of Moratuwa</i>); Wickramasinghe Siriwardhana, Janaka Subodha Madhuranga (<i>University of Moratuwa</i>); Perera, Chamika Janith (<i>University of Moratuwa</i>); Lalitharatne, Thilina Dulantha (<i>University of Moratuwa</i>)	
16:20-16:22	WeCT7-01.6
Construction of a Soft Wearable Body Cooling System for Persons with Spinal Cord Injury	913-916
Takashima, Atsushi* (<i>National Rehabilitation Center for Persons with Disabilities</i>); Sato, Kensuke (<i>Chiba Institute of Technology</i>); Takizawa, Kenta (<i>Tokyo Institute of Technology, National Rehabilitation Center fo</i>); Suzurikawa, Jun (<i>Research Institute of National Rehabilitation Center for Persons</i>); Higuchi, Yukiharu (<i>National Rehabilitation Center for Persons with Disabilities</i>); Huang, Ming (<i>Nara Institute of Science and Technology</i>); Teshima, Yoshinori (<i>Chiba Institute of Technology</i>); Tamura, Toshiyo (<i>Waseda University</i>); Kurabayashi, Daisuke (<i>Tokyo Institute of Technology</i>); Inoue, Takenobu (<i>Research Institute of National Rehabilitation Center for Persons</i>); Ogata, Toru (<i>National Rehabilitation Center for Persons with Disabilities</i>)	
16:22-16:24	WeCT7-01.7
Wireless Navigation of Pigeons using Polymer-Based Fully Implantable Stimulator: A Pilot Study using Depth Electrodes	917-920
Seo, Jungmin* (<i>Seoul National University</i>); Choi, Gwang Jin (<i>Seoul National University</i>); Park, Sangwan (<i>Seoul National University College of Veterinary Medicine</i>); Lee, Jihun (<i>Brown University, school of Engineering</i>); Baek, Changhoon (<i>Seoul National University</i>); Jang, Jungwoo (<i>Seoul National University</i>); Lim, Jaegook (<i>Seoul National University College of Veterinary Medicine</i>); Shin, Soowon (<i>Seoul National University</i>); Seo, Kangmoon (<i>Seoul National University College of Veterinary Medicine</i>); Seo, Jong Mo (<i>Seoul National University, School of Engineering</i>); Song, Yoon-Kyu (<i>Seoul National University</i>); Kim, Sung June (<i>Seoul National University</i>)	
16:24-16:26	WeCT7-01.8
A Novel Hidden Markov Model-Based Pattern Discrimination Method with the Anomaly Detection for EMG Signals	921-924
Mukaeda, Takayuki* (<i>Graduate School of Engineering, Yokohama National University</i>); Shima, Keisuke (<i>Yokohama National University</i>)	
16:26-16:28	WeCT7-01.9
Robust Tracking of Dexterous Continuum Robots: Fusing FBG Shape Sensing and Stereo Vision	925-928
Zhang, Rumei (<i>Shenyang Institute of Automation (SIA), Chinese Academy of Scien</i>); Zhou, Yuanyuan (<i>Shenyang Institute of Automation, Chinese Academy of Sciences</i>); Kong, Lingzhi (<i>Northeastern University</i>); Han, Jianda (<i>the State Key Laboratory of Robotics, Shenyang Institute of Autom</i>); Liu, Hao* (<i>Shenyang Institute of Automation, Chinese Academy of Sciences</i>)	
16:28-16:30	WeCT7-01.10
A Distributed Cerebellar-Inspired Learning Model for Robotic Arm Control	929-932
Lin, Xiangqian (<i>Dalian University of Technology</i>); Liu, Rong* (<i>Dalian University of Technology</i>)	
16:30-16:32	WeCT7-01.11
A Theoretical Study and Implementation of Spinal Traction System with Real-Time Biosignal Feedback System	933-936
Chang, Hojong* (<i>Institute for Information Technology Convergence, KAIST</i>); Kim, Tae-Ho (<i>KAIST</i>); Nam, Hyoung Ho (<i>E-ONE Co., Ltd.</i>); Kim, Ki-duk (<i>Sun Medical Center</i>)	

16:32-16:34	WeCT7-01.12
Augmented Marker Tracking for Peri-Acetabular Osteotomy Surgery	937-941
Pflugli, Silvio (<i>Univ. of Bern</i>); Vasireddy, Rakesh (<i>Institute for Surgical Technology & Biomechanics, Univ. o</i>); Lerch, Till (<i>Dept. of Orthopedic Surgery, Inselspital, Univ. of Ber</i>); Ecker, Timo Michael (<i>Dept. of Orthopedic Surgery, Inselspital, Univ. of Ber</i>); Tannast, Moritz (<i>Dept. of Orthopedic Surgery, Inselspital, Univ. of Ber</i>); Boemke, Nane (<i>Institute for Anatomy, Univ. of Bern</i>); Siebenrock, Klaus (<i>Dept. of Orthopedic Surgery, Inselspital, Univ. of Ber</i>); Zheng, Guoyan* (<i>Univ. of Bern</i>)	
16:34-16:36	WeCT7-01.13
Efficacy of a Knee Orthosis that uses an Elastic Element	942-945
Kamada, Ipppei* (<i>Osaka University</i>); Uemura, Mitsunori (<i>Osaka University</i>); Hirai, Hiroaki (<i>Osaka University</i>); Miyazaki, Fumio (<i>Osaka University</i>)	
16:36-16:38	WeCT7-01.14
Design and Development of Platform Ankle Rehabilitation Robot with Shape Memory Alloy based Actuator	946-949
Chong, Tune Hau (<i>Monash Univ. Malaysia</i>); Gouwanda, Darwin* (<i>Monash Univ. Malaysia</i>); Gopalai, Alpha Agape (<i>Curtin Univ. Sarawak Campus</i>); Low, C.Y. (<i>Univ. Tech. MARA</i>); Hanapiah, F.A. (<i>Univ. Tech. Mara</i>)	
16:38-16:40	WeCT7-01.15
Shape Memory Effect of Nano-Ferromagnetic Particle Doped NiTi for Orthopedic Devices and Rehabilitation Techniques	950-953
Gautam, Arvind Kumar (<i>IIT Hyderabad</i>); Balouria, Anuradha (<i>IIT Hyderabad</i>); Acharyya, Amit* (<i>Indian Institute of Technology Hyderabad</i>); Acharyya, Swati Ghosh (<i>UOH Hyderabad</i>); Panwar, Madhuri (<i>IIT Hyderabad</i>); Naik, Ganesh R (<i>University of Technology Sydney</i>)	
16:40-16:42	WeCT7-01.16
Effects of Wide Step Walking on Swing Phase Hip Muscle Forces and Spatio-Temporal Gait Parameters	954-957
Bajelan, Soheil (<i>Victoria University, Melbourne</i>); Nagano, Hanatsu (<i>Victoria University</i>); Sparrow, William (<i>Victoria University</i>); Begg, Rezaul* (<i>Victoria University</i>)	

WeCT8-01: 16:10-17:10	Schwan Room
Brain Physiology and Modeling I (Poster Session)	

16:10-16:12	WeCT8-01.1
Change in Functional Networks for Transitions between States of Consciousness during Midazolam-Induced Sedation	958-961
Lee, Minji (<i>Korea University</i>); Sanders, Robert D. (<i>University of Wisconsin</i>); Yeom, Seul-Ki (<i>Korea University</i>); Won, Dong-Ok (<i>Korea University</i>); Kim, Hwi-Jae (<i>Korea University</i>); Lee, Bo-Ram (<i>Korea University</i>); Seo, Kwang-Suk (<i>Seoul National University Dental Hospital</i>); Kim, Hyun Jeong (<i>Seoul National University Dental Hospital</i>); Tononi, Giulio (<i>University of Wisconsin</i>); Lee, Seong-Whan* (<i>Korea University</i>)	
16:12-16:14	WeCT8-01.2
Neuronal Activity in Human Anterior Cingulate Cortex Modulates with Internal Cognitive State during Multi-Source Interference Task	962-965
Walmer, Matthew (<i>Johns Hopkins Univ.</i>); Sklar, Samuel (<i>Johns Hopkins Univ.</i>); Sacré, Pierre (<i>Johns Hopkins Univ.</i>); Schevon, Catherine (<i>Columbia Univ. Medical Center</i>); Srinivasan, Shraddha (<i>Columbia Univ. Medical Center</i>); Banks, Garrett (<i>Columbia Univ. Medical Center</i>); Yates, Mark (<i>Columbia Univ. Medical Center</i>); McKhann, Guy (<i>Columbia Univ. Medical Center</i>); Sheth, Sameer (<i>Columbia Univ. Medical Center</i>); Sarma, Sridevi V. (<i>Johns Hopkins Univ.</i>); Smith, Elliot* (<i>Columbia Univ. Medical Center</i>)	
16:14-16:16	WeCT8-01.3
Spatial Constraints of Binocularly Matched Information on Perceived Depth Resulted from Temporal Interocular Asynchrony	966-969
Bi, Fanya (<i>School of Biomedical Engineering, Shanghai Jiao Tong University</i>); Ni, Rui (<i>Dept. of Psychology, Wichita State University</i>); Chen, Yao* (<i>Shanghai Jiao Tong University</i>)	
16:16-16:18	WeCT8-01.4
An Input-Output Linear Time Invariant Model Captures Neuronal Firing Response to External and Behavioral Events	970-973
D'Aleo, Raina* (<i>Johns Hopkins University</i>); Rouse, Adam (<i>University of Rochester Medical Center</i>); Schieber, Marc (<i>University of Rochester</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>)	

16:18-16:20	WeCT8-01.5
Localizing Neuronal Somata from Multi-Electrode Array In-Vivo Recordings using Deep Learning	974-977
Buccino, Alessio Paolo* (<i>University of Oslo</i>); Ness, Torbjørn V (<i>Norwegian University of Life Sciences</i>); Einevoll, Gaute (<i>Norwegian University of Life Sciences</i>); Cauwenberghs, Gert (<i>University of California San Diego</i>); Häfliger, Philipp (<i>University of Oslo, Dept. of Informatics</i>)	
16:20-16:22	WeCT8-01.6
Electro-Mechanical Response of a 3D Nerve Bundle Model to Mechanical Loads Leading to Axonal Injury	978-981
Cinelli, Ilaria* (<i>NUI of Galway</i>); Destrade, Michel (<i>CNRS / Universite Pierre et Marie Curie</i>); Duffy, Maeve (<i>NUI Galway</i>); McHugh, Peter (<i>NUI of Galway</i>)	
16:22-16:24	WeCT8-01.7
EEG Alpha Power Change during Working Memory Encoding in Adults with Different Memory Performance Levels	982-985
Wang, Ruimin* (<i>Kyushu University</i>); Kamezawa, Risako (<i>Graduate School of Systems Life Sciences, Kyushu University</i>); Watanabe, Aiko (<i>Kyushu University</i>); Iramina, Keiji (<i>Kyushu University, Japan</i>)	
WeCT8-02: 16:10-17:10	Schwan Room
Brain-Computer Interface IV (Poster Session)	
16:12-16:14	WeCT8-02.2
Finger Movements are Mainly Represented by a Linear Transformation of Energy in Band-Specific ECoG Signals	986-989
Marjaninejad, Ali (<i>University of Southern California</i>); Taherian, Babak (<i>University of Southern California</i>); Valero-Cuevas, Francisco* (<i>University of Southern California</i>)	
16:14-16:16	WeCT8-02.3
Active Brainwave Pattern Generation for Brain-to-Machine Communication	990-993
Ganesh, Swathi (<i>San Diego State Univ.</i>); Timm, Dale (<i>San Diego State Univ.</i>); Moon, Kee* (<i>San Diego State University</i>); Lee, Sung Q (<i>ETRI</i>); Youm, Woosub (<i>ETRI</i>)	
16:16-16:18	WeCT8-02.4
A Sloreata Study for Gaze-Independent BCI Speller	994-997
An, Xingwei* (<i>Tianjin University</i>); Wei, Jinwen (<i>Tianjin University</i>); Liu, Shuang (<i>Tianjin University</i>); Ming, Dong (<i>Tianjin University</i>)	
16:18-16:20	WeCT8-02.5
The Effect of Semantic Congruence for Visual-Auditory Bimodal Stimuli	998-1001
An, Xingwei* (<i>Tianjin University</i>); Cao, Yong (<i>China Astronaut Research and Training Center</i>); Wei, Jinwen (<i>Tianjin University</i>); Liu, Shuang (<i>Tianjin University</i>); Jiao, Xuejun (<i>China Astronaut Research and Training Center</i>); Ming, Dong (<i>Tianjin University</i>)	
16:20-16:22	WeCT8-02.6
A Brain Machine Interface for Command based Control of a Wheelchair using Conditioning of Oscillatory Brain Activity	1002-1005
Hamad, Eyad* (<i>German Jordanian University</i>); Al-Gharabli, Samer (<i>Pharmaceutical and Chemical Engineering Dept., German Jorda</i>); Saket, Munib (<i>Pharmaceutical and Chemical Engineering Dept., German Jorda</i>); Jubran, Omar (<i>German Jordanian University</i>)	
16:22-16:24	WeCT8-02.7
A Hybrid BCI Web Browser based on EEG and EOG Signals	1006-1009
He, Shenghong (<i>South China Univ. of Technology</i>); Yu, Tianyou (<i>South China Univ. of Technology, Chinese</i>); Gu, Zhenghui (<i>South China Univ. of Technology, China</i>); Li, Yuanqing* (<i>South China Univ. of Technology</i>)	
16:24-16:26	WeCT8-02.8
A Real-Time Spike Sorting Method based on the Embedded GPU	1010-1013
Yang, Zelan (<i>Zhejiang University</i>); Zhang, Shaomin (<i>Zhejiang University</i>); Xu, Kedi (<i>Zhejiang University, Qiushi Academy for Advanced Studies</i>); Tian, Xiang* (<i>Zhejiang University</i>); Zheng, Xiaoxiang (<i>Zhejiang University</i>)	

16:26-16:28		WeCT8-02.9
Performance Predictors of Motor Imagery Brain-Computer Interface based on Spatial Abilities for Upper Limb Rehabilitation	1014-1017	
Pacheco, Kevin (<i>Cayetano Heredia University</i>); Acuña, Kevin José (<i>Pontifical Catholic University of Peru</i>); Carranza, Erick (<i>Pontificia Universidad Católica del Perú</i>); Achancaray, David* (<i>Pontifical Catholic University of Peru</i>); Andreu-Perez, Javier (<i>Imperial College London</i>)		
16:28-16:30		WeCT8-02.10
Facial Expression Classification using EEG and Gyroscope Signals	1018-1021	
Toth, Jake (<i>University of Sheffield</i>); Arvaneh, Mahnaz* (<i>University of Sheffield</i>)		
16:30-16:32		WeCT8-02.11
EEG-Based Classification of Bilingual Unspoken Speech using ANN	1022-1025	
Balaji, Advait* (<i>BITS Pilani KK Birla Goa Campus</i>); Haldar, Aparajita (<i>Birla Institute of Technology and Science, Pilani, K K Birla Goa</i>); Patil, Keshav (<i>Birla Institute of Technology and Science, Pilani, K. K. Birla G</i>); Thandayam, Sai Ruthvik (<i>BITS Pilani KK Birla Goa Campus</i>); C A, Valliappan (<i>BITS Pilani KK Birla Goa Campus</i>); Jartarkar, Mayur (<i>Birla Institute of Technology and Science, Pilani, K. K. Birla G</i>); Baths, Veeky (<i>BITS Pilani KK Birla Goa Campus</i>)		
16:32-16:34		WeCT8-02.12
Quantifying the Maladaptive Neurophysiological Correlates Leading to Lapses of Attention during the SART: Towards Real-Time Mental State Monitoring of Mind-Wandering	N/A	
Martel, Adrien* (<i>Trinity College Dublin</i>); Arvaneh, Mahnaz (<i>University of Sheffield</i>); Taylor, Adam (<i>The University of Sheffield</i>); Dockree, Paul (<i>Trinity College Dublin</i>); Robertson, Ian (<i>Trinity College Dublin</i>)		
WeCT8-03: 16:10-17:10		Schwan Room
Neural Signal Processing III (Poster Session)		
16:10-16:12		WeCT8-03.1
A Pilot Study on the Evaluation of Normal Phonating Function based on High-Density sEMG Topographic Maps	1030-1033	
Zhu, Mingxing (<i>ShenZhen Institutes of Advanced Technology Chinese Academy of Sc</i>); Liang, Faya (<i>Otorhinolaryngology Head & Neck Dept., Sun Yat - Sen Me</i>); Samuel, Oluwarotimi Williams (<i>Shenzhen Institutes of Advanced Technology</i>); Chen, Shixiong* (<i>Shenzhen Institutes of Advanced Technology</i>); Yang, Wanzhang (<i>Dept. of Rehabilitation Medicine, Shenzhen Sixth People's H</i>); Lu, Lin (<i>Rehabilitation Dept., Shenzhen Hospital of Southern Med</i>); Zou, Haiqing (<i>Shenzhen Yingda Strong Technology Co.</i>); Li, Peng (<i>Third Affiliated Hospital of Sun Yat-Sen University</i>); Li, Guanglin (<i>Shenzhen Institutes of Advanced Technology</i>)		
16:12-16:14		WeCT8-03.2
Classification of Multi-Class Motor Imagery EEG using Four Band Common Spatial Pattern	1034-1037	
Mahmood, Amama* (<i>School of Electrical Engineering and Computer Science, Natl.</i>); Zainab, Rida (<i>School of Electrical Engineering and Computer Science, Natl.</i>); Ahmad, Rushda Basir (<i>School of Electrical Engineering and Computer Science, Natl.</i>); Saeed, Maryam (<i>School of Electrical Engineering and Computer Science, Natl.</i>); Kamboh, Awais Mehmood (<i>School of Electrical Engineering and Computer Science, Natl.</i>)		
16:14-16:16		WeCT8-03.3
Information Processing of Passive Joint Motion to Spinal Nervous System	1038-1041	
Matsubara, Sigehito* (<i>Kumamoto Health Science University</i>); Igasaki, Tomohiko (<i>Kumamoto University</i>); Iiyama, Junichi (<i>Kumamoto Health Science University</i>); Murayama, Nobuki (<i>Kumamoto University</i>)		
16:16-16:18		WeCT8-03.4
Comparative Evaluation of Different Wavelet Thresholding Methods for Neural Signal Processing	1042-1045	
Barabino, Gianluca (<i>Univ. of Cagliari</i>); Baldazzi, Giulia (<i>Univ. of Cagliari</i>); Sulas, Eleonora (<i>Univ. of Cagliari</i>); Carboni, Caterina* (<i>Università di Cagliari</i>); Raffo, Luigi (<i>Univ. of Cagliari</i>); Pani, Danilo (<i>Univ. of Cagliari</i>)		
16:18-16:20		WeCT8-03.5
Multi-Resolution Multi-Trial Sparse Classification Model for Decoding Visual Memories from Hippocampal Spikes in Human	1046-1049	
Song, Dong* (<i>Univ. of Southern California</i>); She, Xiwei (<i>Zhejiang Univ.</i>); Hampson, Robert (<i>Wake Forest School of Medicine</i>); Deadwyler, Sam (<i>Wake Forest Univ.</i>); Berger, Theodore (<i>Univ. of Southern California</i>)		

16:10-16:12 WeCT8-04.1
Performance Analysis of Risk-Aware Control in Upper Limb of Patients with Post-Stroke Hemiparesis . 1050-1053
Hao, Huaqing (*Shanghai Jiao Tong University*); Gu, Lin (*Shanghai Ruijin Rehabilitation Hospital*); Bao, Yong (*Dept. of Rehabilitation Medicine, Ruijin Rehabilitation Hospital*); Xie, Qing (*Ruijin Hospital Shanghai Jiaotong University School of Medicine*); Lan, Ning (*Shanghai Jiao Tong University*); Niu, Chuanxin M.* (*Ruijin Hospital, School of Medicine, Shanghai Jiao Tong University*)

16:12-16:14 WeCT8-04.2
A Novel HFO-Based Method for Unsupervised Localization of the Seizure Onset Zone in Drug-Resistant Epilepsy 1054-1057
Murphy, Paige (*University of Connecticut*); von Paternos, Adam (*University of Connecticut*); Santaniello, Sabato* (*University of Connecticut*)

16:10-16:12 WeCT9-01.1
Nanostructured Platinum as an Electrochemically and Mechanically Stable Electrode Coating 1058-1061
Boehler, Christian* (*University of Freiburg*); Oberueber, Felix (*University of Freiburg*); Stieglitz, Thomas (*University of Freiburg*); Asplund, Maria (*University of Freiburg*)

16:12-16:14 WeCT9-01.2
Signal Correlation between Wet and Original Dry Electrodes in Electroencephalogram According to the Contact Impedance of Dry Electrodes 1062-1065
Higashi, Yuichiro (*University of Hyogo*); Yokota, Yusuke (*National Institute of Information and Communications Technology*); Naruse, Yasushi* (*National Institute of Information and Communications Technology*)

16:14-16:16 WeCT9-01.3
Design of Experiment Evaluation of Sputtered Thin Film Platinum Surface Metallization on Alumina Substrate for Implantable Conductive Structures 1066-1069
Kiele, Patrick* (*University of Freiburg*); Čvančara, Paul (*University of Freiburg*); Mueller, Matthias (*University of Freiburg*); Stieglitz, Thomas (*University of Freiburg*)

16:16-16:18 WeCT9-01.4
High Performance Iridium Oxide/Platinum Nano-Leaves Composite Coatings on Microelectrodes for Neural Stimulation/Recording 1070-1073
Zeng, Qi (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Xia, Kai (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Sun, Bin (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Wu, Tianzhun* (*Shenzhen Institutes of Advanced Technology (SIAT), Chinese Acade*); Humayun, Mark (*University of Southern California*)

16:18-16:20 WeCT9-01.5
Low SNR Neural Spike Detection using Scaled Energy Operators for Implantable Brain Circuits 1074-1077
Tariq, Taimoor* (*School of Electrical Engineering and Computer Science, National*); Satti, Muhammad Hashim (*School of Electrical Engineering and Computer Science, National*); Saeed, Maryam (*School of Electrical Engineering and Computer Science, National*); Kamboh, Awais Mehmood (*School of Electrical Engineering and Computer Science, National*)

16:20-16:22 WeCT9-01.6
Building Wireless Implantable Neural Interfaces within Weeks for Neuroscientists 1078-1081
Bentler, Christian* (*Universität Freiburg*); Stieglitz, Thomas (*University of Freiburg*)

16:22-16:24 WeCT9-01.7
Safe Direct Current Stimulator Design for Reduced Power Consumption and Increased Reliability 1082-1085
Fridman, Gene* (*Johns Hopkins University*)

16:24-16:26	WeCT9-01.8
A Miniaturized UWB Antenna for Implantable Data Telemetry	1086-1089
Haas, Michael* (<i>University of Ulm</i>); Schweizer, Benedikt (<i>University of Ulm</i>); Anders, Jens (<i>University of Ulm</i>); Ortmanns, Maurits (<i>University of Ulm</i>)	
16:26-16:28	WeCT9-01.9
3D Printed Wire Electrode Carrier for a Pilot Study of the Functional Brain Mapping	1090-1092
Baek, Changhoon (<i>Seoul National University</i>); Jang, Jungwoo (<i>Seoul National University</i>); Park, Sangwan (<i>Seoul National University College of Veterinary Medicine</i>); Song, Yoon-Kyu (<i>Seoul National University</i>); Seo, Kangmoon (<i>Seoul National University College of Veterinary Medicine</i>); Seo, Jong Mo* (<i>Seoul National University, School of Engineering</i>)	
16:28-16:30	WeCT9-01.10
A Convex-Shaped, PDMS-Parylene Hybrid MultiChannel ECoG-Electrode Array	1093-1096
Lee, Woo Ram (<i>Seoul National University, EFE lab</i>); Im, Changkyun (<i>BK21 Plus Seoul National University</i>); Koh, Chin Su (<i>Yonsei University</i>); Kim, Jun-Min* (<i>Seoul University</i>); Seo, Jong Mo (<i>Seoul National University, School of Engineering</i>); Shin, Hyung-Cheul (<i>Hallym University</i>)	
16:30-16:32	WeCT9-01.11
Flexible Microelectrode Array for Retinal Prosthesis	1097-1100
Sun, Bin (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Li, Tengyue (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Xia, Kai (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Zeng, Qi (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Wu, Tianzhun* (<i>Shenzhen Institutes of Advanced Technology (SIAT), Chinese Acade</i>); Humayun, Mark (<i>University of Southern California</i>)	
16:32-16:34	WeCT9-01.12
A Comparative Study of Light and Electrically Evoked Response of Retinal Ganglion Cells	1101-1104
Biswas, Satarupa (<i>Indian Institute of Technology (IIT), Kharagpur</i>); Sikdar, Debdeep (<i>IIT Kharagpur</i>); Das, Soumen (<i>Indian Institute of Technology, Kharagpur</i>); Mahadevappa, Manjunatha* (<i>Indian Institute of Technology Kharagpur</i>)	
16:34-16:36	WeCT9-01.13
Chitosan Conduit Combined with Naringin Facilitate Remyelination in Injured Sciatic Nerves by Increasing Neurotrophins	N/A
Rong, Wei (<i>Beijing Tsinghua Chang Gung Hospital, Tsinghua University</i>); Cai, Xu (<i>Dept. of Orthopedics, Beijing Tsinghua Chang Gung Hospital</i>); Pan, Yongwei (<i>Dept. of Orthopedics, Beijing Tsinghua Chang Gung Hospital</i>); Song, Fei (<i>Dept. of Orthopedics, Beijing Tsinghua Chang Gung Hospital</i>); Zhao, Zhe (<i>Dept. of Orthopedics, Beijing Tsinghua Chang Gung Hospital</i>); Sun, Changjiao (<i>Dept. of Orthopedics, Beijing Tsinghua Chang Gung Hospital</i>); Xiao, Songhua* (<i>Beijing Tsinghua Chang Gung Hospital, Tsinghua University</i>)	
WeCT9-02: 16:10-17:10	Plonsey Room
Neural Stimulation III (Poster Session)	
16:10-16:12	WeCT9-02.1
Imaging of Population Spikes Induced by Repetitive Stimulus Pulses in Mouse Cerebral Slices in Vitro	1109-1109
Nomoto, Tomohiro (<i>Osaka University</i>); Tanaka, Yuta (<i>Osaka University</i>); Hayashida, Yuki* (<i>Osaka University</i>); Yagi, Tetsuya (<i>Osaka University, Gard. Eng</i>)	
16:12-16:14	WeCT9-02.2
Subdural Recordings from an Awake Human Brain for Measuring Current Intensity during Transcranial Direct Current Stimulation	1110-1113
Salimpour, Yousef* (<i>Johns Hopkins School of Medicine</i>); Liu, Chang-Chia (<i>Johns Hopkins University</i>); Webber, William Robert (Bob) (<i>Johns Hopkins University</i>); Mills, Kelly (<i>Johns Hopkins University</i>); Anderson, William S. (<i>Johns Hopkins School of Medicine, Dept. of Neurosurgery</i>)	
16:14-16:16	WeCT9-02.3
Effects of Anode Position on the Responses Elicited by Transcutaneous Spinal Cord Stimulation	1114-1117
Masugi, Yohei* (<i>Tokyo International University</i>); Obata, Hiroki (<i>Kyushu Institute of Technology</i>); Nakazawa, Kimitaka (<i>The University of Tokyo</i>)	

16:16-16:18 WeCT9-02.4
A Pilot Study of Planar Coil based Magnetic Stimulation using Acute Hippocampal Slice in Mice 1118-1121
Park, Heejin (*Gwangju Institute of Science and Technology*); Kang, HeeKyung (*Chonnam National University*);
Wang, Ming (*Chonnam National University Hospital*); Chung, Euiheon (*Gwangju Institute of Science and
Technology*); Jo, Jihoon (*Chonnam National University Medical School*); Kim, Sohee* (*Daegu Gyeongbuk
Institute of Science and Technology (DGIST)*)

16:18-16:20 WeCT9-02.5
**Localization of Ultrasound Waveform for Low Intensity Ultrasound-Induced
Neuromodulation in a Mouse Model** 1122-1125
Song, Kang-II* (*Korea Institute of Science and Technology*); Lee, Seul (*College of Dentistry, Kyung Hee Univ.*);
Park, Sunghye (*Korea Institute of Science and Technology*); Hwang, Dosik (*Yonsei Univ.*); Kim, Hyungmin
(*Korea Institute of Science and Technology*); Youn, Inchan (*Korea Institute of Science and Technology*)

16:20-16:22 WeCT9-02.6
**Research on the Synchronous Detection of Neuronal Signals under a
Nerve Stimulation System Control** 1126-1129
Zhang, Yu (*Chinese Academy of Sciences, Institutes of Electronics*); Xu, Shengwei (*Institute of Electronics,
Chinese Academy of Science*); Yang, Lili (*University of Chinese Academy of Sciences*); Xiao, Guihua
(*University of Chinese Academy of Sciences*); Zhang, Song (*Institute of Electronics, Chinese Academy of
Sciences*); Gao, Fei (*Chinese Academy of Sciences, Institutes of Electronics*); Li, Ziyue (*Chinese Academy of
Sciences, Institutes of Electronics*); Wang, Mixia (*Institute of Electronics, Chinese Academy of Sciences*); Song,
Yilin (*Institute of Electronics, Chinese Academy of Science*); Cai, Xinxia* (*Institute of Electronics, Chinese
Academy of Sciences*)

16:22-16:24 WeCT9-02.7
In-Vitro Validation of a Closed-Loop Optogenetic Stimulation Device 1130-1133
Edward, Epsy Shiny* (*Deakin University*); Kouzani, Abbas Z. (*Deakin University*)

WeCT9-03: 16:10-17:10 Plonsey Room
Neurorehabilitation II (Poster Session)

16:10-16:12 WeCT9-03.1
Optimal Inter-Stimulus Interval for Paired Associative Stimulation with Mechanical Stimulation 1134-1137
Kim, Euisun* (*Georgia Institute of Technology*); Ueda, Jun (*Georgia Institute of Technology*);
Shinohara, Minoru (*Georgia Institute of Technology*)

16:12-16:14 WeCT9-03.2
Restoring Proper Task Mechanics of the Hand Post-Stroke by Targeted Assistance of Hand Muscles ... 1138-1141
Lee, Sang Wook* (*Catholic University of America*); Vermillion, Billt (*Catholic University of America*);
Sandri Heidner, Gustavo (*The Catholic University of America*)

16:14-16:16 WeCT9-03.3
**Weight Drop Impact System and Its Output Signal Analysis for Inducing
Large Animal Spinal Cord Injury Model** 1142-1145
Kim, Hyeongbeom (*Dankook Univ., Collage of Medicine, Dept. of Biomedical Engineer*); Kim, Jong-Wan
(*Dankook Univ., Institute of Tissue Regeneration Engineering*); Hyun, Jung Keun (*Dankook University*); Chung,
Phil-Sang (*Dankook Univ., Dept. of Otolaryngology, BLI Korea*); Park, Ilyong* (*Dankook Univ., Collage of
Medicine, Dept. of Biomedical Engineer*)

16:16-16:18 WeCT9-03.4
Motor Imagery Enhancement Paradigm using Moving Rubber Hand Illusion System 1146-1149
Song, Minsu (*DGIST (Daegu Gyeongbuk Institute of Science and Technology)*); Kim, Jonghyun* (*Daegu
Gyeongbuk Institute of Science and Technology (DGIST)*)

16:18-16:20 WeCT9-03.5
**The Impact of an Anti-Gravity Treadmill (AlterG) Training on Walking Capacity and
Corticospinal Tract Structure in Children with Cerebral Palsy** 1150-1153
Azizi, Shahla (*Dept. of Medical Physics and Biomedical Engineering*); Marzbani, Hengameh (*Tehran University
of Medical Sciences*); Raminfard, Samira (*Dept. of Neuroscience and Addiction Studies, School of Adva*);
Moradi Birgani, Parmida (*Tehran University of Medical Sciences*); Rasooli, Amirhossein (*Tehran University of
Medical Sciences*); Mirbagheri, Mehdi* (*Northwestern University/RIC*)

16:20-16:22		WeCT9-03.6
Oscillating Field Stimulation Inhibits Astrocyte Activation and Astroglial Scar Formation after Spinal Cord Injury in Rats	N/A	
Zhang, Cheng (<i>Chinese Academy of Sciences, Beijing</i>); Zhang, Guanghao (<i>Institute of Electrical Engineering, Chinese Academy of Sciences</i>); Wang, Aihua (<i>Chinese Academy of Sciences</i>); Wu, Changzhe (<i>Chinese Academy of Sciences</i>); Huo, Xiaolin* (<i>Chinese Academy of Sciences</i>)		
16:22-16:24		WeCT9-03.7
Quantitative Assessment for Upper-Limb Motor Function by using EMG and Kinematic Analysis in the Practice of Occupational Therapy	1158-1161	
Kim, Jinuk (<i>Handong Global University</i>); Kim, Hyeonseok (<i>Handong Global University</i>); Kim, Jaehyo* (<i>Handong Global University</i>)		
WeCT9-04: 16:10-17:10		Plonsey Room
Sensory Neuroprostheses I (Poster Session)		
16:10-16:12		WeCT9-04.1
A Preliminary Study to Identify a Neurophysiological Correlate of Electroacoustic Pitch Matching in Cochlear Implant Users	1162-1165	
Tan, Chin-Tuan* (<i>University of Texas, Dallas</i>)		
16:12-16:14		WeCT9-04.2
Retinal Electrostimulation in Rats: Activation Thresholds from Superior Colliculus and Visual Cortex Recordings	1166-1169	
Barriga-Rivera, Alejandro* (<i>University of New South Wales</i>); Guo, Tianruo (<i>University of New South Wales</i>); Morley, John William (<i>University of Western Sydney</i>); Lovell, Nigel H. (<i>University of New South Wales</i>); Suaning, Gregg (<i>The University of Sydney</i>)		
16:14-16:16		WeCT9-04.3
Testing Stimulus Protocols in Retinal-Prosthesis Patients	1170-1173	
Gonzalez Calle, Alejandra* (<i>University of Southern California</i>); Weiland, James (<i>University of Michigan</i>)		
WeCT10-01: 16:10-17:10		Schmitt Room
General and Theoretical Informatics – Data Mining II (Poster Session)		
16:10-16:12		WeCT10-01.1
Identifying Personal Health Experience Tweets with Deep Neural Networks	1174-1177	
Jiang, Keyuan* (<i>Purdue Univ. Northwest</i>); Gupta, Ravish (<i>Purdue Univ. Northwest</i>); Gupta, Matrika (<i>Purdue Univ. Northwest</i>); Calix, Ricardo (<i>Purdue Univ. Northwest</i>); Bernard, Gordon (<i>Vanderbilt Univ. Medical Center</i>)		
16:12-16:14		WeCT10-01.2
Video Analysis of “YouTube Funnies” to Aid the Study of Human Gait and Falls – Preliminary Results and Proof of Concept	1178-1181	
Taati, Babak* (<i>Toronto Rehabilitation Institute and Univ. of Toronto</i>); Lohia, Pranay (<i>Indian Institute of Technology, Kharagpur</i>); Mansfield, Avril (<i>Toronto Rehabilitation Institute</i>); Ashraf, Ahmed (<i>Univ. of Toronto</i>)		
16:14-16:16		WeCT10-01.3
3-Year Risk Prediction of Coronary Heart Disease in Hypertension Patients: A Preliminary Study	1182-1185	
Chen, Runge (<i>Shenzhen Institute of Advanced Technology, Chinese Academy of Sc</i>); Yang, Yujie (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Miao, Fen (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Cai, Yun-Peng (<i>SIAT</i>); Lin, Denan (<i>Shenzhen Medical Information Center</i>); Zheng, Jing (<i>Shenzhen Medical Information Center</i>); Li, Ye* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>)		
16:16-16:18		WeCT10-01.4
Prediction of Influenza a Virus Infections in Humans using an Artificial Neural Network Learning Approach	1186-1189	
Chrysostomou, Charalambos* (<i>The Cyprus Institute</i>); Seker, Huseyin (<i>The Univ. of Northumbria at Newcastle</i>)		

16:18-16:20	WeCT10-01.5
Data Quality Improvement of a Multicenter Clinical Trial Dataset	1190-1193
Zaccaria, Gian Maria (<i>Politecnico di Torino</i>); Rosati, Samanta (<i>Politecnico di Torino</i>); Castagneri, Cristina (<i>Politecnico di Torino</i>); Ferrero, Simone (<i>Universita' di Torino</i>); Ladetto, Marco (<i>Azienda Ospedaliera SS Antonio e Biagio e C. Arrigo, Alessandria</i>); Boccadoro, Mario (<i>Universita' di Torino</i>); Balestra, Gabriella* (<i>Politecnico di Torino</i>)	
16:20-16:22	WeCT10-01.6
Discovering Explanatory Models to Identify Relevant Tweets on Zika	1194-1197
Muppalla, RoopTeja* (<i>Knoesis - Wright State University</i>); Miller, Michele (<i>Wright State University</i>); Banerjee, Tanvi (<i>Wright State University</i>); Romine, William (<i>Wright State University</i>)	
WeCT10-02: 16:10-17:10	Schmitt Room
Imaging Informatics – Medical Image Processing and Visualization I (Poster Session)	
16:10-16:12	WeCT10-02.1
Fast Segmentation and Modeling of Hepatic Components for the Planning of Robot-Assisted Liver Tumor Ablation	1198-1201
Zhou, Jiayin* (<i>Institute for Infocomm Research</i>); Chi, Yanling (<i>Institute for Infocomm Research</i>); Huang, Weimin (<i>Institute for Infocomm Research, Agency for Science Technology a</i>); Toe, Kyaw Kyar (<i>Institute for Infocomm Research, A*STAR</i>); Chui, Chee Kong (<i>National University of Singapore</i>); Chang, Stephen KY (<i>National University of Singapore</i>)	
16:12-16:14	WeCT10-02.2
Cloud Solution for Histopathological Image Analysis using Region of Interest based Compression	1202-1205
Kanakatte, Aparna* (<i>Tata Consultancy Services</i>); Subramanya, Rakshit (<i>TCS</i>); Delampady, Ashik (<i>TCS</i>); Nayak, Rajarama (<i>TCS</i>); P, Balamuralidhar (<i>TATA Consultancy Services</i>); Gubbi, Jayavardhana (<i>Tata Consultancy Services</i>)	
16:14-16:16	WeCT10-02.3
Analysis of Computerized Optokinetic Nystagmus Induction and Effect of Contrast on Ocular Fatigue ..	1206-1209
Kim, Ji Sung (<i>Seoul National University</i>); Baek, Changhoon (<i>Seoul National University</i>); Yoo, Sunyoung (<i>Seoul National University</i>); Seo, Jong Mo* (<i>Seoul National University, School of Engineering</i>); Hwang, Jeong Min (<i>Seoul National University School of Medicine</i>)	
16:16-16:18	WeCT10-02.4
MRI based Automated Diagnosis of Alzheimer's: Fusing 3D Wavelet-Features with Clinical Data	1210-1213
Ayaz, Aymen (<i>National University of Sciences and Technology, Islamabad, Pakis</i>); Ahmad, Muhammad Zubair (<i>University of Manitoba</i>); Khurshid, Khawar (<i>Michigan State University</i>); Kamboh, Awais Mehmood* (<i>School of Electrical Engineering and Computer Science, National</i>)	
16:18-16:20	WeCT10-02.5
Semi-Automated Nasal Pap Mask Sizing using Facial Photographs	1214-1217
Johnston, Benjamin* (<i>University of Sydney</i>); McEwan, Alistair (<i>The University of Sydney</i>); de Chazal, Philip (<i>University of Sydney</i>)	
16:20-16:22	WeCT10-02.6
A Hybrid Approach for Nucleus Stain Separation in Histopathological Images	1218-1221
Bhat, Harsha (<i>TCS</i>); Kanakatte, Aparna* (<i>Tata Consultancy Services</i>); Nayak, Rajarama (<i>TCS</i>); Gubbi, Jayavardhana (<i>Tata Consultancy Services</i>)	
16:22-16:24	WeCT10-02.7
Assisting People with Nystagmus through Image Stabilization: Using an ARX Model to Overcome Processing Delays	1222-1225
Pölzer, Stephan (<i>Johannes Kepler University</i>); Miesenberger, Klaus* (<i>Johannes Kepler University</i>)	
16:24-16:26	WeCT10-02.8
Software Implementation and Hardware Acceleration of Retinal Vessel Segmentation for Diabetic Retinopathy Screening Tests	1226-1229
Cavinato, Lara* (<i>Politecnico di Milano</i>); Fidone, Irene (<i>Politecnico di Milano</i>); Bacis, Marco (<i>Politecnico di Milano</i>); Del Sozzo, Emanuele (<i>Politecnico di Milano</i>); Durelli, Gianluca Carlo (<i>Politecnico di Milano</i>); Santambrogio, Marco (<i>Politecnico di Milano</i>)	

16:26-16:28 WeCT10-02.9
Detection and Classification of the Breast Abnormalities in Digital Mammograms via Regional Convolutional Neural Network 1230-1233
 Al-Masni, Mohammed A. (*Dept. of Biomedical Engineering, Kyung Hee Univ.*); Al-Antari, Mugahed A. (*Dept. of Biomedical Engineering, College of Electronics and*); Jeong-min, Park (*Dept. of Biomedical Engineering, Kyung Hee Univ.*); Gi, Geon (*Dept. of Biomedical Engineering, Kyung Hee Univ.*); Kim, Tae-yeon (*Dept. of Biomedical Engineering, Kyung Hee Univ.*); Rivera, Patricio (*Dept. of Biomedical Engineering, Kyung Hee Univ.*); Valarezo Añazco, Edwin (*Dept. of Biomedical Engineering, Kyung Hee Univ. and E*); Han, Seung-Moo (*Dept. of Biomedical Engineering, College of Electronics and*); Kim, Tae-Seong* (*Kyung Hee Univ.*)

WeCT10-03: 16:10-17:10	Schmitt Room
Sensor Informatics – Sensors and Sensor Systems I (Poster Session)	

16:10-16:12 WeCT10-03.1
Evaluation of NISHIJIN E-Textile for 12-Lead ECG Measurement through Automatic ECG Analyzer 1234-1237
 Kuroda, Tomohiro* (*Kyoto University*); Shiomi, Hiroki (*Kyoto University*); Minamino-Muta, Eri (*Kyoto University*); Yamashita, Yugo (*Kyoto University*); Iwao, Tomohide (*Kyoto University*); Tamura, Hiroshi (*Kyoto University*); Ueshima, Kazuo (*Teijin Frontier Co. Ltd.*); Kimura, Takeshi (*Kyoto University*)

16:12-16:14 WeCT10-03.2
Edge Caching and Dynamic Vision Sensing for Low Delay Access to Visual Medical Information 1238-1241
 Chen, Ziyang* (*King's College London*); Shikh-Bahaei, Tamanna (*Queen Mary University of London*); Luff, Paul (*King's College London*); Shikh-Bahaei, Mohammad (*King's College London*)

16:14-16:16 WeCT10-03.3
Recognizing Cigarette Smoke Inhalations using Hidden Markov Models 1242-1245
 Ramos-Garcia, Raul Ignacio (*University of Alabama*); Tiffany, Stephen (*State University of New York at Buffalo*); Sazonov, Edward* (*University of Alabama*)

16:16-16:18 WeCT10-03.4
Electromyogram-Based Method to Secure Wireless Body Sensor Networks for Rehabilitation Systems 1246-1249
 Zhang, Guanghe (*Institute of Computing Technology, Chinese Academy of Sciences*); Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Technology*); Liu, Fanghua (*Jiangxi Normal University*); Chen, Shixiong (*Shenzhen Institutes of Advanced Technology*); Zhou, Hui (*Shenzhen Institute of Advanced Technology*); Zhang, Haoshi (*Shenzhen Institutes of Advanced Technology*); Li, Guanglin* (*Shenzhen Institutes of Advanced Technology*)

16:18-16:20 WeCT10-03.5
A Tapping Device for Recording and Quantitative Characterization of Rhythmic/Auditory Sequences 1250-1253
 Piazza, Caterina (*Politecnico di Milano and Scientific Institute IRCCS E.Medea*); Cesareo, Ambra* (*Dipartimento di Elettronica, Informazione e Bioingegneria, Polit*); Caccia, Martina (*School of Advanced Studies IUSS Pavia –Dept. of Neurocognition*); Reni, Gianluigi (*IRCCS*); Lorusso, Maria Luisa (*Unit of Neuropsychology of Developmental Disorders, Scientific I*)

16:20-16:22 WeCT10-03.6
Development of the Viewing Distance Measuring Device in Smartphone Use 1254-1257
 Seo, Min-Won (*Seoul National University*); Kim, Won-jae (*Dept. of Ophthalmology, College of Medicine, Yeungnam Univ.*); Seo, Jong Mo* (*Seoul National University, School of Engineering*); Kim, Jun-Min (*Seoul University*); Hwang, Jeong Min (*Seoul National University School of Medicine*)

16:22-16:24 WeCT10-03.7
Chewing Detection from an In-Ear Microphone using Convolutional Neural Networks 1258-1261
 Papanagioutou, Vasileios (*Aristotle University of Thessaloniki*); Diou, Christos* (*Aristotle University of Thessaloniki*); Delopoulos, Anastasios (*Aristotle University of Thessaloniki*)

16:24-16:26 WeCT10-03.8
Automated Long-Term Contactless Temperature Monitoring in Animals via a Thermographic Camera .. 1262-1265
 Anishchenko, Lesya* (*BMSTU*); Razevig, Vladimir (*Bauman Moscow State Technical Univ.*); Bugaev, Aleksandr (*Bauman Moscow State Technical Univ.*); Tataraidze, Alexander (*Bauman Moscow State Technical Univ.*)

16:26-16:28 WeCT10-03.9
Segmentation of Gait Sequences using Inertial Sensor Data in Hereditary Spastic Paraplegia 1266-1269
 Martindale, Christine F* (*Friedrich-Alexander-Universität Erlangen-Nürnberg*); Strauss, Martin (*Friedrich-Alexander-Universität Erlangen-Nürnberg*); Gaßner, Heiko (*Universitätsklinikum Erlangen, Dept. of Molecular Neurology*); List, Julia (*Universitätsklinikum Erlangen, Dept. of Molecular Neurology*); Müller, Meinard (*International Audio Laboratories Erlangen, Erlangen, Germany*); Klucken, Jochen (*University Hospital Erlangen*); Kohl, Zacharias (*Universitätsklinikum Erlangen, Dept. of Molecular Neurology*); Eskofier, Bjoern M (*Friedrich-Alexander-Universität Erlangen-Nürnberg*)

WeCT11-01: 16:10-17:10 Greatbatch Room
Cardiac Electrophysiology I (Poster Session)

16:12-16:14 WeCT11-01.2
A Novel Method for Mapping Cardiac Signals during Atrial Fibrillation using Sequential Data Collection N/A
 Nguyen, Bao* (*AFTx, Inc.*); Kurian, Thomas (*Seton Heart Institute*); Nayeri, Payam (*Colorado School of Mines*); Edwards, Jerome (*CardioNXT, Inc.*); Kessman, Paul (*AFTx*); Atkinson, Jeffrey (*AFTx*); Hoff, William (*Colorado School of Mines*)

16:14-16:16 WeCT11-01.3
Effects of Electrophysiological Heterogeneity on Vulnerability to Re-Entry in Human Ventricular Tissue: A Simulation Study 1274-1277
 Song, Biao (*Fudan University*); Jin, Lian (*Fudan University*); Wang, Jianfei (*Fudan University*); Qian, Li (*Fudan University*); Wu, Xiaomei* (*Fudan University*)

16:16-16:18 WeCT11-01.4
Physiologically Motivated Detection of Atrial Fibrillation 1278-1281
 Couceiro, Ricardo* (*University of Coimbra*); Henriques, Jorge (*University of Coimbra*); Paiva, Rui Pedro (*University of Coimbra*); Antunes, Manuel (*University of Coimbra*); de Carvalho, Paulo (*University of Coimbra*)

WeCT11-02: 16:10-17:10 Greatbatch Room
Cardiac Mechanics I (Poster Session)

16:10-16:12 WeCT11-02.1
Replication of Pressure-Volume Loop with Controllable ESPVR and EDPVR Curves on a Personalized Mock Circulatory Loop based on Elastance Function 1282-1286
 Wang, Yaxin* (*University of Cambridge*); Smith, Peter Alex (*Texas Heart Institute*); De Sciscio, Paul (*University of Cambridge*); Sampaio, Luiz C. (*Texas Heart Institute*); Cohn, William E. (*Texas Heart Institute*); Xu, Liping (*University of Cambridge*); McMahan, Richard (*Dept. of Engineering, University of Cambridge*)

16:12-16:14 WeCT11-02.2
Real-Time Model-Based Control of Afterload for in Vitro Cardiac Tissue Experimentation 1287-1290
 Garrett, Amy (*The University of Auckland*); Pham, Toan (*University of Auckland*); Loiselle, Denis (*The University of Auckland*); Han, June-Chiew (*The University of Auckland*); Taberner, Andrew* (*The University of Auckland*)

16:14-16:16 WeCT11-02.3
Synergy of First Principles Modelling with Predictive Control for a Biventricular Assist Device: In Silico Evaluation Study 1291-1294
 Koh, Vivian* (*University of Malaya*); Ho, Yong Kuen (*Monash University Malaysia*); Stevens, Michael Charles (*University of New South Wales*); Salamonsen, Robert F (*Alfred Hospital*); Lovell, Nigel H. (*University of New South Wales*); Lim, Einly (*University of Malaya*)

16:16-16:18 WeCT11-02.4
Monte Carlo Method Applied to the Evaluation of the Relationship between Ejection Fraction and Its Constituent Components 1295-1298
 Kerkhof, Peter LM* (*VU Univ. Medical Center*); Yoo, B.W. (*Dept. Clinical Pharmacology, Severance Hospital, Yonsei Univ.*); Merillon, Jean Paul (*Suresnes*); Peace, Richard A. (*Royal Victoria Infirmary, Newcastle upon Tyne Hospitals NHS Foun*); Handly, Neal (*Dept. Emergency Medicine, Drexel Univ. College of Medicine*)

16:18-16:20 WeCT11-02.5
**An in Vitro Study of the Influence of Monocusp Patch Size on the Hemodynamics for
Reconstructing Right Ventricular Outflow Tract in Tetralogy of Fallot** 1299-1302
Feng, Wentao (*Beihang University*); Yao, Jie (*Beihang University*); Yang, Xianda (*Beihang University*);
Chu, Zhaowei (*Beihang University*); Guo, Meng (*Beihang University*); Wang, Lizhen (*Beihang University*);
Fan, Yubo* (*Beihang University*)

16:20-16:22 WeCT11-02.6
**Sex-Specific Aspects of Left and Right Ventricular Volume Regulation in Patients
following Tetralogy of Fallot Repair** 1303-1306
Kerkhof, Peter LM* (*VU University Medical Center*); Yoo, B.W. (*Dept. Clinical Pharmacology, Severance
Hospital, Yonsei University*); Van de Ven, Peter (*VU University Medical Center, Amsterdam*);
Handly, Neal (*Dept. Emergency Medicine, Drexel University College of Medicine*)

WeCT11-03: 16:10-17:10 Heart Rate Variability I (Poster Session)	Greatbatch Room
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16:10-16:12 WeCT11-03.1
**Reliability Evaluation of R-R Interval Measurement Status for Time Domain
Heart Rate Variability Analysis with Wearable ECG Devices** 1307-1311
Eguchi, Kana* (*NTT Corporation*); Aoki, Ryosuke (*NTT Corporation*); Yoshida, Kazuhiro (*NTT Service Evolution
Laboratories*); Yamada, Tomohiro (*NTT*)

16:12-16:14 WeCT11-03.2
Real-Time Identification of Heart Rate Responses via Auxiliary-Model-Based Damped RLS Scheme 1312-1315
Argha, Ahmadreza* (*University of New South Wales*); Ye, Lin (*University of Technology, Sydney (UTS)*);
Cao, Kai (*University of Technology, Sydney*); Su, Steven Weidong (*University of Technology, Sydney*);
Celler, Branko George (*University of New South Wales*)

16:14-16:16 WeCT11-03.3
**Simple and Objective Screening of Major Depressive Disorder by Heart Rate Variability
Analysis during Paced Respiration and Mental Task Conditions** 1316-1319
Kobayashi, Mai* (*The University of Electro-Communications*); Sun, Guanghao (*The University of Electro-
Communications*); Shinba, Toshikazu (*Shizuoka Saiseikai General Hospital*); Matsui, Takemi (*Tokyo
Metropolitan University*); Kirimoto, Tetsuo (*The University of Electro-Communications*)

16:16-16:18 WeCT11-03.4
The Role of Nonlinear Coupling in Human-Horse Interaction: A Preliminary Study 1320-1323
Lanata', Antonio (*Univ. of Pisa*); Guidi, Andrea (*Univ. of Pisa*); Baragli, Paolo (*Dept. of Veterinary Sciences,
Univ. of Pisa*); Valenza, Gaetano (*Univ. of Pisa*); Scilingo, Enzo Pasquale* (*Univ. of Pisa*)

16:18-16:20 WeCT11-03.5
Heart Rate Variability Analysis during Muscle Fatigue Due to Prolonged Isometric Contraction 1324-1327
Guidi, Andrea (*Univ. of Pisa*); Greco, Alberto* (*Univ. of Pisa*); Felici, Federica (*Istituto Italiano di Tecnologia*);
Leo, Andrea (*IMT School for Advanced Studies*); Ricciardi, Emiliano (*Univ. of Pisa*); Bianchi, Matteo (*Univ. of
Pisa*); Bicchi, Antonio (*Univ. of Pisa*); Valenza, Gaetano (*Univ. of Pisa*); Scilingo, Enzo Pasquale (*Univ. of Pisa*)

16:20-16:22 WeCT11-03.6
**Increased Beat-to-Beat Variation in Diastolic Phase Percentages in
Patients with Congestive Heart Failure** 1328-1331
Li, Peng* (*Shandong University*); Yu, Lei (*Shanxi University*); Li, Yang (*Shandong University*); Karmakar,
Chandan (*Deakin University*); Liu, Changchun (*Shandong University*)

16:22-16:24 WeCT11-03.7
**Characterization and Classification of Patients with Different Levels of
Cardiac Death Risk by using Poincare Plot Analysis** 1332-1335
Rodriguez, Javier (*Institute for Bioengineering de Catalunya (IBEC)*); Voss, Andreas (*University of Applied
Sciences Jena*); Caminal, Pere (*Technical University of Catalonia (UPC)*); Bayes-Genis, Antoni (*Hospital de la
Santa Creu i Sant Pau*); Giraldo, Beatriz* (*Universitat Politècnica de Catalunya*)

16:10-16:12	WeCT11-04.1
A Novel Acoustic Catheter Stethoscope based Acquisition and Signal Processing Framework to Extract Multiple Bio Signals	1336-1339
Chetlur Adithya, Prashanth* (<i>University of South Florida</i>); Sankar, Ravi (<i>University of South Florida</i>); Moreno, Wilfrido (<i>University of South Florida</i>); Hart, Stuart (<i>University of South Florida</i>)	
16:12-16:14	WeCT11-04.2
Tomographic Particle Image Velocimetry for the Validation of Hemodynamic Simulations in an Intracranial Aneurysm	1340-1343
Roloff, Christoph (<i>University of Magdeburg</i>); Berg, Philipp* (<i>University of Magdeburg</i>); Redel, Thomas (<i>Siemens AG</i>); Janiga, Gabor (<i>University of Magdeburg</i>); Thévenin, Dominique (<i>University of Magdeburg</i>)	
16:14-16:16	WeCT11-04.3
In Search for a Better Stent: Surrogate based Multi-Objective Optimization of Stent Design under Influence of Vessel Wall Deformation	1344-1347
Putra, Narendra Kurnia* (<i>Tohoku University</i>); Palar, Pramudita Satria (<i>Tohoku University</i>); Anzai, Hitomi (<i>Tohoku University</i>); Shimoyama, Koji (<i>Tohoku University</i>); Ohta, Makoto (<i>University of Tohoku</i>)	
16:16-16:18	WeCT11-04.4
Computational Estimation of the Hemodynamic Significance of Coronary Stenoses in Arterial Branches Deriving from CCTA: A Proof-of-Concept Study	1348-1351
Siogkas, Panagiotis (<i>FORTH-IMBB</i>); Rigas, Georgios (<i>University of Ioannina</i>); Exarchos, Themis P. (<i>Unit of Medical Tech & Intelligent Info</i>); Sakellarios, Antonis (<i>Unit of Medical Technology and Application Systems, Dept of Mate</i>); Papafaklis, Michail (<i>Medical School, University of Ioannina</i>); Pelosi, Gualtiero (<i>Institute of Clinical Physiology, National Research Council, 561</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>)	
16:18-16:20	WeCT11-04.5
Development of Hand Blood Circulation Measurement System for Raynaud Syndrome using Infrared Imaging	1352-1355
Hwang, Yunchan (<i>Seoul National University</i>); Seo, Min-Won (<i>Seoul National University</i>); Seo, Jong Mo* (<i>Seoul National University, School of Engineering</i>)	
16:20-16:22	WeCT11-04.6
Acute Effects of Incremental Exercise on Central Hemodynamics in Young Basketball Athletes	1356-1359
Zhang, Yahui (<i>Northeastern University</i>); Qi, Lin (<i>Northeastern University</i>); Xu, Lisheng* (<i>Northeastern University</i>); Yao, Yang (<i>Northeastern University</i>); Lv, Wenlong (<i>Northeastern University</i>); Du, Chenglin (<i>Northeastern University</i>)	

16:10-16:12	WeCT12-01.1
IMU-Based Real-Time Pose Measurement System for Anterior Pelvic Plane in Total Hip Replacement Surgeries	1360-1363
Cao, Zhe (<i>Tsinghua University</i>); Su, Shaojie (<i>Tsinghua University</i>); Tang, Hao (<i>Beijing Ji Shui Tan hospital</i>); Zhou, Yixin (<i>Beijing Ji Shui Tan hospital The 4th Medical College of Peking Un</i>); Wang, Zhihua (<i>Tsinghua University</i>); Chen, Hong* (<i>Tsinghua Univ.</i>)	
16:12-16:14	WeCT12-01.2
Asthma Academy: Developing Educational Technology to Improve Asthma Medication Adherence and Intervention Efficiency	1364-1367
Nair, Aiswaria* (<i>Georgia Institute of Technology</i>); Freedle, Karen (<i>Children's Healthcare of Atlanta, Emory Univ.</i>); Cheng, Chihwen (<i>Georgia Institute of Technology</i>); Wang, May D. (<i>Georgia Tech and Emory Univ.</i>)	

16:14-16:16 WeCT12-01.3
The First Transthyretin Familial Amyloid Polyneuropathy Gait Quantification Study – Preliminary Results 1368-1371
Vilas-Boas, Maria* (*Faculty of Engineering, Univ. of Porto*); Rocha, Ana Patricia (*Univ. of Aveiro*); Choupina, Hugo Miguel Pereira (*Univ. of Porto*); Fernandes, José Maria (*Univ. of Aveiro*); Coelho, Teresa (*Unidade Corino de Andrade, Hospital Santo António, Centro Hospit*); Cunha, Joao Paulo Silva (*INESC TEC*)

16:16-16:18 WeCT12-01.4
Automatic Positioning Device for Cutting Three-Dimensional Tissue in Living or Fixed Samples: Proof of Concept 1372-1375
Quiñones, Dario Ruben (*Center for Biomaterials and Tissue Engineering, Universitat Poli*); Pérez-Feito, Ricardo (*Thermodynamics Dept., Universitat Politècnica de València*); García-Manrique, Juan Antonio (*Institute of Design for Manufacturing and Automated Production,*); Canals, Santiago (*Instituto de Neurociencias, Consejo Superior de Investigaciones*); Moratal, David* (*Universitat Politècnica de València*)

16:18-16:20 WeCT12-01.5
Comparison of the Onset of Uterine Contractions Determined from Tocodynamometry and Maternal Perception 1376-1379
Wang, Ying (*Beijing Univ. of Technology*); Gao, Pei (*Beijing Univ. of Technology*); Qiu, Qian (*Beijing Univ. of Technology*); An, Yang (*Beijing Univ. of Technology*); Hao, Dongmei* (*Beijing Univ. of Technology*); Yang, Fangwei (*Yiwu Central Hospital*); Zhou, Xiya (*Peking Union Medical College Hospital*); Yang, Lin (*Beijing Univ. of Technology*); Yang, Yimin (*Beijing Univ. of Technology*); Li, Xuwen (*Beijing Univ. of Technology*); Zhang, Song (*Beijing Univ. of Technology*); Zheng, Dingchang (*Anglia Ruskin Univ.*)

WeCT12-02: 16:10-17:10 Geddes Room
Diagnostic Devices II (Poster Session)

16:22-16:24 WeCT12-02.7
ARTSENS Orientation Navigation System: A Study Towards Faster Arterial Stiffness Measurements 1380-1384
Joseph, Jayaraj* (*HTIC, Indian Institute of Technology Madras*); ten Dam, Anne Maria (*University of Twente*)

16:24-16:26 WeCT12-02.8
An Electrical Impedance Tomography (EIT) Multi-Electrode Needle-Probe Device for Local Assessment of Heterogeneous Tissue Impedivity 1385-1388
Meroni, Davide* (*Politecnico di Milano*); Carpano Maglioli, Camilla (*Fondazione Istituto Italiano di Tecnologia*); Bovio, Dario (*Politecnico di Milano*); Greco, Francesco G. (*Bioengineering Laboratories*); Aliverti, Andrea (*Politecnico di Milano*)

16:26-16:28 WeCT12-02.9
Estimation of Peripheral Blood Volume and Interstitial Fluid Volume in Hemodialysis Patients using Bioimpedance Techniques 1389-1392
Zhu, Fansan* (*Renal Research Institute*); Kotanko, Peter (*Renal Research Institute*); Levin, Nathan W. (*Renal Research Institute*)

16:28-16:30 WeCT12-02.10
Large Dynamic Range Optical Cavity based Sensor using a Low Cost Three-Laser System 1393-1396
Rho, Donggee (*Baylor University*); Kim, Seung* (*Baylor University*)

16:30-16:32 WeCT12-02.11
Biomechanical Procedure to Assess Sleep Restriction on Motor Control and Learning 1397-1400
Umamura, Guilherme Silva (*University of São Paulo*); López Noriega, Carlos (*University of São Paulo*); Soares, Daniel Fuess (*University of São Paulo*); Forner-Cordero, Arturo* (*Polytechnic School. University of Sao Paulo*)

16:32-16:34 WeCT12-02.12
A General Descriptor for Detecting Abnormal Action Performance from Skeletal Data 1401-1404
Elkholy, Amr* (*Egypt-Japan University for Science and Technology (E-JUST)*); Hussein, Mohamed (*Egypt-Japan University for Science and Technology (E-JUST)*); Gomaa, Walid (*Egypt-Japan University for Science and Technology (E-JUST)*); Damen, Dima (*University of Bristol*); Saba, Emmanuel (*Alexandria University*)

16:34-16:36 WeCT12-02.13
Degree of RF MRI Coil Detuning for an Anatomically Realistic Respiratory Cycle Modeled with the Finite Element Method 1405-1408
Tran, Anh Le (*Worcester Polytechnic Institute*); Makarov, Sergey* (*Electrical and Computer Engineering, Worcester Polytechnic Instit*)

16:36-16:38 WeCT12-02.14
Design of the Wearable Device for Hemiplegic Gait Detection using an Accelerometer and a Gyroscope 1409-1412
Shin, Hangsik* (*Chonnam National University*); Park, Sooji (*Chonnam National University*); Lee, Jun Seok (*Chonnam National University*); Kwak, Jaekyung (*Chonnam National University*)

16:38-16:40 WeCT12-02.15
Classification of Voluntary Coughs Applied to the Screening of Respiratory Disease 1413-1416
Infante, Christian (*Massachusetts Institute of Tech.*); Chamberlain, Daniel (*Massachusetts Institute of Tech.*); Kodgule, Rahul (*Chest Research Foundation*); Fletcher, Richard Ribon* (*Massachusetts Institute of Tech.*)

16:40-16:42 WeCT12-02.16
Noninvasive Evaluation of Corneal Viscoelasticity based on Displacement in Response to Acoustic Radiation Force 1417-1420
Lv, Zhen (*Shenzhen University*); Wang, Qingmin (*Shenzhen University*); Liu, Fu-Long (*Shenzhen University*); Zhang, Peng-Peng (*Shenzhen University*); Gao, Xue-Hua (*Shenzhen University*); Guo, Yanrong (*Shenzhen University*); Zhang, Xin-Yu* (*Shenzhen University*)

WeCT12-03: 16:10-17:10 Geddes Room
Health Technologies I (Poster Session)

16:10-16:12 WeCT12-03.1
The Motion Influence on Respiration Rate Estimation from Low-Resolution Thermal Sequences during Attention Focusing Tasks 1421-1424
Kwasniewska, Alicja (*Gdansk University of Technology*); Ruminski, Jacek* (*Gdansk University of Technology*); Wtorek, Jerzy (*Gdansk University of Technology*)

16:12-16:14 WeCT12-03.2
Electroencephalographic Neurofeedback to Up-Regulate Frontal Theta Rhythms: Preliminary Results .. 1425-1428
Shoji, Yutaka* (*RMIT University*); Cvetkovic, Dean (*RMIT University*); Patti, Chanakya Reddy (*Royal Melbourne Institute of Technology*)

16:14-16:16 WeCT12-03.3
Implementation of a Manually Operated Blood Pressure Monitor based on Energy Harvesting for use in Resource-Constrained Settings 1429-1432
Gruterich, Martin (*RWTH Aachen University*); Aelen, Paul (*Eindhoven Technical University*); Wouters, Kees (*Philips Research*); Dellimore, Kiran* (*Philips Research*)

16:16-16:18 WeCT12-03.4
Facial Geometry and Speech Analysis for Depression Detection 1433-1436
Pampouchidou, Anastasia* (*Universite de Bourgogne*); Simantiraki, Olympia (*Universidad del Pais Vasco*); Vazakopoulou, Calliope-Marina (*Technological Educational Institute of Crete*); Chatzaki, Charikleia (*Technological Educational Institute of Crete*); Pediaditis, Matthew (*ICS-FORTH*); Maridaki, Anna (*Technological Educational Institute of Crete*); Marias, Kostas (*Foundation for Res. & Tech. Hellas*); Simos, Panagiotis (*Dept. of Psychiatry, University of Crete*); Yang, Fan (*Universite de Bourgogne*); Meriaudeau, Fabrice (*Universite de Bourgogne*); Tsiknakis, Manolis (*ICS-FORTH*)

16:18-16:20 WeCT12-03.5
A Novel Approach for Quantification of Contour Irregularities of Diabetic Foot Ulcers and Its Association with Ischemic Heart Disease 1437-1440
Rani, Priya (*VIT University*); Aliahmad, Behzad* (*RMIT University*); Kant Kumar, Dinesh (*RMIT University*)

16:10-16:12	Estimates of Peak Electric Fields Induced by Transcranial Magnetic Stimulation in Pregnant Women as Patients using an FEM Full-Body Model 1441-1444 Yanamadala, Janakinadh* (<i>Worcester Polytechnic Institute</i>); Noetscher, Gregory (<i>Worcester Polytechnic Institute</i>); Makarov, Sergey (<i>Electrical and Computer Engineering, Worcester Polytechnic Instit</i>); Pascual-Leone, Alvaro (<i>Harvard Medical School</i>)	WeCT12-04.1
16:12-16:14	Electric Field Characteristics of Low-Field Synchronized Transcranial Magnetic Stimulation (sTMS) 1445-1448 Deng, Zhi-De* (<i>National Institute of Mental Health</i>); Lisanby, Sarah (<i>Duke University</i>)	WeCT12-04.2
16:14-16:16	Optimization of Transcostal Phased-Array Refocusing using Sparse Semidefinite Relaxation Method ... 1449-1452 Almekkawy, Mohamed* (<i>Penn State University</i>); McMahan, Daniel (<i>Penn State University</i>); Alqarni, Hanan (<i>Penn State University</i>); He, Jiayu (<i>Penn State University</i>)	WeCT12-04.3
16:16-16:18	Personalization of a Compartmental Physiological Model for an Artificial Pancreas through Integration of Patient's State Estimation 1453-1456 Jallon, Pierre (<i>CEA Grenoble</i>); Lachal, Sylvain (<i>CEA LETI</i>); Franco, Céline (<i>TIMC-IMAG</i>); Charpentier, Guillaume (<i>Centre Hospitalier Sud-Francilien, Dept. of Diabetes and En</i>); Huneker, Erik (<i>Diabeloop</i>); Doron, Maeva* (<i>CEA LETI</i>)	WeCT12-04.4
16:18-16:20	An Adaptive DC-Balanced and Multi-Mode Stimulator IC with 1GΩ Output Impedance for Compact Electro-Acupuncture System 1457-1460 Lee, Jiwon* (<i>Korea Advanced Institute of Science and Technology</i>); Kim, Minseo (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Kim, Kwantae (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Song, Kiseok (<i>K-healthwear</i>); Lee, Sanghoon (<i>Kyung Hee University</i>); Kim, Weon (<i>Kyung Hee University Hospital</i>); Woo, Jong Shin (<i>Kyung Hee University School of Medicine</i>); Yoo, Hoi-Jun (<i>KAIST</i>)	WeCT12-04.5

16:10-16:12	Long Term Monitoring of a Pressure Ulcer Risk Patient using Thermal Images 1461-1464 Bennett, Stephanie Louise* (<i>Carleton University</i>); Goubran, Rafik A. (<i>Carleton University</i>); Knoefel, Frank-Dietrich (<i>Bruyere Continuing Care, University of Ottawa, Carleton University</i>)	WeCT14-01.1
16:12-16:14	Impact of Injection Time on Migration of SPECT Seizure Onset in Temporal Lobe Epilepsy 1465-1468 Ramchuankiat, Saranya (<i>Faculty of Engineering, Chulalongkorn University</i>); Jarumaneeroj, Pisit (<i>Chulalongkorn University</i>); Limotai, Chusak (<i>Chulalongkorn University</i>); Tepmongkol, Supatporn (<i>Faculty of Medicine, Chulalongkorn University</i>); Rakvongthai, Yothin* (<i>Faculty of Medicine, Chulalongkorn University</i>)	WeCT14-01.2
16:14-16:16	Automated Age-Related Macular Degeneration Screening System using Fundus Images 1469-1472 Kunumpol, Patthapol (<i>Thammasat Univ.</i>); Umpaipant, Wachirawit (<i>Thammasat Univ.</i>); Navapol, Kanchanaranya (<i>Thammasat Univ.</i>); Charoenpong, Theekapun (<i>Srinakharinwirot Univ.</i>); Vongkittirux, Sakchai (<i>Thammasat Univ.</i>); Kupakanjana, Tayakorn (<i>Thammasat Univ.</i>); Tantibundhit, Charturong* (<i>Thammasat Univ.</i>)	WeCT14-01.3
16:16-16:18	Multi-Scale Locally Low-Rank Noise Reduction for High-Resolution Dynamic Quantitative Cardiac MRI 1473-1476 Moeller, Steen (<i>University of Minnesota</i>); Weingartner, Sebastian (<i>University of Minnesota</i>); Akcakaya, Mehmet* (<i>University of Minnesota</i>)	WeCT14-01.4

16:18-16:20	WeCT14-01.5
Comparative Analysis of Different Versions of a Human Model Located Inside a 1.5T MRI Whole Body RF Coil	1477-1480
Kozlov, Mikhail* (<i>Max Planck Institute for Human Cognitive and Brain Sciences</i>); Tankaria, Harshal (<i>Worcester Polytechnic Inst.</i>); Noetscher, Gregory (<i>Worcester Polytechnic Institute</i>); Makarov, Sergey (<i>Electrical and Computer Engineering, Worcester Polytechnic Instit</i>)	
16:20-16:22	WeCT14-01.6
Investigating the Effect of Coil Model Losses on Computational Electromagnetic Exposure of an ASTM Phantom at 64 MHz MRI	1481-1484
Kozlov, Mikhail* (<i>Max Planck Institute for Human Cognitive and Brain Sciences</i>); Horner, Marc (<i>ANSYS, Inc.</i>); Kainz, Wolfgang (<i>Food and Drug Administration</i>); Angelone, Leonardo M. (<i>US Food and Drug Administration, Center for Devices and Radiolog</i>)	
16:22-16:24	WeCT14-01.7
Automatic Fetal Body and Amniotic Fluid Segmentation from Fetal Ultrasound Images by Encoder-Decoder Network with Inner Layers	1485-1488
Li, Yan* (<i>Waseda Univ.</i>); Xu, Rong (<i>Waseda Univ.</i>); Ohya, Jun (<i>Waseda Univ.</i>); Iwata, Hiroyasu (<i>Waseda Univ.</i>)	
16:24-16:26	WeCT14-01.8
Automatic Identification of Blood Vessel Cross-Section for Central Venous Catheter Placement using a Cascading Classifier	1489-1492
Ikhsan, Mohammad* (<i>National University of Singapore</i>); Tan, Kok Kiong (<i>National University of Singapore</i>); Putra, Andi Sudjana (<i>National University of Singapore</i>); Chew, Tsong Huey Sophia (<i>Singapore General Hospital</i>); Kong, Chee Fai (<i>Singapore General Hospital</i>)	
16:26-16:28	WeCT14-01.9
GPU-Based Computation for Brain Spatio-Temporal Networks Definition	1493-1496
Purgato, Andrea* (<i>Politecnico di Milano</i>); Reggiani, Enrico (<i>Politecnico di Milano</i>); D'Amese, Eleonora (<i>Politecnico di Milano</i>); Berger-Wolf, Tanya (<i>University of Illinois at Chicago</i>); Grimaldi, Marco (<i>Neurocenter Humanitas Research Hospital</i>); Durelli, Gianluca Carlo (<i>Politecnico di Milano</i>); Santambrogio, Marco (<i>Politecnico di Milano</i>)	
WeCT14-02: 16:10-17:10 Schaldach Room	
Optical Imaging III (Poster Session)	
16:10-16:12	WeCT14-02.1
Automatic Detection of Hyperreflective Foci in Optical Coherence Tomography B-Scans using Morphological Component Analysis	1497-1500
Rabbani, Hossein* (<i>Isfahan Univ. of Medica Sciences</i>); Ghasemi Kamasi, Zeinab (<i>West Virginia University</i>); Mokhtary, Marzieh (<i>Isfahan University of Medical Sciences</i>)	
16:12-16:14	WeCT14-02.2
Fibroatheroma Identification in Intravascular Optical Coherence Tomography Images using Deep Features	1501-1504
Xu, Mengdi* (<i>Institute for Infocomm Research</i>); Cheng, Jun (<i>Institute for Infocomm Research, AStar</i>); Li, Annan (<i>Institute for Infocomm Research, ASTAR</i>); Lee, Jimmy Addison (<i>Institute for Infocomm Research, ASTAR</i>); Wong, Damon (<i>Institute for Infocomm Research</i>); Taruya, Akira (<i>Wakayama Medical University</i>); Tanaka, Atsushi (<i>Wakayama Medical University</i>); Foin, Nicolas (<i>National Heart Centre Singapore</i>); Wong, Philip (<i>National Heart Centre Singapore</i>)	
16:14-16:16	WeCT14-02.3
Exact Localization of Breakpoints of Retinal Pigment Epithelium in Optical Coherence Tomography of Optic Nerve Head	1505-1508
Mokhtary, Marzieh (<i>Isfahan University of Medical Sciences</i>); Rabbani, Hossein* (<i>Isfahan Univ. of Medica Sciences</i>); Mehri Dehnavi, Alireza (<i>Isfahan University of Medical Sciences, School of Advanced Techn</i>); Kafieh, Rahele (<i>Isfahan University of Medical Sciences</i>)	
16:16-16:18	WeCT14-02.4
The Analysis of Eye Blinking Pattern using High-Frame-Rate Camera	1509-1512
Lee, Woon-Hee (<i>Seoul National University</i>); Seo, Jong Mo* (<i>Seoul National University, School of Engineering</i>); Hwang, Jeong Min (<i>Seoul National University School of Medicine</i>)	

16:18-16:20 WeCT14-02.5
Blood Oxygenation Changes Resulting from Subthreshold High Frequency Repetitive Transcranial Magnetic Stimulation 1513-1516
 Li, Rihui (*Year*); Wang, Chushan (*Guangdong Provincial Work-injury Rehab. Hospital*); Huang, Kairong (*Guangdong Provincial Work-injury Rehab. Hospital*); Shi, Zhixi (*Guangdong Provincial Work-injury Rehab. Hospital*); Wang, Jun (*Guangdong Provincial Work-injury Rehab. Hospital*); Zhang, Y.* (*Univ. of Houston*)

16:20-16:22 WeCT14-02.6
Recognition of Protozoan Parasites from Microscopic Images: Eimeria Species in Chickens and Rabbits as a Case Study 1517-1520
 Abdalla, Mohamed A E (*Northumbria University*); Seker, Huseyin* (*The University of Northumbria at Newcastle*)

WeCT15-01: 16:10-17:10	Webster Room
Respiratory Systems I (Poster Session)	

16:10-16:12 WeCT15-01.1
Development and Validation of a Computational Simulator for Pediatric Acute Respiratory Distress Syndrome Patients 1521-1524
 Saffaran, Sina (*The University of Warwick*); Das, Anup (*University of Warwick*); Hardman, Jonathan G. (*University of Nottingham*); Yehya, Nadir (*Children's Hospital of Philadelphia*); Bates, Declan Gerard* (*University of Warwick*)

16:12-16:14 WeCT15-01.2
Nonparametric Modelling of VO2 Response to Exercise 1525-1528
 Ye, Lin* (*Univ. of Technology, Sydney (UTS)*); Argha, Ahmadrza (*Univ. of New South Wales*); Celler, Branko George (*Univ. of New South Wales*); Zhang, Yi (*Univ. of Electronic Science and Technology of China*); Nguyen, Hung T. (*Univ. of Technology, Sydney*); Su, Steven Weidong (*Univ. of Technology, Sydney*)

16:14-16:16 WeCT15-01.3
Development of a Real-Time Breathing-Rate Monitor using Difference Operation Method and Adaptive Windowing on ECG Signal 1529-1533
 Singh, Rahul Kumar* (*IIT Kharagpur*); Negi, Shubham (*IIT Kharagpur*); Chandrika Sreekantan, Anoop (*Indian Institute of Space Science and Technology Trivandrum*)

WeCT15-02: 16:10-17:10	Webster Room
Sleep Apnea I (Poster Session)	

16:10-16:12 WeCT15-02.1
Monitoring of Nocturnal Central Sleep Apnea in Heart Failure Patients using Noncontact Respiratory Differences 1534-1538
 Armitstead, Jeffrey Peter* (*Res Med Ltd., University of Sydney*); Khushaba, Rami N. (*University of Technology, Sydney (UTS)*); Schindhelm, Klaus (*University of New South Wales*)

16:12-16:14 WeCT15-02.2
Relationship between Heart Rate Excursion and Apnea Duration in Patients with Obstructive Sleep Apnea 1539-1542
 Solà-Soler, Jordi* (*Univ. Politècnica de Catalunya*); Giraldo, Beatriz (*Univ. Politècnica de Catalunya*); Fiz Fernandez, José Antonio (*Navarra Hospital*); Jané, Raimon (*Institute for Bioengineering de Catalunya (IBEC)*)

16:14-16:16 WeCT15-02.3
Characterization of a Tooth Microphone Coupled to an Oral Appliance Device: A New System for Monitoring OSA Patients 1543-1546
 Castillo, Yolanda (*Institute for Bioengineering of Catalonia (IBEC)*); Blanco-Almazán, Dolores (*Institute for Bioengineering of Catalonia*); Whitney, James (*Morgan State University*); Mersky, Barry (*Audiodontics*); Jané, Raimon* (*Institute for Bioengineering de Catalunya (IBEC)*)

16:16-16:18 WeCT15-02.4
Characterization of Microphones for Snoring and Breathing Events Analysis in Mhealth 1547-1550
 Castillo, Yolanda (*Institute for Bioengineering of Catalonia (IBEC)*); Cámara, Miguel Ángel (*Institute for Bioengineering of Catalonia*); Blanco-Almazán, Dolores (*Institute for Bioengineering of Catalonia*); Jané, Raimon* (*Institute for Bioengineering de Catalunya (IBEC)*)

16:18-16:20 WeCT15-02.5
Sleep Apnoea Diagnosis using Respiratory Effort-Based Signals – A Comparative Study 1551-1554
 Sadr, Nadi* (*University of Sydney*); Jayawardhana, Madhuka (*University of Sydney*);
 de Chazal, Philip (*University of Sydney*)

16:20-16:22 WeCT15-02.6
Mhealth Tools for Monitoring Obstructive Sleep Apnea Patients at Home: Proof-of-Concept 1555-1558
 Cámara, Miguel Ángel (*Inst. for Bioengineering of Catalonia*); Castillo Escario, Yolanda (*Inst. for Bioengineering of Catalonia (IBEC)*); Blanco-Almazán, Dolores (*Inst. for Bioengineering of Catalonia*); Estrada, Luis (*Inst. for Bioengineering de Catalunya*); Jané, Raimon* (*Inst. for Bioengineering de Catalunya (IBEC)*)

Thursday, 13 July 2017

ThAT1: 08:00-09:30 Roentgen Hall
Brain and Physiological Networks: Methods and Applications (Invited Session)
Chair: Faes, Luca (*University of Trento*)
Co-Chair: Ding, Lei (*University of Oklahoma*)

08:00-08:15 ThAT1.1
Causal Brain-Heart Information Transfer during Visual Emotional Elicitation in Healthy Subjects: Preliminary Evaluations and Future Perspectives 1559-1562
 Faes, Luca (*Univ. of Trento*); Greco, Alberto (*Univ. of Pisa*); Lanata', Antonio (*Univ. of Pisa*); Barbieri, Riccardo (*Politecnico di Milano*); Scilingo, Enzo Pasquale (*Univ. of Pisa*); Valenza, Gaetano* (*Univ. of Pisa*)

08:15-08:30 ThAT1.2
Information Transfer and Information Modification to Identify the Structure of Cardiovascular Networks .. 1563-1566
 Faes, Luca* (*University of Trento*); Nollo, Giandomenico (*University of Trento*); Krohova, Jana (*Comenius University in Bratislava*); Czippelova, Barbora (*Dept. of Physiology, Comenius University, Jessenius Faculty*); Turianikova, Zuzana (*Dept. of Physiology, Comenius University, Jessenius Faculty*); Javorka, Michal (*Comenius University, Jessenius Faculty of Medicine*)

09:15-09:30 ThAT1.7
Functional Connectivity Analysis of Multiplex Muscle Network across Frequencies 1567-1570
 Kerkman, Jennifer N.* (*Vrije Universiteit Amsterdam*); Daffertshofer, Andreas (*Vrije Universiteit Amsterdam*); Gollo, Leonardo (*QIMR Berghofer Medical Research Institute*); Breakspear, Michael (*QIMR Berghofer Medical Research Institute*); Boonstra, Tjeerd W. (*University of New South Wales*)

ThAT4: 08:00-09:30 Min Room
New Sensing Techniques I (Oral Session)
Chair: Scilingo, Enzo Pasquale (*University of Pisa*)

08:00-08:15 ThAT4.1
A New Hand Function Assessment Method using an Infrared Imaging Device 1571-1574
 Fang, Qiang* (*MIT University*); Gu, Xudong (*The 2nd hospital of Jiaying*)

08:15-08:30 ThAT4.2
Frequency-Range Optimized Preprocessing Methods for Quantitative Analysis of Glucose in Blood Serum from Broadband Dielectric Spectra 1575-1578
 Wang, Rui (*NTT Device Technology Labs.*); Nakamura, Masahito* (*NTT Corporation*); Tanaka, Yujiro (*NTT Device Technology Labs.*); Tajima, Takuro (*NTT Device Technology Laboratories*)

08:30-08:45 ThAT4.3
Three-Dimensional Electrodes Formation using Liquid Metal in Micro Channels for 3-Axis Capacitive Force Sensor 1579-1582
 Tatsuho, Nagatomo* (*Keio University*); Miki, Norihisa (*University*)

08:45-09:00 ThAT4.4
Monitoring Voluntary Blink Magnitude through a Wearable Eye-Tracking System: A Preliminary Study 1583-1586
 Lanata', Antonio (*University of Pisa*); Guidi, Andrea (*University of Pisa*); Greco, Alberto (*University of Pisa*); Valenza, Gaetano (*University of Pisa*); Scilingo, Enzo Pasquale* (*University of Pisa*)

09:00-09:15 ThAT4.5
Can Accelerometry Data Improve Estimates of Heart Rate Variability from Wrist PPG Sensors? 1587-1590
 Kos, Maciej Rafal* (*Northeastern University*); Li, Xuan (*Northeastern University*); Khaghani-Far, Iman (*Northeastern University*); Gordon, Christine (*Northeastern University*); Pavel, Misha (*Northeastern University*); Jimison, Holly (*Northeastern University*)

09:15-09:30 ThAT4.6
Flexible Sensor Sheet for Real-Time Pressure Monitoring in Artificial Knee Joint during Total Knee Arthroplasty 1591-1594
 Tanabe, Fumika* (*Osaka University*); Yoshimoto, Shusuke (*Osaka University*); Noda, Yuki (*Osaka University*); Araki, Teppei (*Osaka University*); Uemura, Takafumi (*Osaka University*); Takeuchi, Yoshinori (*Osaka University*); Imai, Masaharu (*Osaka University*); Sekitani, Tsuyoshi (*Osaka University*)

ThAT6: 08:00-09:30 Biomaterial Cell Interaction and Bioprinting (Oral Session)	Zworykin Room
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08:00-08:15 ThAT6.1
Micro-Patterned Films of Bio-Functionalized Conducting Polymers for Cellular Engineering 1595-1598
 Park, SooHyun (*Penn State University*); Abidian, Mohammad Reza (*University of Houston*); Majd, Sheereen* (*University of Houston*)

08:15-08:30 ThAT6.2
Visible Light-Based Stereolithography Bioprinting of Cell-Adhesive Gelatin Hydrogels 1599-1602
 Wang, Zongjie (*Univ. of British Columbia*); Tian, Zhenlin (*Univ. of British Columbia*); Jin, Xian (*Univ. of British Columbia*); Holzman, Jonathan (*Univ. of British Columbia*); Menard, Frederic (*Univ. of British Columbia*); Kim, Keekyoung* (*Univ. of British Columbia Okanagan Campus*)

08:30-08:45 ThAT6.3
Manual Centrifuge System: Bearing-Based Hand Spinner Made with 3-D Printer 1603-1606
 Yoo, Sunyoung (*Seoul National University*); Lee, Seung Jae (*Seoul National University*); Seo, Jong Mo* (*Seoul National University, School of Engineering*)

08:45-09:00 ThAT6.4
Directed Cell Migration in Co-Cultures by Topographic Curvature for Heterogeneous Tissue Engineering .. 1607-1610
 Okutani, Chihiro* (*University of Tokyo*); Wagatsuma, Akira (*University of Tokyo*); Mabuchi, Kunihiko (*The University of Tokyo*); Hoshino, Takayuki (*University of Tokyo*)

09:00-09:15 ThAT6.5
Development of Biomimetic System for Scale Up of Cell Spheroids – Building Blocks for Cell Transplantation 1611-1616
 Baba, Kazutomo* (*University of Tsukuba*); Sankai, Yoshiyuki (*University of Tsukuba*)

09:15-09:30 ThAT6.6
Enabling 3D Hepatocyte Spheroids for Microphysiometry 1617-1620
 Eggert, Sebastian* (*cellasys GmbH*); Alexander, Frank (*cellasys GmbH*); Wiest, Joachim (*cellasys GmbH*)

ThAT7: 08:00-09:30 Joint Mechanics (Oral Session) Chair: Lee, Taeyong (<i>EWHA Woman's University</i>)	Herrick Room
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08:00-08:15 ThAT7.1
Gender Difference of Ankle Stability in the Sagittal and Frontal Planes 1621-1624
 Lee, Hyunglae* (*Arizona State University*); Hanzlick, Harrison (*Arizona State University*)

08:15-08:30 ThAT7.2
Effects of Counteracting External Valgus Moment on Lateral Tibial Cartilage Contact Conditions and Tibial Rotation 1625-1628
 Shriram, Duraisamy* (*Singapore University of Technology and Design*); Parween, Rizuwana (*Singapore University of Technology and Design*); Lee, Yee Han Dave (*Changi General Hospital Singapore*); Karupppasamy, Subburaj (*Singapore University of Technology and Design (SUTD)*)

08:30-08:45	ThAT7.3
Assessment of 3D Morphological Characteristics of the Shoulder Bones using Statistical Shape Modeling: An Application to Handedness	1629-1632
Inyang, Adijat Omowumi* (<i>University of Cape Town</i>); Fouefack, Jean-Rassaire (<i>University of Cape Town</i>); Sivarasu, Sudesh (<i>University of Cape Town</i>); Roche, Stephen (<i>University of Cape Town</i>); Borotikar, Bhushan (<i>IMT Atlantique</i>); Burdin, Valerie (<i>IMT Atlantique/Institut Mines Telecom - INSERM U1101</i>); Mutsvangwa, Tinashe Ernest Muzvidzwa (<i>University of Cape Town</i>)	
08:45-09:00	ThAT7.4
The use of Shear Thickening Polymer as a Hip Protector	1633-1635
Lee, Taeyong* (<i>Ewha Womans University</i>); Hwang, Dong-Gyu (<i>Ewha Womans University</i>); Ogihara, Naomichi (<i>Keio University</i>); Ito, Kohta (<i>Keio University</i>)	
09:00-09:15	ThAT7.5
Risk Estimation for Intervertebral Disc Pressure through Musculoskeletal Joint Reaction Force Simulation	1636-1639
Imamura, Yumeko* (<i>The National Institute of Advanced Industrial Science and Techno</i>); Ayusawa, Ko (<i>National Institute of Advanced Industrial Science and Technology</i>); Yoshida, Eiichi (<i>National Institute of Advanced Industrial Science and Technology</i>)	
09:15-09:30	ThAT7.6
Subject-Specific Shoulder Muscle Attachment Region Prediction using Statistical Shape Models: A Validity Study	1640-1643
Salhi, Asma* (<i>IMT Atlantique</i>); Burdin, Valerie (<i>IMT Atlantique/Institut Mines Telecom - INSERM U1101</i>); Mutsvangwa, Tinashe Ernest Muzvidzwa (<i>University of Cape Town</i>); Sivarasu, Sudesh (<i>University of Cape Town</i>); Brochard, Sylvain (<i>CHRU Brest</i>); Borotikar, Bhushan (<i>IMT Atlantique</i>)	

ThAT8: 08:00-09:30	Schwan Room
Brain-Computer Interface I (Oral Session)	
Chair: Harrer, Stefan (<i>IBM Research</i>)	

08:00-08:15	ThAT8.1
Neural Decoding of Attentional Selection in Multi-Speaker Environments without Access to Separated Sources	1644-1647
O'Sullivan, James* (<i>Columbia University</i>); Chen, Zhuo (<i>Columbia University</i>); Herrero, Jose (<i>Feinstein Institute for Medical Research</i>); Sheth, Sameer (<i>Columbia University Medical Center</i>); McKhann, Guy (<i>Columbia University Medical Center</i>); Mehta, Ashesh (<i>Feinstein Institute for Medical Research</i>); Mesgarani, Nima (<i>Columbia University</i>)	
08:15-08:30	ThAT8.2
TrueNorth-Enabled Real-Time Classification of EEG Data for Brain-Computer Interfacing	1648-1651
Kiral-Kornek, Filiz Isabell (<i>University of Melbourne</i>); Mendis, Dulini (<i>University of Melbourne</i>); Nurse, Ewan (<i>University of Melbourne</i>); Mashford, Benjamin Scott (<i>IBM Research Australia</i>); Freestone, Dean Robert (<i>The University of Melbourne</i>); Grayden, David B. (<i>The University of Melbourne</i>); Harrer, Stefan* (<i>IBM Research</i>)	
08:30-08:45	ThAT8.3
An Eighty-Target High-Speed Chinese BCI Speller	1652-1655
Han, Chengcheng (<i>Xi'an Jiaotong University</i>); Xu, Guanghua* (<i>Xi'an Jiaotong University</i>); Xie, Jun (<i>Xi'an Jiaotong University</i>); Li, Min (<i>School of Mechanical Engineering, Xi'an Jiaotong University</i>); Zhang, Sicong (<i>Xi'an Jiaotong University</i>); Luo, Ailing (<i>Xi'an Jiaotong University</i>)	
08:45-09:00	ThAT8.4
Cortical Oscillatory Dynamics of Tactile Selective Sensation – For a Novel Type of Somatosensory Brain-Computer Interface	1656-1659
Yao, Lin* (<i>University Medical Center Goettingen, Georg-August-University</i>); Chen, Mei Lin (<i>University of Waterloo</i>); Sheng, Xinjun (<i>Shanghai Jiao Tong University</i>); Mrachacz-Kersting, Natalie (<i>Aalborg University</i>); Zhu, Xiangyang (<i>Shanghai Jiao Tong University</i>); Farina, Dario (<i>Bernstein Center for Computational Neuroscience, University Medic</i>); Jiang, Ning (<i>University of Waterloo</i>)	

09:00-09:15 ThAT8.5
Dynamic Tracking of Non-Stationarity in Human ECoG Activity 1660-1663
 Yang, Yuxiao* (*University of Southern California*); Chang, Edward (*UCSF*);
 Shanechi, Maryam (*University of Southern California*)

09:15-09:30 ThAT8.6
Movement-Related Brain Oscillations Vary with Lesion Location in Severely Paralyzed Chronic Stroke Patients 1664-1667
 Ray, Andreas Markus* (*Tuebingen University*); López-Larraz, Eduardo (*University of Tübingen*); da Cruz Figueiredo, Thiago (*University of Tübingen*); Birbaumer, Niels (*Eberhard-Karls-University*);
 Ramos-Murguialday, Ander (*Eberhard Karls University of Tübingen/TECNALIA*)

ThAT10: 08:00-09:30 Schmitt Room
General and Theoretical Informatics – Predictive Analytics I (Oral Session)
Chair: Iyer, Ravishankar (*University of Illinois at Urbana-Champaign*)

08:00-08:15 ThAT10.1
Prediction of Adenocarcinoma Development using Game Theory 1668-1671
 Athreya, Arjun* (*University of Illinois at Urbana-Champaign*); Armstrong, Don (*University of Illinois at Urbana Champaign*); Gundling, William (*Dept. of Molecular and Integrative Physiology, University*); Wildman, Derek (*University of Illinois*); Kalbarczyk, Zbigniew (*University of Illinois at Urbana-Champaign*);
 Iyer, Ravishankar (*University of Illinois at Urbana-Champaign*)

08:15-08:30 ThAT10.2
Learning from Different Perspectives: Robust Cardiac Arrest Prediction via Temporal Transfer Learning ... 1672-1675
 Ho, Joyce C.* (*Emory University*); Park, Yubin (*The University of Texas at Austin*)

08:30-08:45 ThAT10.3
Predictive Modeling for Corrective Maintenance of Imaging Devices from Machine Logs 1676-1679
 Balasheb Patil, Ravindra* (*Philips Research India*); Patil, Meru (*Philips India Limited*);
 Ravi, Vidya (*Philips*); Naik, Sarif Kumar (*Philips Electronics India Ltd*)

08:45-09:00 ThAT10.4
Data-Driven Strategies for Robust Forecast of Continuous Glucose Monitoring Time-Series 1680-1683
 Fiorini, Samuele* (*University of Genoa*); Martini, Chiara (*University of Genoa*); Malpassi, Davide (*University of Genoa*); Cordera, Renzo (*University of Genoa*); Maggi, Davide (*University of Genoa*);
 Verri, Alessandro (*University of Genoa*); Barla, Annalisa (*University of Genoa*)

09:00-09:15 ThAT10.5
Prediction of Temperature Induced Office Worker's Performance during Typing Task using EEG 1684-1687
 Nayak, Tapsya (*Univ. of Texas at San Antonio*); Zhang, Tinghe (*Univ. of Texas, San Antonio*); Mao, Zijing (*Univ. of Texas at San Antonio*); Xu, Xiaojing (*Univ. of Tennessee, Knoxville*); Pack, Daniel (*Univ. of Tennessee*); Dong, Bing (*Univ. of Texas, San Antonio*); Huang, Yufei* (*Univ. of Texas at San Antonio*)

09:15-09:30 ThAT10.6
Consensus Motifs as Adaptive and Efficient Predictors for Acute Hypotensive Episodes 1688-1691
 Pathinarupothi, Rahul Krishnan (*Amrita Vishwa Vidyapeetham*);
 Rangan, Ekanath* (*Amrita Vishwa Vidyapeetham*)

ThAT11: 08:00-09:30 Greatbatch Room
Blood Pressure Monitoring (Oral Session)
Chair: Mukkamala, Ramakrishna (*Michigan State University*)
Co-Chair: Sugimachi, Masaru (*Natl Cardio Center Research Inst*)

08:00-08:15 ThAT11.1
Model-Based Estimation of Radial Artery Blood Pressure from Recordings of the Nexfin Monitor 1692-1695
 Imaduddin, Syed (*Massachusetts Institute of Tech.*); Heldt, Thomas* (*Massachusetts Institute of Tech.*)

08:15-08:30		ThAT11.2
A Simple Method for Reconstruction of Continuous Brachial Artery Pressure from Continuous Digital Artery Pressure in Humans	1696-1699	
Zhang, Pandeng* (<i>Chinese Academy of Sciences</i>); Qiu, Quanli (<i>SIAT</i>); Luo, Ying (<i>Shenzhen sun yat-sen cardiovascular hospital</i>); Zhou, Yanxia (<i>Shenzhen Municipal Second People's Hospital, Guangdong Pro</i>); Liu, Jia (<i>Chinese Academy of Sciences</i>)		
08:30-08:45		ThAT11.3
Measurement of Carotid Blood Pressure and Local Pulse Wave Velocity Changes during Cuff Induced Hyperemia	1700-1703	
PM, Nabeel* (<i>Indian Institute of Tech. Madras</i>); Karthik, Srinivasa (<i>HTIC IIT Madras</i>); Joseph, Jayaraj (<i>HTIC, Indian Institute of Tech. Madras</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Tech. Madras</i>)		
08:45-09:00		ThAT11.4
Analysis of a GMR-Based Plethysmograph Transducer and Its Utility for Real-Time Blood Pressure Measurement	1704-1707	
Chugh, Vinit Kumar* (<i>IIT Kharagpur</i>); Kalyan, Kubera (<i>IIT Kharagpur</i>); Chandrika Sreekantan, Anoop (<i>Indian Institute of Space Science and Technology Trivandrum</i>); Patra, Amit (<i>Indian Institute of Technology Kharagpur</i>); Negi, Shubham (<i>IIT Kharagpur</i>)		
09:00-09:15		ThAT11.5
Regression Analysis and Transfer Function in Estimating the Parameters of Central Pulse Waves from Brachial Pulse Wave	1708-1711	
Chai, Rui (<i>Northeastern University</i>); Li, Siman (<i>Northeastern University</i>); Xu, Lisheng* (<i>Northeastern University</i>); Yao, Yang (<i>Northeastern University</i>); Hao, Liling (<i>Northeastern University</i>)		
09:15-09:30		ThAT11.6
Novel Blood Pressure Estimation Method using Single Photoplethysmography Feature	1712-1715	
Chen, Yang (<i>Harbin Institute of Technology Shenzhen Graduate School</i>); Cheng, Shuo (<i>Harbin Institute of Technology</i>); Wang, Tong (<i>Harbin Institute of Technology, Shenzhen Graduate School</i>); Ma, Heather Ting* (<i>Harbin Institute of Technology Shenzhen Graduate School</i>)		
ThAT13: 08:00-09:30		Dunn Room
Implantable Sensors I (Oral Session)		
Chair: Song, Dong (<i>University of Southern California</i>)		
08:00-08:15		ThAT13.1
Chronic Multi-Region Recordings from the Rat Hippocampus in Vivo with a Flexible Parylene-Based Multi-Electrode Array	1716-1719	
Xu, Huijing* (<i>University of Southern California</i>); Meng, Ellis (<i>University of Southern California</i>); Berger, Theodore (<i>University of Southern California</i>); Song, Dong (<i>University of Southern California</i>)		
08:15-08:30		ThAT13.2
Development and Characterization of a Fully Flexible Stimulation System based on Embedded Liquid Metal Channels	1720-1723	
David, Romain* (<i>Keio University</i>); Miki, Norihisa (<i>University</i>)		
08:30-08:45		ThAT13.3
Using Impedance to Track Fracture Healing Rates in Mice in Vivo: A Pilot Study	1724-1727	
Lin, Monica* (<i>UC Berkeley / UC San Francisco</i>); Hu, Diane (<i>Univ. of California - San Francisco</i>); Yang, Frank (<i>Univ. of California - San Francisco</i>); Herfat, Safa (<i>Univ. of California, San Francisco</i>); Bahney, Chelsea (<i>Univ. of California, San Francisco</i>); Marmor, Meir (<i>Univ. of California, San Francisco</i>); Maharbiz, Michel (<i>Univ. of California, Berkeley</i>)		
08:45-09:00		ThAT13.4
Effect of Temperature Variation on Remote Pressure Readout in Wirelessly Powered Intracranial Pressure Monitoring System	1728-1731	
Khan, Muhammad Waqas Ahmad (<i>Tampere University of Technology</i>); Rizwan, Muhammad (<i>Tampere University of Technology, Finland</i>); Sydänheimo, Lauri (<i>Tampere University of Technology</i>); Ratmat-Samii, Yahya (<i>University of California, Los Angeles</i>); Ukkonen, Leena (<i>Tampere University of Technology</i>); Bjorninen, Toni* (<i>Tampere University of Technology</i>)		

09:00-09:15 ThAT13.5
**Implantable Bladder Volume Sensor based on Resistor Ladder Network
Composed of Conductive Hydrogel Composite** 1732-1735
Kim, Mi Kyung* (*Korea Advanced Institute of Science and Technology (KAIST)*); Kim, Hyojung (*Korea Advanced Institute of Science and Technology*); Jung, Yeon Su (*KAIST*); AlAdem, Kenana (*Khalifa University*); Bawazir, Sarah (*Khalifa University*); Stefanini, Cesare (*Scuola Superiore Sant'Anna*); Lee, Hyunjoo Jenny (*Korea Advanced Institute of Science and Technology (KAIST)*)

09:15-09:30 ThAT13.6
**Integrating Coupled Magnetoelastic Sensors onto a Flexible Hernia Mesh for
High Dynamic Range Strain Measurements** 1736-1739
Liao, Amy* (*UC Berkeley*); Harris, Hobart (*UCSF*); Maharbiz, Michel (*University of California, Berkeley*)

ThAT14: 08:00-09:30 Schaldach Room
Machine Learning in Imaging I (Oral Session)
Chair: Ye, Jong Chul (*Korea Advanced Inst of Science and Tech*)

08:00-08:15 ThAT14.1
Abnormality Detection of Mammograms by Discriminative Dictionary Learning on DSIFT Descriptors ... 1740-1743
Tavakoli, Nasrin (*Isfahan University of Technology*); Karimi, Maryam (*Isfahan University of Technology*); Nejati, Mansour (*Isfahan University of Technology*); Karimi, Nader (*Isfahan University of Technology*); Soroushmehr, S.M.Reza* (*University of Michigan, Ann Arbor*); Samavi, Shadrokh (*McMaster University*); Najarian, Kayvan (*University of Michigan - Ann Arbor*)

08:15-08:30 ThAT14.2
Exudate Detection for Diabetic Retinopathy with Convolutional Neural Networks 1744-1747
Yu, Shuang (*Commonwealth Scientific and Industrial Research Organization*); Xiao, Di* (*Commonwealth Scientific and Industrial Research Organization*); Kanagasingham, Yogi (*The Australian eHealth Research Centre, Perth, CSIRO.*)

08:30-08:45 ThAT14.3
**CEUS-Based Classification of Liver Tumors with Deep Canonical Correlation
Analysis and Multi-Kernel Learning** 1748-1751
Lehang, Guo (*Shanghai Tenth People's Hospital*); Dan, Wang* (*Shanghai Tenth People's Hospital*); Huixiong, Xu (*Shanghai Tenth People's Hospital*); Yiyi, Qian (*Shanghai University*); Chaofeng, Wang (*Shanghai University*); Zheng, Xiao (*Shanghai University*); Zhang, Qi (*Shanghai University*); Shi, Jun (*Shanghai University*)

08:45-09:00 ThAT14.4
A Multi-View Deep Convolutional Neural Networks for Lung Nodule Segmentation 1752-1755
Wang, Shuo (*Chinese Academy of Sciences*); Mu, Zhou (*Stanford University*); Gevaert, Olivier (*The Stanford Center for Biomedical Informatics Research, Stanfor*); Tang, Zhenchao (*Shandong University, Weihai*); Dong, Di (*Chinese Academy of Sciences*); Liu, Zhenyu (*Institute of Automation, Chinese Academy of Sciences*); Tian, Jie* (*Chinese Academy of Sciences*)

09:00-09:15 ThAT14.5
**Surgical-Tools Detection based on Convolutional Neural Network in
Laparoscopic Robot-Assisted Surgery** 1756-1759
Choi, Bareum (*Asan Institute for Life Sciences, Asan Medical Center*); Jo, Kyungmin (*Asan Institute for Life Sciences, Asan Medical Center*); Choi, Songe (*Asan Institute for Life Sciences, Asan Medical Center*); Choi, Jaesoon* (*Asan Institute for Life Sciences, Asan Medical Center*)

09:15-09:30 ThAT14.6
Deep Learning-Based Diabetic Retinopathy Assessment on Embedded System 1760-1763
Ardiyanto, Igi* (*Universitas Gadjah Mada*); Adi Nugroho, Hanung (*Universitas Gadjah Mada*); Buana, Ratna Lestari Budiani (*Universitas Gadjah Mada*)

ThAT15: 08:00-09:30 Webster Room
Bioengineering Advances in the Diagnosis and Treatment of Sleep Apnea I (Minisymposium)
Chair: Khoo, Michael (*University of Southern California*)
Co-Chair: Penzel, Thomas (*Charite Universitätsmedizin Berlin*)

08:00-08:15 ThAT15.1
Development of Methods for Sleep Disordered Breathing to Identify Phenotypes 1764-1767
Penzel, Thomas* (*Charite Universitätsmedizin Berlin*); Schoebel, Christoph (*Charite Universitätsmedizin Berlin*); Glos, Martin (*Charite-Universitätsmedizin Berlin*); Schwarz, Lisa (*Charite - Universitätsmedizin Berlin*); Prochnow, Lisa (*Charite - Universitätsmedizin Berlin*); Fietze, Ingo (*Charite-Universitätsmedizin Berlin*)

ThAT17: 08:00-09:30 Einthoven Hall
Signal Processing – Wearable Devices (Oral Session)
Chair: Barbieri, Riccardo (*Politecnico di Milano*)

08:00-08:15 ThAT17.1
Remote Gaze Tracking System for 3D Environments 1768-1771
Liu, Congcong* (*Hong Kong University of Science and Technology*); Herrup, Karl (*Hong Kong University of Science and Technology*); Shi, Bertram E (*Hong Kong University of Science and Technology*)

08:15-08:30 ThAT17.2
Estimation of Blood Pressure from Non-Invasive Data 1772-1775
Shukla, Satya Narayan* (*University of Massachusetts Amherst*)

08:30-08:45 ThAT17.3
Assessment of Instantaneous Cardiovascular Dynamics from Video Plethysmography 1776-1779
Valenza, Gaetano (*University of Pisa*); Iozzia, Luca (*Politecnico of Milan*); Cerina, Luca (*Politecnico of Milan*); Mainardi, Luca (*Politecnico di Milano*); Barbieri, Riccardo* (*Politecnico di Milano*)

08:45-09:00 ThAT17.4
Towards VO2 Monitoring: Validation of a Heart Rate based Algorithm 1780-1783
Manzoni, Cecilia (*EPFL*); Carrard, Apolline (*VO2Sport*); Fontana, Elisa (*VO2Sport*); Lemay, Mathieu (*CSEM*); Bertschi, Mattia (*CSEM*); Delgado-Gonzalo, Ricard* (*CSEM*)

09:00-09:15 ThAT17.5
A Portable Platform to Collect and Review Behavioral Data Simultaneously with Neurophysiological Signals 1784-1787
Jiang, Tianxiao* (*Univ. of Houston*); Siddiqui, Hasan (*Univ. of Houston*); Ray, Shruti (*Univ. of Houston*); Ince, Nuri Firat (*Univ. of Houston*); Ozturk, Musa (*Univ. of Houston*); Asman, Priscella (*Univ. of Houston*)

09:15-09:30 ThAT17.6
A Simple, Remote, Video based Breathing Monitor 1788-1791
Regev, Nir* (*Ben-Gurion University of The Negev*); Wulich, Dov (*Ben-Gurion University of The Negev*)

ThAT18: 08:00-09:30 Montgomery Hall
Principal and Independent Component Analysis I (Oral Session)

08:00-08:15 ThAT18.1
On the use of Higher-Order Tensors to Model Muscle Synergies 1792-1795
Ebied, Ahmed* (*University of Edinburgh*); Spyrou, Loukianos (*University of Edinburgh*); Kinney-Lang, Eli (*University of Edinburgh*); Escudero, Javier (*University of Edinburgh*)

08:15-08:30 ThAT18.2
Exploring Optimal Myoelectric Feature Indices for Forearm Control Strategy using Robust Principal Component Analysis 1796-1799
Kanoga, Suguru* (*National Institute of Advanced Industrial Science and Technology*); Murai, Akihiko (*National Institute of Advanced Industrial Science and Technology*); Tada, Mitsunori (*National Institute of Advanced Industrial Science and Technology*)

08:30-08:45	ThAT18.3
Coupling Scatter Correction with Bandpass Filtering for Pre-Processing in the Quantitative Analysis of Glucose from Near-Infrared Spectra	1800-1803
Alrezj, Osamah* (<i>Sheffield University</i>); Patchava, Krishna Chaitanya (<i>The University of Sheffield</i>); Benaissa, Mohammed (<i>The University of Sheffield</i>); Alshebeili, Saleh (<i>KSU</i>)	
08:45-09:00	ThAT18.4
Modified Thresholding Technique of MMSPCA for Extracting Respiratory Activity from Short Length PPG Signal	1804-1807
Motin, Mohammad Abdul (<i>PhD Student, University of Melbourne</i>); Karmakar, Chandan* (<i>Deakin University</i>); Palaniswami, Marimuthu (<i>The University of Melbourne</i>)	
09:00-09:15	ThAT18.5
Channels Selection using Independent Component Analysis and Scalp Map Projection for EEG-Based Driver Fatigue Classification	1808-1811
Chai, Rifai* (<i>University of Technology, Sydney</i>); Naik, Ganesh R (<i>University of Technology Sydney</i>); Ling, Steve (<i>University of Technology Sydney</i>); Tran, Yvonne (<i>University of Technology, Sydney</i>); Craig, Ashley (<i>The University of Sydney</i>); Nguyen, Hung T. (<i>University of Technology, Sydney</i>)	
09:15-09:30	ThAT18.6
Motion Artifact Reduction in PPG Signals based on Periodic Component Factorization	1812-1815
Lo, Po Wen* (<i>The Chinese Univ. of Hong Kong</i>); Li, Charles X.-T. (<i>The Chinese Univ. of Hong Kong</i>); Wang, Jiankun (<i>The Chinese Univ. of Hong Kong</i>); Meng, Max Q.-H. (<i>The Chinese Univ. of Hong Kong</i>)	
ThBT3: 10:50-12:20	Park Room
X-Ray and CT Imaging I (Oral Session)	
Chair: Moratal, David (<i>Universitat Politècnica de València</i>)	
10:50-11:05	ThBT3.1
Interactive Patient-Specific 3D Approximation of Scapula Bone Shape from 2D X-Ray Images using Landmark-Constrained Statistical Shape Model Fitting	1816-1819
Mutsvangwa, Tinashe Ernest Muzvidzwa* (<i>University of Cape Town</i>); Wasswa, William (<i>Mbarara University of Technology</i>); Burdin, Valérie (<i>Institut Telecom/Telecom Bretagne - INSERM U650</i>); Borotikar, Bhushan (<i>IMT Atlantique</i>); Douglas, Tania S (<i>University of Cape Town</i>)	
11:05-11:20	ThBT3.2
Arytenoid Cartilage Feature Point Detection using Laryngeal 3D CT Images in Parkinson's Disease	1820-1823
Desai, Nandakishor* (<i>University of Melbourne</i>); Rao, Aravinda (<i>The University of Melbourne</i>); Palaniswami, Paari (<i>Monash University</i>); Thyagarajan, Dominic (<i>Monash Medical Centre</i>); Palaniswami, Marimuthu (<i>The University of Melbourne</i>)	
11:20-11:35	ThBT3.3
Multiple Mucociliary Transit Marker Tracking in Synchrotron X-Ray Images using the Global nearest Neighbor Method	1824-1827
Jung, Hye-Won* (<i>UNISA</i>); Lee, Ivan (<i>The University of South Australia</i>); Lee, Sang-Heon (<i>The University of South Australia</i>); Parsons, David (<i>Women's and Children's Hospital</i>); Donnelley, Martin (<i>University of Adelaide, Women's and Children's Hospital</i>)	
11:35-11:50	ThBT3.4
A One-Dimensional Fluid Simulation Method of the Narrow Vessel for the Real-Time Angiography Simulation	1828-1831
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>)	
11:50-12:05	ThBT3.5
The use of Subject-Specific Finite Element Analysis of L1-L4 Vertebra to Screening Osteoporosis in Postmenopausal Women	1832-1835
Alacreu, Elena (<i>Center for Biomaterials and Tissue Engineering, Universitat Poli</i>); Arana, Estanislao (<i>Radiology Dept., Fundación Instituto Valenciano de Oncología</i>); Moratal, David* (<i>Universitat Politècnica de València</i>)	

12:05-12:20 ThBT3.6
Environment Effects at Phantom-Based X-Ray Pose Measurements 1836-1839
 Thuerauf, Sabine* (*fortiss GmbH An-Institut Technische Universität München Mailing*); Koerner, Mario (*Siemens Healthcare GmbH*); Vogt, Florian (*Siemens Healthcare GmbH*); Hornung, Oliver (*Siemens Healthcare GmbH*); Nasser, M. Ali (*Technische Universität München*); Knoll, Alois (*Technical University Munich*)

ThBT4: 10:50-12:20 Min Room
New Sensing Techniques II (Oral Session)

10:50-11:05 ThBT4.1
Development of an Intraluminal Intestinal Photoplethysmography Sensor 1840-1843
 Patel, Zaibaa* (*City, University of London*); Thaha, Mohamed (*The Royal London Hospital, Bart's Health NHS Trust*); Kyriacou, Panayiotis (*City University London*)

11:05-11:20 ThBT4.2
Instrumentation, Electrode Choice and Challenges in Human Skin Memristor Measurement 1844-1848
 Pabst, Oliver* (*Univ. of Oslo*); Tronstad, Christian (*Oslo Univ. Hospital*); Martinsen, Ørjan G (*Univ. of Oslo*)

11:20-11:35 ThBT4.3
Flexible Organic TFT Bio-Signal Amplifier using Reliable Chip Component Assembly Process with Conductive Adhesive 1849-1852
 Yoshimoto, Shusuke* (*Osaka Univ.*); Uemura, Takafumi (*Osaka Univ.*); Akiyama, Mihoko (*Osaka Univ.*); Ihara, Yoshihiro (*Research & Development Division, Shinko Electric Industries Co.*); Otake, Satoshi (*Research & Development Division, Shinko Electric Industries Co.*); Fujii, Tomoharu (*Research & Development Division, Shinko Electric Industries Co.*); Araki, Teppei (*Osaka Univ.*); Sekitani, Tsuyoshi (*Osaka Univ.*)

11:35-11:50 ThBT4.4
Continuous Systolic and Diastolic Blood Pressure Estimation Utilizing Long Short-Term Memory Network . 1853-1856
 Lo, Po Wen* (*The Chinese University of Hong Kong*); Li, Charles X.-T. (*The Chinese University of Hong Kong*); Wang, Jiankun (*The Chinese University of Hong Kong*); Cheng, Jiyu (*The Chinese University of Hong Kong*); Meng, Max Q.-H. (*The Chinese University of Hong Kong*)

11:50-12:05 ThBT4.5
An in Vivo MEMS Sensor System for Percutaneous Measurement of Urinary Bladder 1857-1860
 Clausen, Ingelin* (*SINTEF Digital, Norway*); W Tvedt, Lars Geir (*SINTEF ICT, Norway*); Hellandsvik, Are (*SINTEF Digital*); Rognlien, Dag Kristian (*SINTEF Digital*); Glott, Thomas (*Sunnaas Rehabilitation Hospital*)

12:05-12:20 ThBT4.6
Performance Assessment of Dry Electrodes for Wearable Long Term Cardiac Rhythm Monitoring: Skin-Electrode Impedance Spectroscopy 1861-1864
 Bosnjak, Antonio (*Universidad de Carabobo.*); Kennedy, Alan (*Intelesens*); Linares, Pedro (*University of Carabobo*); Borges, Maira (*Universidad de Carabobo*); McLaughlin, James (*University of Ulster*); Escalona, Omar Jacinto* (*University of Ulster*)

ThBT6: 10:50-12:20 Zworykin Room
Biomaterials and Patterning I (Oral Session)

10:50-11:05 ThBT6.1
Protein Patterning using Germanium as a Sacrificial Layer 1865-1868
 Lu, Bochao* (*University of California Berkeley*); Maharbiz, Michel (*University of California, Berkeley*)

11:05-11:20 ThBT6.2
Conducting Polymer Microcontainers for Biomedical Applications 1869-1872
 Antensteiner, Martin (*Univ. of Houston*); Khorrami, Milad (*Univ. of Houston*); Fallahianbijan, Fatemeh (*Penn State Univ.*); Borhan, Ali (*The Pennsylvania State Univ.*); Abidian, Mohammad Reza* (*Univ. of Houston*)

11:20-11:35 ThBT6.3
Mechanical Properties of Triply Periodic Minimal Surface Structures Mimicking the Microstructure of Woodpecker's Cranial Bone 1873-1876
 Ni, Yikun (*Beihang University*); Wang, Lizhen (*Beihang University*); Fan, Yubo* (*Beihang University*)

11:35-11:50	ThBT6.4
Self-Spreading Method for Forming Lipid Bilayer on a Patterned Agarose Gel: Toward Precise Lipid Bilayer Patterning	1877-1880
Shimba, Kenta* (<i>Tokyo Institute of Technology</i>); Shoji, Kazuma (<i>Tokyo Institute of Technology</i>); Miyamoto, Yoshitaka (<i>Nagoya University</i>); Yagi, Tohru (<i>Tokyo Institute of Technology</i>)	
11:50-12:05	ThBT6.5
Tunable Nanostructured Conducting Polymers for Neural Interface Applications	1881-1884
Abidian, Mohammad Reza* (<i>University of Houston</i>); Antensteiner, Martin (<i>University of Houston</i>)	
12:05-12:20	ThBT6.6
Simple and Fast Polydimethylsiloxane (PDMS) Patterning using a Cutting Plotter and Vinyl Adhesives to Achieve Etching Results	1885-1888
Kim, Hyun (<i>Seoul National Univ.</i>); Yoo, Sunyoung (<i>Seoul National Univ.</i>); Kim, Ji Sung (<i>Seoul National Univ.</i>); Wang, Zihuan (<i>Seoul National Univ.</i>); Lee, Woon-Hee (<i>Seoul National Univ.</i>); Koo, Kyoin (<i>Univ. of Ulsan</i>); Seo, Jong Mo* (<i>Seoul National Univ., School of Engineering</i>); Cho, Dong Il (<i>Seoul National Univ.</i>)	
ThBT7: 10:50-12:20	Herrick Room
Motion Analysis (Oral Session)	
Chair: Thomas, Louise (<i>Simon Fraser University</i>)	
10:50-11:05	ThBT7.1
Human Locomotion Analysis: Identifying a Dynamic Mapping between Upper and Lower Limb Joints using the Koopman Operator	1889-1892
Boudali, A. Mounir* (<i>The University of Sydney</i>); Sinclair, Peter James (<i>The University of Sydney</i>); Smith, Richard (<i>The University of Sydney</i>); Manchester, Ian (<i>Umeå University</i>)	
11:05-11:20	ThBT7.2
Fusing Motion-Capture and Inertial Measurements for Improved Joint State Recovery: An Application for Sit-to-Stand Actions	1893-1896
Matthew, Robert, Peter* (<i>UC Berkeley</i>); Seko, Sarah (<i>UC Berkeley</i>); Bajcsy, Ruzena (<i>UC Berkeley, CITRIS</i>)	
11:20-11:35	ThBT7.3
Quantifying the Effects of On-the-Fly Changes of Seating Configuration on the Stability of a Manual Wheelchair	1897-1900
Thomas, Louise* (<i>Simon Fraser University</i>); Borisoff, Jaimie F. (<i>British Columbia Institute of Technology</i>); Sparrey, Carolyn (<i>Simon Fraser University</i>)	
11:35-11:50	ThBT7.4
Simulation of Oxygen Uptake and Leg Joint Reaction Force during Ergometer Exercise under Altered Gravity	1901-1904
Tagawa, Yoshihiko (<i>Kurume University</i>); Yamamoto, Naosuke* (<i>Kurume University</i>); Omoto, Masayuki (<i>Kurume University</i>); Matsuse, Hiroo (<i>Kurume University Hospital</i>); Shiba, Naoto (<i>Kurume University Hospital</i>)	
11:50-12:05	ThBT7.5
Analysis of Gait Pattern during Stair Walk for Improvement of Gait Training Robot	1905-1908
Park, Sang-Eun (<i>Biomedical Engineering Research Center, Asan Medical Center</i>); Ho, Ye Ji (<i>the Biomedical Engineering Research Center, Asan Medical Center</i>); Moon, Youngjin (<i>Asan Medical Center</i>); Choi, Jaesoon* (<i>Asan Institute for Life Sciences, Asan Medical Center</i>)	
12:05-12:20	ThBT7.6
Body Pose Estimation in Depth Images for Infant Motion Analysis	1909-1912
Hesse, Nikolas* (<i>Fraunhofer Institute of Optronics, System Technologies and Image</i>); Schröder, A. Sebastian (<i>Dept. of Paediatric Neurology and Developmental Medicine, D</i>); Müller-Felber, Wolfgang (<i>Dept. of Paediatric Neurology and Developmental Medicine, D</i>); Bodensteiner, Christoph (<i>Fraunhofer Institute of Optronics, System Technologies and Image</i>); Arens, Michael (<i>Fraunhofer Institute of Optronics, System Technologies and Image</i>); Hofmann, Ulrich G. (<i>University of Freiburg</i>)	

Brain-Computer Interface II (Oral Session)

- 10:50-11:05 ThBT8.1
Electrocortical Amplitude Modulations of Human Level-Ground, Slope, and Stair Walking 1913-1916
 Luu, Trieu Phat* (*University of Houston*); Brantley, Justin (*University of Houston*); Zhu, Fangshi (*University of Houston*); Contreras-Vidal, José (*University of Houston*)
- 11:05-11:20 ThBT8.2
EEG-Guided Robotic Mirror Therapy System for Lower Limb Rehabilitation 1917-1921
 Marghi, Yeganeh M.* (*Northeastern University*); Farjadian, Amir Bahador (*Northeastern University*); Yen, Sheng-che (*Northeastern University*); Erdogmus, Deniz (*Northeastern University*)
- 11:20-11:35 ThBT8.3
Boosting Performance in Brain-Machine Interface by Classifier-Level Fusion based on Accumulative Training Models from Multi-Day Data 1922-1925
 Yang, Huijuan* (*Institute for Infocomm Research, Agency for Science, Technology and Innovation*); Libedinsky, Camilo (A*STAR); Guan, Cuntai (*Nanyang Technological University*); Ang, Kai Keng (*Institute for Infocomm Research*); So, Rosa (*Institute for Infocomm Research*)
- 11:35-11:50 ThBT8.4
Stop State Classification in Intracortical Brain-Machine-Interface 1926-1929
 Koh, Tze Hui (*Institute for Infocomm Research*); Libedinsky, Camilo (A*STAR); Guan, Cuntai (*Nanyang Techn. Univ.*); Ang, Kai Keng (*Institute for Infocomm Research*); So, Rosa* (*Institute for Infocomm Research*)
- 11:50-12:05 ThBT8.5
A Frequency Recognition Method based on Multitaper Spectral Analysis and SNR Estimation for SSVEP-Based Brain-computer Interface 1930-1933
 Yang, Chen (*Tsinghua University*); Xu, Han (*Tsinghua University*); Wang, Yijun (*Institute of Semiconductors, Chinese Academy of Sciences*); Gao, Xiaorong* (*Tsinghua University*)
- 12:05-12:20 ThBT8.6
Learning to Control an SSVEP-Based BCI Speller in Naïve Subjects 1934-1937
 Zhihua Tang, Zhihua (*Hebei University of Technology*); Wang, Yijun* (*Institute of Semiconductors, Chinese Academy of Sciences*); Dong, Guoya (*Hebei University of Technology*); Pei, Weihua (*Institute of Semiconductors, CAS*); Chen, Hongda (*Institute of Semiconductors, CAS*)

Neural Stimulation I (Oral Session)**Chair:** Jun, Sung Chan (*Gwangju Institute of Science and Technology*)**Co-Chair:** Zhang, Cheng (*Chinese Academy of Sciences, Beijing*)

- 10:50-11:05 ThBT9.1
A 64-Channels Neural Interface for Biopotentials Recording and PNS Stimulation 1938-1941
 Bioni, Lorenzo (*Univ. di Cagliari*); Carboni, Caterina* (*Univ. di Cagliari*); Puddu, Roberto (*Univ. di Cagliari*); Barabino, Gianluca (*Univ. of Cagliari*); Pani, Danilo (*Univ. of Cagliari*); Raffo, Luigi (*Univ. of Cagliari*); Mueller, Matthias (*Univ. of Freiburg*); Stieglitz, Thomas (*Univ. of Freiburg*); del Valle, Jaume (*Univ. Autònoma de Barcelona*); de la Oliva, Natàlia (*Univ. Autònoma de Barcelona*); Delgado-Martínez, Ignacio (*National Univ. of Singapore*); Navarro, Xavier (*Univ. Autònoma de Barcelona*); Barbaro, Massimo (*Univ. of Cagliari*)
- 11:05-11:20 ThBT9.2
Auditory Responses to Short-Wavelength Infrared Neural Stimulation of the Rat Cochlear Nucleus 1942-1945
 Jiang, Bin (*Chongqing Univ.*); Xia, Nan (*Chongqing Univ.*); Hou, Wensheng* (*Bioengineering Inst of Chongqing Univ*)
- 11:20-11:35 ThBT9.3
A Computational Study on Effect of a Transcranial Channel as a Skull/Brain Interface in the Conventional Rectangular Patch-Type Transcranial Direct Current Stimulation 1946-1949
 Seo, Hyeon (*Gwangju Institute of Science and Technology*); Kim, Hyoung-lhl (*Gwangju Institute of Science and Technology*); Jun, Sung Chan* (*Gwangju Institute of Science and Technology*)

11:35-11:50 ThBT9.4
Assessing RTMS Effects in MdDS: Cross-Modal Comparison between Resting State EEG and fMRI Connectivity 1950-1953
 Chen, Yafen (*University of Oklahoma*); Li, Chuang (*University of Oklahoma*); Shou, Guofa (*University of Oklahoma*); Urbano, Diamond (*Laureate Institute for Brain Research*); Cha, Yoon-Hee (*Laureate Institute of Brain Research*); Ding, Lei (*University of Oklahoma*); Yuan, Han* (*University of Oklahoma*)

11:50-12:05 ThBT9.5
Closed-Loop Low-Frequency DBS Restores Thalamocortical Relay Fidelity in a Computational Model of the Motor Loop 1954-1957
 Huang, Han (*Johns Hopkins University*); Santaniello, Sabato* (*University of Connecticut*)

12:05-12:20 ThBT9.6
Electric Field Stimulation Protects Injured Spinal Cord from Secondary Inflammatory Response in Rats 1958-1961
 Huo, Xiaolin (*Chinese Academy of Sciences*); Zhang, Guanghao (*Institute of Electrical Engineering, Chinese Academy of Sciences*); Wu, Changzhe (*Chinese Academy of Sciences*); Zhang, Cheng* (*Chinese Academy of Sciences, Beijing,*)

ThBT13: 10:50-12:20 Dunn Room
Implantable Technologies and Systems (Oral Session)

10:50-11:05 ThBT13.1
A Study on Setting of the Fatigue Limit of Temporary Dental Implants 1962-1965
 Kim, Mi Hye* (*Ministry of Food and Drug Safety*); Eunjeong, Cho (*Ministry of Food and Drug Safety*); Jiwon, Lee (*Ministry of Food and Drug Safety*); Eunkyoo, Kim (*Medical Devices Research Division*); Sihyung, Yoo (*Ministry of Food and Drug Safety*); Park, Chang Won (*National Institute of Food and Drug Safety Evaluation, Ministry*)

11:05-11:20 ThBT13.2
A Wirelessly Powered Implantable Radiofrequency Nerve Lesioning System for the Treatment of Chronic Pain 1966-1969
 Tang, Sai Chun* (*Harvard Medical School, Brigham and Women's Hospital*); McDannold, Nathan (*Brigham & Women's Hospital*); Vaninetti, Michael (*University of California San Diego, VA San Diego Healthcare Syst*)

11:20-11:35 ThBT13.3
An IC-Based Controllable Stimulator for Respiratory Muscle Stimulation Investigations 1970-1973
 Castelli, Jonathan* (*Univ. of Bordeaux*); Kolbl, Florian (*Univ. of Bordeaux*); Siu, Ricardo (*Florida International Univ.*); N'Kaoua, Gilles (*CNRS, IMS UMR*); Bornat, Yannick (*IMS Laboratory*); Mangalore, Ashwin (*Univ. of Bordeaux, IMS, CNRS UMR*); Hillen, Brian (*Florida International Univ.*); Abbas, James (*Arizona State Univ.*); Renaud, Sylvie (*Univ. of Bordeaux1, IMS, Enseirb*); Jung, Ranu (*Florida International Univ.*); Lewis, Noëlle (*Univ. of Bordeaux 1, IPB, IMS, CNRS UMR*)

11:35-11:50 ThBT13.4
An Intracardiac Electrogram Model to Bridge Virtual Hearts and Implantable Cardiac Devices 1974-1977
 Ai, Weiwei* (*University of Auckland*); Patel, Nitish (*University of Auckland*); Roop, Parthasarathi (*University of Auckland*); Malik, Avinash (*University of Auckland*); Allen, Nathan (*University of Auckland*); Trew, Mark L. (*University of Auckland*)

11:50-12:05 ThBT13.5
A Wireless Optical Power System for Medical Implants using Low Power Near-IR Laser 1978-1981
 Saha, Anindo* (*American International Univ.-Bangladesh*); Iqbal, Shabab (*American International Univ.-Bangladesh*); Karmaker, Mithun (*American International Univ.-Bangladesh*); Zinnat, Syeda Fairouse (*American International Univ.-Bangladesh*); Ali, M. Tanseer (*American International Univ.-Bangladesh*)

ThBT14: 10:50-12:20 Schaldach Room
Machine Learning in Imaging II (Oral Session)
Chair: Unser, Michael (*EPFL*)

10:50-11:05 ThBT14.1
Deep Scattering Convolution Network based Features for Ultrasonic Fatty Liver Tissue Characterization ... 1982-1985
 Ramkrishna, Bharath* (*Indian institute of Technology Hyderabad*); P, Rajalakshmi (*Indian Institute of Technology Hyderabad*)

11:05-11:20 ThBT14.2
NucleiNet: A Convolutional Encoder-Decoder Network for Bio-Image Denoising 1986-1989
Liu, Zi-chuan* (*Nanyang Technological University*); Hu, Yi-fei (*Nanyang Technological University*); Xu, Hang (*Nanyang Technological University*); Nasser, Lamees (*Bioinformatics Institute (BII), A*STAR*); Boudier, Thomas (*A-STAR*); Coquent, Philippe (*Nanyang Technological University*); Yu, Hao (*Nanyang Technological University*)

11:20-11:35 ThBT14.3
Automated Discrimination of Dementia Spectrum Disorders using Extreme Learning Machine and Structural T1 MRI Features 1990-1993
Kim, Jongin* (*Gwangju Institute of Science and Technology*);
Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)

11:35-11:50 ThBT14.4
Exploring Transfer Learning for Gastrointestinal Bleeding Detection on Small-Size Imbalanced Endoscopy Images 1994-1997
Li, Xiuli* (*IBM Research – China*); Zhang, Hao (*ANKON Technologies Co., LTD - China*); Zhang, Xiaolu (*IBM Research – China*); Liu, Hao (*ANKON Technologies Co., LTD - China*); Xie, Guotong (*IBM Research – China*)

11:50-12:05 ThBT14.5
Brain Tumor Segmentation using Cascaded Deep Convolutional Neural Network 1998-2001
Hussain, Saddam (*University of Engineering and Technology, Taxila*); Anwar, Syed* (*University of Engineering and Technology*); Majid, Muhammad (*University of Engineering and Technology, Taxila*)

12:05-12:20 ThBT14.6
Surgical Tool Detection in Cataract Surgery Videos through Multi-Image Fusion Inside a Convolutional Neural Network 2002-2005
Alhaji, Hassan (*Inserm*); Lamard, Mathieu (*Université de Bretagne Occidentale*); Charrière, Katia (*LaTIM - INSERM UMR 1101, Brest, F-29200 France*); Cochener, Béatrice (*CHU Morvan*); Quellec, Gwenole* (*Inserm*)

ThBT15: 10:50-12:20 Webster Room
Bioengineering Advances in the Diagnosis and Treatment of Sleep Apnea II (Minisymposium)
Chair: Khoo, Michael (*University of Southern California*)
Co-Chair: Penzel, Thomas (*Charite Universitätsmedizin Berlin*)

10:50-11:05 ThBT15.1
Screening Patients for Risk of Sleep Apnea using Facial Photographs 2006-2009
de Chazal, Philip* (*University of Sydney*); Tabatabaei Balaei, Asghar (*University of Sydney*);
Nosrati, Hadis (*The University of Sydney*)

ThBT17: 10:50-12:20 Einthoven Hall
Signal Processing – Fetal and Neonatal Physiology (Oral Session)
Chair: Khandoker, Ahsan Habib (*Khalifa University of Science, Technology and Research*)

10:50-11:05 ThBT17.1
Automatic Quiet Sleep Detection based on Multifractality in Preterm Neonates: Effects of Maturation ... 2010-2013
Lavanga, Mario* (*KU Leuven*); De Wel, Ofelie (*KU Leuven*); Caicedo Dorado, Alexander (*Katholieke Universiteit Leuven*); Heremans, Elisabeth (*KU Leuven*); Jansen, Katrien (*Dept. of Pediatrics, University Hospital Gasthuisberg, Leuven*); Dereymaeker, Anneleen (*Dept. of Development and Regeneration, University of Leuven*); Naulaers, Gunnar (*University Hospitals Leuven*); Van Huffel, Sabine (*Katholieke Universiteit Leuven*)

11:05-11:20 ThBT17.2
Mutual Information for Intrapartum Fetal Heart Rate Analysis 2014-2017
Granero Belinchon Carlos, Granero (*Univ Lyon, Ens de Lyon, Univ Claude Bernard, CNRS, Laboratoire d*); Roux, Stéphane* (*ENS Lyon, CNRS*); Garnier, Nicolas B. (*Univ Lyon, ENS de Lyon, Univ Claude Bernard, CNRS*); Abry, Patrice (*ENS Lyon, CNRS*); Doret, Muriel (*Hospices Civils de Lyon Université Lyon I*)

11:20-11:35 ThBT17.3
Portable Neonatal EEG Monitoring and Sonification on an Android Device 2018-2021
Poveda Pena, Jonatan (*Universitat Politècnica de Catalunya*); O'Sullivan, Mark* (*University College Cork*); Popovici, Emanuel (*University College Cork*); Temko, Andriy (*University College Cork*)

11:35-11:50 ThBT17.4
A Semi-Markov Chain Approach to Modeling Respiratory Patterns Prior to Extubation in Preterm Infants 2022-2026
 Onu, Charles Chijioke* (*McGill Univ.*); Kanbar, Lara (*McGill Univ.*); Shalish, Wissam (*McGill Univ.*); Brown, Karen (*McGill Univ.*); Sant'Anna, G.M. (*McGill Univ.*); Kearney, R.E. (*McGill Univ.*); Precup, D. (*McGill Univ.*)

11:50-12:05 ThBT17.5
Influence of ECG Sampling Rate in Fetal Heart Rate Variability Analysis 2027-2030
 De Jonckheere, Julien* (*CHRU de Lille*); Jeanne, Mathieu (*CHRU de Lille*); Logier, Regis (*CHRU de Lille*)

ThBT18: 10:50-12:20 Montgomery Hall
Neural Networks and Support Vector Machines I (Oral Session)
Chair: Huang, Yufei (*University of Texas at San Antonio*)
Co-Chair: Hwang, Han-Jeong (*Kumoh National Institute of Technology*)

10:50-11:05 ThBT18.1
Convolutional Neural Networks for Event-Related Potential Detection: Impact of the Architecture 2031-2034
 Cecotti, Hubert* (*University of Ulster*)

11:05-11:20 ThBT18.2
Design of Deep Convolutional Networks for Prediction of Image Rapid Serial Visual Presentation Events .. 2035-2038
 Mao, Zijing (*UTSA*); Yao, Wan Xiang (*UTSA*); Huang, Yufei* (*University of Texas at San Antonio*)

11:20-11:35 ThBT18.3
A Novel Approach for Automatic Detection of Atrial Fibrillation based on Inter Beat Intervals and Support Vector Machine 2039-2042
 Andersen, Rasmus Sten* (*Technical University of Denmark*); Poulsen, Erik S. (*Cortrium ApS*); Puthusserypady, Sadasivan (*Technical University of Denmark*)

11:35-11:50 ThBT18.4
Informative Sensor Selection and Learning for Prediction of Lower Limb Kinematics using Generative Stochastic Neural Networks 2043-2046
 Chong, Eunsuk (*Korea Institute of Science and Tech.*); Choi, Taejin (*Korea Institute of Science and Tech.*); Kim, Hyungmin (*Korea Institute of Science and Tech.*); Kim, Seung-Jong (*Korea Institute of Science and Tech.*); Hwang, Yoha (*Korea Institute of Science and Tech.*); Lee, Jong Min* (*Korea Institute of Science and Tech.*)

11:50-12:05 ThBT18.5
Using Non-Iterative Methods and Random Weight Networks to Classify Upper-Limb Movements through sEMG Signals 2047-2050
 Cene, Vinicius H. (*UFRGS*); Favieiro, Gabriela Winkler* (*Federal University of Rio Grande do Sul (UFRGS)*); Balbinot, Alexandre (*Federal University of Rio Grande do Sul (UFRGS)*)

ThCT5: 14:20-15:50 Lee Room
Wearable Devices for Cardiovascular Monitoring (Invited Session)
Chair: Chon, Ki (*University of Connecticut*)
Co-Chair: Kim, Insoo (*University of Connecticut Health Center*)

15:20-15:35 ThCT5.5
Exploration and Validation of Alternate Sensing Methods for Wearable Continuous Pulse Transit Time Measurement using Optical and Bioimpedance Modalities 2051-2055
 Ibrahim, Bassem (*Texas A&M Univ.*); Nathan, Viswam (*Texas A&M Univ.*); Jafari, Roozbeh* (*Texas A&M Univ.*)

ThCT6: 14:20-15:50 Zworykin Room
Tissue Engineering (Oral Session)
Chair: Lee, EunAh (*Kyung Hee University*)

14:20-14:35 ThCT6.1
Experimental Research on Oxygen Enrichment in Bioreactors based on Oxygen Carriers N/A
 Wu, Changzhe (*Chinese Academy of Sciences*); Zhang, Cheng (*Chinese Academy of Sciences, Beijing.*); Zhang, Guanghao (*Institute of Electrical Engineering, Chinese Academy of Sciences*); Huo, Xiaolin* (*Chinese Academy of Sciences*)

14:35-14:50	ThCT6.2
In Vitro Cell Culture Study of the Conditions of Inhibition Effect of Tumors under Alternating Electric Field	2060-2063
Huang, Chun-Hao (<i>Chang Gung University</i>); Lei, Kin Fong* (<i>Chang Gung University</i>)	
14:50-15:05	ThCT6.3
Evaluation of Histological and Biomechanical Properties on Engineered Meniscus Tissues using Sonication Decellularization	2064-2067
Mardhiyah, Ainaaul (<i>International Islamic University Malaysia</i>); Sha'ban, Munirah (<i>International Islamic University Malaysia</i>); Azhim, Azran* (<i>International Islamic University Malaysia</i>)	
15:05-15:20	ThCT6.4
Improve Blood Compatibility of Bioresorbable Magnesium Stents Coated with Functionalized Anti-CD34 Antibody and Heparin-Collagen Multiplayers	2068-2071
Kan, Chung-Dann* (<i>Natl. Cheng Kung Univ. Hospital, Dept. of Surgery</i>); Lai, Yi-Ping (<i>Natl. Cheng Kung Univ.</i>)	
15:20-15:35	ThCT6.5
Evaluation of Recellularization on Decellularized Aorta Scaffolds Engineered by Ultrasonication Treatment	2072-2075
Fitriatul, Nurul (<i>International Islamic University Malaysia</i>); Sha'ban, Munirah (<i>International Islamic University Malaysia</i>); Azhim, Azran* (<i>International Islamic University Malaysia</i>)	
15:35-15:50	ThCT6.6
A Three-Dimensional Cell Culture Device for Simulation of Hepatic Hypertension	2076-2079
Kuo, Po-Ling* (<i>National Taiwan University</i>); Phung, Hao-Dinh (<i>National Taiwan University</i>)	

ThCT8: 14:20-15:50	Schwan Room
Brain-Computer Interface III (Oral Session)	
Chair: Lee, Boreom (<i>Gwangju Institute of Science and Technology (GIST)</i>)	

14:20-14:35	ThCT8.1
Phase-Based SSVEPs for Real-Time Control of a Motorised Bed	2080-2084
Gauci, Norbert (<i>University of Malta</i>); Falzon, Owen* (<i>University of Malta</i>); Camilleri, Tracey (<i>University of Malta</i>); Camilleri, Kenneth Patrick (<i>University of Malta</i>)	
14:35-14:50	ThCT8.2
Hierarchical Decoding of Grasping Commands from EEG	2085-2088
Omedes, Jason* (<i>University of Zaragoza</i>); Schwarz, Andreas (<i>Graz, University of Technology</i>); Montesano, Luis (<i>Universidad de Zaragoza</i>); Müller-Putz, Gernot (<i>Graz University of Technology</i>)	
14:50-15:05	ThCT8.3
Detection of Self-Paced Movement Intention from Pre-Movement Electroencephalogram Signals with Hilbert Transform	2089-2092
Zeng, Hong* (<i>Southeast Univ.</i>); Wu, Changcheng (<i>Southeast Univ.</i>); Song, Aiguo (<i>Southeast Univ.</i>); Xu, Baoguo (<i>Southeast Univ.</i>); Li, Huijun (<i>Southeast Univ.</i>); Pengcheng, Wen (<i>AVIC Aeronautics Computing Technique Research Institute</i>); Liu, Jia (<i>Nanjing Univ. of Information Sciences & Technology</i>)	
15:05-15:20	ThCT8.4
The Contribution of Different Frequency Bands in Class Separability of Covert Speech Tasks for BCIs .	2093-2096
Jahangiri, Amir* (<i>University of Essex</i>); Sepulveda, Francisco (<i>University of Essex</i>)	
15:20-15:35	ThCT8.5
EEG Classification for Motor Imagery BCI using Phase-Only Features Extracted by Independent Component Analysis	2097-2100
Qureshi, Muhammad Naveed Iqbal (<i>Gwangju Institute of Science and Tech., Gwangju</i>); Cho, Dongrae (<i>Gwangju Institute of Science and Tech.</i>); Lee, Boreom* (<i>Gwangju Institute of Science and Tech. (GIST)</i>)	
15:35-15:50	ThCT8.6
Speeding Up SVM Training in Brain-Computer Interfaces	2101-2104
Lee, David (<i>The Catholic University of Korea</i>); Lee, Hee-Jae (<i>The Catholic University of Korea</i>); Park, Sang-Hoon (<i>The Catholic Univ. of Korea</i>); Jung, Woo-Hyuk (<i>The Catholic University of Korea</i>); Kim Jaeho, Jaeho (<i>The Catholic University of Korea, Dept. Digital Media</i>); Lee, Sang-Goog* (<i>the Catholic of University of Korea</i>)	

14:20-14:35		ThCT9.1
	Predicting the Stimulation Effectiveness using Pre-Stimulation Neural States via Optogenetic Activation of the Medial Septum Glutamatergic Neurons Modulating the Hippocampal Neural Activity ...	2105-2108
	Park, Sang-Eon* (<i>Georgia Institute of Technology</i>); Laxpati, Nealen (<i>Emory University School of Medicine, Georgia Institute of Techno</i>); Connolly, Mark (<i>Emory University</i>); Mahmoudi, Babak (<i>Emory University</i>); Gross, Robert (<i>Emory University</i>)	
14:35-14:50		ThCT9.2
	Galvanic Vestibular Stimulation (GVS) Effects on Impaired Interhemispheric Connectivity in Parkinson's Disease	2109-2113
	Lee, Soojin* (<i>The University of British Columbia</i>); Kim, Diana (<i>The University of British Columbia</i>); McKeown, Martin (<i>University of British Columbia</i>)	
14:50-15:05		ThCT9.3
	Network-Mediated Responses of ON Ganglion Cells to Electric Stimulation become Less Consistent Across Trials during Retinal Degeneration	2114-2117
	Lee, Jae-Ik* (<i>Henry Ford Health System</i>); Fried, Shelley (<i>Massachusetts General Hospital / Harvard Medical School</i>); Im, Maesoon (<i>Henry Ford Health System</i>)	
15:05-15:20		ThCT9.4
	An Artifact-Suppressed Stimulator for Simultaneous Neural Recording and Stimulation Systems	2118-2121
	Liu, Xu* (<i>Beijing Univ. of Technology</i>); Yao, Lei (<i>Institute of Microelectronics, Singapore</i>); Li, Peng (<i>Institute of Microelectronics</i>); Liu, Lei (<i>Nanyang Technological Univ., Singapore.</i>); Zou, Xiaodan (<i>Institute of Microelectronics, Singapore</i>); Je, Minkyu (<i>Institute of Microelectronics</i>); Xu, Yong Ping (<i>National Univ. of Singapore</i>)	
15:20-15:35		ThCT9.5
	A Machine Learning Approach to Characterizing the Effect of Asynchronous Distributed Electrical Stimulation on Hippocampal Neural Dynamics in Vivo	2122-2125
	Connolly, Mark* (<i>Emory University</i>); Park, Sang-Eon (<i>Georgia Institute of Technology</i>); Gross, Robert (<i>Emory University</i>); Mahmoudi, Babak (<i>Emory University</i>)	
15:35-15:50		ThCT9.6
	Effects of Transcranial Direct Current Stimulation on Steady-State Visual Evoked Potentials	2126-2129
	Liu, Bingchuan (<i>Tsinghua Univ.</i>); Chen, Xiaogang (<i>Institute of Biomedical Engineering, Chinese Academy of Medical</i>); Yang, Chen (<i>Tsinghua Univ.</i>); Wu, Jian (<i>Tsinghua Univ.</i>); Gao, Xiaorong* (<i>Tsinghua Univ.</i>)	

14:20-14:35		ThCT10.1
	A Novel Blood Pressure Estimation Method Combing Pulse Wave Transit Time Model and Neural Network Model	2130-2133
	Xu, Jun (<i>Shanghai University</i>); Jiang, Jiehui* (<i>Shanghai University</i>); Zhou, Hucheng (<i>Shanghai University</i>); Yan, Zhuangzhi (<i>Shanghai University</i>)	
14:35-14:50		ThCT10.2
	Assessment of Stress Wave Induced by Diode Laser	N/A
	Oh, Han-Byeol (<i>Konkuk University</i>); Kim, Ji-Sun (<i>Konkuk University</i>); Baek, Jin-Young (<i>Konkuk University</i>); Jun, Jae-Hoon* (<i>Konkuk University</i>)	
14:50-15:05		ThCT10.3
	Elastic Modulus Estimation based on Local Displacement Observation of Elastic Body	2138-2141
	Morita, Mitsuki* (<i>Kyoto University</i>); Nakao, Megumi (<i>Kyoto University</i>); Matsuda, Tetsuya (<i>Kyoto University</i>)	

15:05-15:20 ThCT10.4
The Classification for “Equilibrium Triad” Sensory Loss based on sEMG Signals of Calf Muscles 2142-2145
Yu, Hairong* (*University of Technology, Sydney*); Guo, Kairui (*University of Technology, Sydney*); Luo, Jie (*Sun Yat-sen University*); Cao, Kai (*University of Technology, Sydney*); Nguyen, Hung T. (*University of Technology, Sydney*); Su, Steven Weidong (*University of Technology, Sydney*)

15:20-15:35 ThCT10.5
Likelihood-Based Artefact Detection in Continuously-Acquired Patient Vital Signs 2146-2149
Colopy, Glen Wright* (*University of Oxford*); Zhu, Tingting (*University of Oxford*); Clifton, Lei (*University of Oxford*); Roberts, Stephen (*University of Oxford*); Clifton, David (*University of Oxford*)

15:35-15:50 ThCT10.6
Accuracy of a Wavelet-Based Fall Detection Approach using an Accelerometer and a Barometric Pressure Sensor 2150-2153
Ejupi, Andreas* (*Simon Fraser Univ. (SFU)*); Galang, Chantel (*Simon Fraser Univ.*); Aziz, Omar (*Simon Fraser Univ.*); Park, Edward J. (*Simon Fraser Univ.*); Robinovitch, Stephen (*Simon Fraser Univ.*)

ThCT11: 14:20-15:50 Greatbatch Room
Recent Advances on Cuff-Less Blood Pressure Measurement Technology II (Minisymposium)
Chair: Mukkamala, Ramakrishna (*Michigan State University*)
Co-Chair: Mestha, Lalit, K. (*GE Global Research*)

15:20-15:35 ThCT11.5
Arterial Blood Pressure Estimation using Ultrasound: Clinical Results on Healthy Volunteers and a Medicated Hypertensive Volunteer 2154-2157
Zakrzewski, Aaron M.* (*Massachusetts Institute of Tech.*); Anthony, Brian W. (*Massachusetts Institute of Tech.*)

ThCT12: 14:20-15:50 Geddes Room
Modeling of Modern Devices and Technologies with Computational Human Phantoms – III (Invited Session)
Chair: Wenger, Cornelia (*Novocure GmbH*)

14:35-14:50 ThCT12.2
Transmit Coil Design for Wireless Power Transfer for Medical Implants 2158-2161
Lemdiasov, Rosti (*Cambridge Consultants*); Venkatasubramanian, Arun* (*Cambridge Consultants*)

15:20-15:35 ThCT12.5
A Comparison of Two Anatomical Body Models Derived from the Female Visible Human Project Data ... 2162-2165
Massey, Jackson White (*University of Texas at Austin*); Prokop, Alexander* (*Computer Simulation Technology*); Yilmaz, Ali (*University of Texas at Austin*)

ThCT13: 14:20-15:50 Dunn Room
Tissue Stimulation Technologies (Oral Session)
Chair: Panescu, Dorin (*Advanced Cardiac Therapeutics*)
Co-Chair: Cheng, Leo (*The University of Auckland*)

14:20-14:35 ThCT13.1
Measurement of Perception Thresholds for Electrical Noise Stimuli 2166-2169
Karpul, David (*University of Western Sydney, University of Cape Town*); McIntyre, Sarah (*Western Sydney University*); van Schaik, André (*The University of Sydney*); Breen, Paul* (*University of Western Sydney*)

14:35-14:50 ThCT13.2
New Conducted Electrical Weapons: Finite Element Modeling of Safety Margins 2170-2176
Panescu, Dorin* (*Advanced Cardiac Therapeutics*); Kroll, Mark William (*University of Minnesota*); Brave, Michael (*LAAW International, LLC, Scottsdale, AZ*)

14:50-15:05 ThCT13.3
System Design and Experimental Research of Lower Esophageal Sphincter Stimulator for Treatment of Gastroesophageal Reflux Disease 2177-2180
 Sun, Xinchun (*Southeast Univ.*); Tao, Wanjun (*Southeast Univ.*); Zhu, Chuanning (*Southeast Univ.*); Zhao, Lili (*The First Affiliated Hospital of Nanjing Medical Univ.*); Wang, Min (*Nanjing Medical Univ.*); Lü, Xiaoying* (*Southeast Univ.*); Wang, Zhigong (*Southeast Univ.*); Fan, Zhining (*The First Affiliated Hospital of Nanjing Medical Univ.*)

15:05-15:20 ThCT13.4
Design and Application of a Novel Gastric Pacemaker 2181-2184
 Alighaleh, Saeed (*Auckland Bioengineering Institute, Univ. of Auckland*); Angeli, Timothy Robert (*Auckland Bioengineering Institute, Univ. of Auckland*); Sathar, Shameer (*Univ. of Auckland*); O'Grady, Gregory (*Univ. of Auckland*); Cheng, Leo K* (*The Univ. of Auckland*); Paskaranandavadivel, Niranchan (*The Univ. of Auckland*)

15:20-15:35 ThCT13.5
New Conducted Electrical Weapons: Electrical Safety Relative to Relevant Standards 2185-2190
 Panescu, Dorin* (*Advanced Cardiac Therapeutics*); Nerheim, Max (*TASER International*); Kroll, Mark William (*University of Minnesota*); Brave, Michael (*LAAW International, LLC, Scottsdale, AZ*)

15:35-15:50 ThCT13.6
New Conducted Electrical Weapons: Thoracic Cage Shielding Effect 2191-2196
 Panescu, Dorin* (*Advanced Cardiac Therapeutics*); Kroll, Mark William (*University of Minnesota*); Brave, Michael (*LAAW International, LLC, Scottsdale, AZ*)

ThCT17: 14:20-15:50	Einthoven Hall
Signal Processing and Modelling Techniques for Fetal Monitoring (Invited Session)	
Chair: Khandoker, Ahsan Habib (<i>Khalifa University of Science, Technology and Research</i>)	

14:20-14:35 ThCT17.1
Investigating Fetal Myocardial Function in Heart Anomalies by Doppler Myocardial Performance Indices ... 2197-2200
 Khandoker, Ahsan Habib* (*Khalifa University of Science, Technology and Research*); Alangari, Haitham M. (*Khalifa University*); Marzbanrad, Faezeh (*The University of Melbourne*); Kimura, Yoshitaka (*Tohoku Univ*)

14:35-14:50 ThCT17.2
Detecting Fetal Heart Sounds by Means of Fractal Dimension Analysis in the Wavelet Domain 2201-2204
 Koutsiana, Elisavet* (*Lab. of Medical Informatics, The Medical School, Aristotle Univ*); Hadjileontiadis, Leontios (*Aristotle University of Thessaloniki*); Chouvarda, Ioanna (*Aristotle University*); Khandoker, Ahsan Habib (*Khalifa University of Science, Technology and Research*)

ThCT18: 14:20-15:50	Montgomery Hall
Kalman Filtering (Oral Session)	
Chair: Hamid, Laith (<i>University of Kiel</i>)	

14:20-14:35 ThCT18.1
Self-Reported Well-Being Score Modelling and Prediction: Proof-of-Concept of an Approach based on Linear Dynamic Systems 2205-2208
 Li, Xinyang (*National University of Singapore*); Poli, Riccardo (*University of Essex*); Valenza, Gaetano (*University of Pisa*); Scilingo, Enzo Pasquale (*University of Pisa*); Citi, Luca* (*University of Essex*)

14:35-14:50 ThCT18.2
Removal of Spurious Phase Variations in Oscillatory Signals 2209-2212
 Morteza pouraghdam, Zeinab* (*Saarland University*); Strauss, Daniel J. (*Saarland University, Medical Faculty*)

14:50-15:05 ThCT18.3
Spatial Projection as a Preprocessing Step for EEG Source Reconstruction using Spatiotemporal Kalman Filtering 2213-2217
 Hamid, Laith* (*Univ. of Kiel*); Al Farawn, Ali (*Univ. of Kufa*); Merlet, Isabelle (*INSERM - Université de Rennes 1*); Japaridze, Natia (*Dept. of Neuropediatrics, Christian-Albrechts-Univ. of*); Heute, Ulrich (*Univ. of Kiel*); Stephani, Ulrich (*Christian-Albrechts-Univ. of Kiel*); Galka, Andreas (*Christian-Albrechts-Univ. of Kiel*); Wendling, Fabrice (*INSERM - Université de Rennes 1*); Siniatchkin, Michael (*Univ. of Kiel*)

15:05-15:20	ThCT18.4
Source Reconstruction via the Spatiotemporal Kalman Filter and LORETA from EEG Time Series with 32 or Fewer Electrodes	2218-2222
Hamid, Laith* (<i>Univ. of Kiel</i>); Al Farawn, Ali (<i>Univ. of Kufa</i>); Merlet, Isabelle (<i>INSERM - Université de Rennes 1</i>); Japaridze, Natia (<i>Dept. of Neuropediatrics, Christian-Albrechts-Univ. of</i>); Heute, Ulrich (<i>Univ. of Kiel</i>); Stephani, Ulrich (<i>Christian-Albrechts-Univ. of Kiel</i>); Galka, Andreas (<i>Christian-Albrechts-Univ. of Kiel</i>); Wendling, Fabrice (<i>INSERM - Université de Rennes 1</i>); Siniatchkin, Michael (<i>Univ. of Kiel</i>)	
15:20-15:35	ThCT18.5
Detecting Dynamical Changes in Vital Signs using Switching Kalman Filter	2223-2226
Almeida, Vania* (<i>Aston University</i>); Nabney, Ian T. (<i>Aston University</i>)	
15:35-15:50	ThCT18.6
A Kalman Filter Approach with State Inequality Constraints for Real-Time Prediction of Intradialytic Hypotension using a PVDF Sensor	2227-2230
Ansari, Sardar* (<i>University of Michigan</i>); Molaei, Somayeh (<i>University of Michigan</i>); Oldham, Kenn (<i>University of Michigan</i>); Heung, Michael (<i>University of Michigan</i>); Ward, Kevin (<i>University of Michigan</i>); Najarian, Kayvan (<i>University of Michigan - Ann Arbor</i>)	

ThDT1-01: 16:10-17:10	Roentgen Hall
Adaptive Filtering I (Poster Session)	

16:10-16:12	ThDT1-01.1
EEG-Based Emotion Estimation using Adaptive Tracking of Discriminative Frequency Components	2231-2234
Liu, Shuang* (<i>Tianjin Univ.</i>); Zhang, Di (<i>Tianjin Univ.</i>); Tong, Jingjing (<i>Tianjin Univ.</i>); He, Feng (<i>Tianjin Univ.</i>); Qi, Hongzhi (<i>Tianjin Univ.</i>); Zhang, Lixin (<i>Tianjin Univ.</i>); Ming, Dong (<i>Tianjin Univ.</i>)	
16:12-16:14	ThDT1-01.2
A Template Subtraction Method for the Removal of Cardiogenic Oscillations on Esophageal Pressure Signals	2235-2238
Graßhoff, Jan* (<i>University of Luebeck</i>); Petersen, Eike (<i>University of Lübeck</i>); Eger, Marcus (<i>Dräger Medical</i>); Bellani, Giacomo (<i>Dept. of Experimental Medicine, University of Milan-Bicocca</i>); Rostalski, Philipp (<i>Institute for Electrical Engineering in Medicine, University of</i>)	
16:14-16:16	ThDT1-01.3
FPGA Implementation of Adaptive Beamforming in Hearing Aids	2239-2242
Samtani, Kartik (<i>National Institute of Technology Karnataka</i>); Thomas, Jobin (<i>National Institute of Technology Karnataka</i>); Varma, Abhinav (<i>National Institute of Technology Karnataka</i>); David S., Sumam (<i>National Institute of Technology Karnataka, Surathkal</i>); S. P., Deepu* (<i>National Institute of Technology Karnataka</i>)	
16:16-16:18	ThDT1-01.4
Detection of user Independent Single Trial ERPs in Brain Computer Interfaces: An Adaptive Spatial Filtering Approach	2243-2246
Leza Lahuerta, Cristina* (<i>Univ. Politecnica de Madrid</i>); Puthusserypady, Sadasivan (<i>Tech. Univ. of Denmark</i>)	

ThDT1-02: 16:10-17:10	Roentgen Hall
Connectivity Analysis I (Poster Session)	

16:10-16:12	ThDT1-02.1
Low-Latency VLSI Architecture for Neural Cross-Frequency Coupling Analysis	2247-2250
O Leary, Gerard* (<i>Univ. of Toronto</i>); Valiante, Taufik A. (<i>Univ. of Toronto</i>); Genov, Roman (<i>Univ. of Toronto</i>)	
16:12-16:14	ThDT1-02.2
Neuronal Desynchronization as Marker of an Impaired Brain Network	2251-2254
Schulz, Steffen (<i>University of Applied Sciences Jena</i>); Legorburu Cladera, Borja (<i>Universitat Politècnica de Catalunya</i>); Giraldo, Beatriz (<i>Universitat Politècnica de Catalunya</i>); Bolz, Mathias (<i>University Hospital Jena</i>); Bär, Karl-Jürgen (<i>Friedrich-Schiller-University of Jena</i>); Voss, Andreas* (<i>University of Applied Sciences Jena</i>)	

16:14-16:16 ThDT1-02.3
Coherence Analysis of Invasive Blood Pressure and Its Noninvasive Indicators for Improvement of Cuffless Measurement Accuracy 2255-2258
Ding, Xiao-Rong (*The Chinese Univ. of Hong Kong*); Yan, Bryan P. (*Prince of Wales Hospital, The Chinese Univ. of Hong Kong*); Zhang, Yuan-Ting (*The Chinese Univ. of Hong Kong*); Liu, Jing (*The Chinese Univ. of Hong Kong*); Su, Peng (*The Chinese Univ. of Hong Kong*); Zhao, Ni* (*The Chinese Univ. of Hong Kong*)

16:16-16:18 ThDT1-02.4
Phase-Amplitude Coupling Analysis of Spontaneous EEG Activity in Alzheimer's Disease 2259-2262
Poza, Jesus* (*Univ. of Valladolid*); Bachiller, Alejandro (*Univ. of Valladolid*); Gomez, Carlos (*Univ. of Valladolid*); Garcia, Maria (*Univ. of Valladolid*); Núñez, Pablo (*Univ. of Valladolid*); Gomez-Pilar, Javier (*Univ. of Valladolid*); Tola-Arribas, Miguel A. (*Dept. of Neurology, Hospital Universitario Río Hortega*); Cano, Mónica (*Dept. of Clinical Neurophysiology, Hospital Universitario R*); Hornero, Roberto (*Univ. of Valladolid*)

16:18-16:20 ThDT1-02.5
Study on the Effects of Brightness Contrast on Steady-State Motion Visual Evoked Potential 2263-2266
Yan, Wenqiang (*Xi'an Jiaotong University*); Xu, Guanghua* (*Xi'an Jiaotong University*); Xie, Jun (*Xi'an Jiaotong University*); Li, Min (*School of Mechanical Engineering, Xi'an Jiaotong University*); Zhang, Sicong (*Xi'an Jiaotong University*); Luo, Ailing (*Xi'an Jiaotong University*)

ThDT1-03: 16:10-17:10 Roentgen Hall
Data Mining I (Poster Session)

16:10-16:12 ThDT1-03.1
Template-DTW based on Inertial Signals: Preliminary Results for Step Characterization 2267-2270
Mantilla, Juan* (*Université Paris Descartes*); Oudre, Laurent (*L2TI, Université Paris 13*); Barrios, Rémi (*COGNAC G Université Paris Descartes*); Vienne, Aliénor (*COGNACG, CNRS/SSA UMR 8257, Université Paris Descartes*); Ricard, Damien (*COGNACG, CNRS/SSA UMR 8257, Université Paris Descartes*)

16:12-16:14 ThDT1-03.2
Using Spatial Features for Classification of Combined Motions based on Common Spatial Pattern 2271-2274
Lu, Huiyang (*School of Data and Computer Science, Sun Yat-sen University*); Zhang, Haoshi (*Shenzhen Institutes of Advanced Technology*); Wang, Zhong (*School of Data and Computer Science, Sun Yat-sen University*); Wang, Ruomei (*School of Data and Computer Science, Sun Yat-sen University*); Li, Guanglin* (*Shenzhen Institutes of Advanced Technology*)

16:14-16:16 ThDT1-03.3
Surgical Gesture Classification using Dynamic Time Warping and Affine Velocity 2275-2278
Cifuentes Quintero, Jenny Alexandra (*Universidad Nacional de Colombia*); Pham, Minh Tu* (*Institut National des Sciences Appliquées (INSA de Lyon)*); Moreau, Richard (*INSA-Lyon*); Prieto, Flavio (*Universidad Nacional de Colombia*); Boulanger, Pierre (*University of Alberta*)

16:16-16:18 ThDT1-03.4
Biological Tissues Identification from their Raman Spectral Signals Acquired by a Raman Needle 2279-2282
Yang, Tangwen* (*Beijing Jiaotong University*); Zheng, Jiawen (*Beijing Jiaotong University*)

16:18-16:20 ThDT1-03.5
Counting Malaria Parasites with a Two-Stage EM based Algorithm using Crowdsourced Data 2283-2287
Cabrera-Bean, Margarita* (*Universitat Politècnica de Catalunya, UPC, BarcelonaTECH*); Pagès-Zamora, Alba (*Universitat Politècnica de Catalunya*); Diaz-Vilor, Carles (*Universitat Politècnica de Catalunya*); Postigo Camps, Maria (*Technical University of Madrid*); Cuadrado Sanchez, Daniel (*Technical University of Madrid*); Luengo-Oroz, Miguel Angel (*Universidad Politécnica de Madrid*)

16:20-16:22 ThDT1-03.6
Elastic Net based Sparse Feature Learning and Classification for Alzheimer's Disease Identification 2288-2291
Wang, Ling (*University of Electronic Science and Technology of China*); Liu, Yan* (*University of Chinese Academy of Sciences*); Zeng, Xiangzhu (*Peking University Third Hospital, Beijing, China*); Wang, Zheng (*Capital University of Medical Sciences*)

16:22-16:24 ThDT1-03.7
Reducing False Asystole Alarms in Intensive Care 2292-2295
Dekimpe, Remi (*University Catholique de Louvain*); Heldt, Thomas* (*Massachusetts Institute of Technology*)

Nonlinear Dynamic Analysis III (Poster Session)

- 16:10-16:12 ThDT1-04.1
Elimination of Power Line Interference from ECG Signals using Recurrent Neural Networks 2296-2299
 Qiu, Yue* (*Zhejiang University*); Xiao, Feng (*Zhejiang University*); Shen, Haibin (*Zhejiang University*)
- 16:12-16:14 ThDT1-04.2
**A Novel Heart Rate Variability Analysis using Lagged Poincaré Plot:
 A Study on Hedonic Visual Elicitation** 2300-2303
 Nardelli, Mimma (*University of Pisa*); Greco, Alberto (*University of Pisa*); Valenza, Gaetano (*University of Pisa*);
 Lanata', Antonio (*University of Pisa*); Bailon, Raquel (*University of Zaragoza*); Scilingo, Enzo Pasquale*
 (*University of Pisa*)
- 16:14-16:16 ThDT1-04.3
Pressure Ulcer Risk Detection from Complexity of Activity 2304-2307
 Padhye, Nikhil* (*Univ of Texas Health Science Center*); Bergstrom, Nancy (*The University of Texas
 Health Science Center at Houston*); Rapp, Mary (*Retired*); Etcher, LuAnn (*Spring Arbor University
 School of Human Services*); Redeker, Nancy (*Yale School of Nursing*)
- 16:16-16:18 ThDT1-04.4
Feature Analysis of Dysphonia Speech for Monitoring Parkinson's Disease 2308-2311
 Rueda, Alice* (*Ryerson University*); Krishnan, Sridhar (*Ryerson University*)
- 16:18-16:20 ThDT1-04.5
**Heart Rate Variability in Patients with Major Depressive Disorder and Healthy Controls
 during Non-REM Sleep and REM Sleep** 2312-2315
 Kwon, Hyunbin (*Seoul National University*); Yoon, Heenam (*Seoul National University*); Jung, Dawoon (*Seoul
 National University*); Choi, Sangho (*Seoul National University*); Choi, Jaewon (*Seoul National University
 Hospital*); Lee, Yujin (*Seoul National University Hospital*); Jeong, Do-Un (*Seoul National University Hospital*);
 Park, Kwang S.* (*Seoul National University*)
- 16:20-16:22 ThDT1-04.6
Complexity Analysis of EEG under Magnetic Stimulation on Acupoint of Guangming (GB37) 2316-2319
 Geng, Yuehua* (*Hebei University of Technology*); Xing, Yangyang (*Hebei University of Technology*);
 Zhang, Xin (*Tianjin Polytechnic University*); Ge, Manling (*Hebei University of Technology*)
- 16:22-16:24 ThDT1-04.7
**Higuchi Fractal Dimension of the Electroencephalogram as a Biomarker for
 Early Detection of Alzheimer's Disease** 2320-2324
 Al-nuaimi, Ali H. Hussein* (*University of Plymouth*); Jammeh, Emmanuel (*Plymouth University, School of
 Computing and Mathematics*); Sun, Lingfen (*Plymouth University, School of Computing and Mathematics*);
 Ifeakor, Emmanuel (*University of Plymouth*)
- 16:24-16:26 ThDT1-04.8
Comparison of Different Shielding Methods in Acquisition of Physiological Signals 2325-2328
 Jiang, Yanbing (*Shenzhen Institutes of Advanced Technology*); Ji, Ning (*Shenzhen Institutes of Advanced
 Technology*); Wang, Hui (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Liu, Xueyu
 (*Chongqing University of Technology*); Geng, Yanjuan (*Shenzhen Institutes of Advanced Technology*); Li, Peng
 (*The Third Affiliated Hospital of Sun Yat-Sen University*); Chen, Shixiong* (*Shenzhen Institutes of Advanced
 Technology*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)
- 16:26-16:28 ThDT1-04.9
**Investigation of Lagged Poincaré Plot Reliability in Ultra-Short Synthetic and
 Experimental Heart Rate Variability Series** 2329-2332
 Nardelli, Mimma (*University of Pisa*); Greco, Alberto (*University of Pisa*); Bolea, Juan (*Instituto de Investigación
 en Ingeniería de Aragón (I3A) Universi*); Valenza, Gaetano (*University of Pisa*); Scilingo, Enzo Pasquale*
 (*University of Pisa*); Bailon, Raquel (*University of Zaragoza*)

ThDT4-01: 16:10-17:10 Integrated Wearable Systems I (Poster Session)	Min Room
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|---|--|-------------------------|
| 16:10-16:12 | Noninvasive Hemoglobin Measurement using Unmodified Smartphone Camera and White Flash | ThDT4-01.1
2333-2336 |
| Wang, Edward* (<i>University of Washington</i>); Li, William (<i>University of Washington</i>); Zhu, Junyi (<i>University of Washington</i>); Rana, Rajneil (<i>University of Washington</i>); Patel, Shwetak (<i>University of Washington</i>) | | |
| 16:12-16:14 | Development of a Portable Sensorised Handle for the Objective Assessment of the Effectiveness and Concordance of Intervention Plans in Dementia | ThDT4-01.2
2337-2340 |
| Ma, Jianjia* (<i>Loughborough University</i>); Zecca, Massimiliano (<i>Loughborough University</i>) | | |
| 16:14-16:16 | Personalized Cumulative UV Tracking on Mobiles and Wearables | ThDT4-01.3
2341-2344 |
| Dey, Soumyabrata (<i>Samsung R & D Institute, Bangalore, India</i>); Sahoo, Saswata (<i>Samsung R & D Institute, Bangalore, India</i>); Agrawal, Harshit (<i>Samsung Research Institute Bangalore</i>); Mondal, Arindam (<i>Samsung R&D Institute India Bangalore</i>); Bhowmik, Tanmoy* (<i>Samsung Research Institute</i>); Tiwari, Vijay Narayan (<i>Samsung Research India, Banglore</i>) | | |
| 16:16-16:18 | A Gaussian Process Regression Model for Walking Speed Estimation using a Head-Worn IMU | ThDT4-01.4
2345-2348 |
| Zihajehzadeh, Shaghayegh* (<i>PhD Student, Simon Fraser University</i>); Tae, Chul-Gyu (<i>Bigmotion Technologies</i>); Park, Edward J. (<i>Simon Fraser University</i>) | | |
| 16:18-16:20 | Wearable Bio Signal Monitoring System Applied to Aviation Safety | ThDT4-01.5
2349-2352 |
| Kim, Sungho (<i>Air Force Academy</i>); Choi, Booyong (<i>Air Force Academy</i>); Cho, Taehwan (<i>Air Force Academy</i>); Lee, Yongkyun (<i>Air Force Academy</i>); Koo, Hyojin (<i>Air Force Academy</i>); Kim, Dongsoo* (<i>Air Force Academy</i>) | | |

ThDT4-02: 16:10-17:10 Wearable Sensing I (Poster Session)	Min Room
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|---|--|-------------------------|
| 16:10-16:12 | A Simple Algorithm for Emotion Recognition, using Physiological Signals of a Smart Watch | ThDT4-02.1
2353-2356 |
| Pollreisz, David (<i>TU Wien</i>); TaheriNejad, Nima* (<i>TU Wien</i>) | | |
| 16:12-16:14 | A Prospective Study of Examining Physiological Signals for Estimating Occurrence of Nocturnal Enuresis | ThDT4-02.2
2357-2360 |
| Moon, Junhyung* (<i>Yonsei Univ.</i>); Lee, Sangyeop (<i>Yonsei Univ.</i>); Lee, Taeho (<i>Yonsei Univ.</i>); Kye, Saewon (<i>Yonsei Univ.</i>); Lee, Yong Seung (<i>Yonsei Univ.</i>); Shin, Seung-chul (<i>Yonsei Univ.</i>); Lee, K. (<i>Yonsei Univ.</i>) | | |
| 16:14-16:16 | Wearable Internet of Things – From Human Activity Tracking to Clinical Integration | ThDT4-02.3
2361-2364 |
| Kumari, Poonam (<i>Kyung Hee Univ.</i>); Loópez-Benítez, Miguel (<i>Univ. of Liverpool</i>); Lee, Gyu Myoung (<i>Liverpool John Moores Univ.</i>); Kim, Tae-Seong (<i>Kyung Hee Univ.</i>); Minhas, Atul Singh* (<i>Univ. of Liverpool</i>) | | |
| 16:16-16:18 | Reconstructing Physical Activity Monitoring Outcome Measures using an Interval Sampling Approach ... | ThDT4-02.4
2365-2368 |
| Amor, James (<i>University of Warwick</i>); James, Christopher* (<i>University of Warwick</i>) | | |
| 16:18-16:20 | Levels of Activity Identification and Sleep Duration Detection with a Wrist-Worn Accelerometer-Based Device | ThDT4-02.5
2369-2372 |
| Verma, Vijay Kumar* (<i>Chang Gung University</i>); Lin, Wen-Yen (<i>Chang Gung University</i>); Lee, Ming-Yih (<i>Chang Gung University</i>); Lai, Chao-Sung (<i>Chang Gung University</i>) | | |
| 16:20-16:22 | A Monitoring System for Walking Rehabilitation after THR or TKR Surgeries | ThDT4-02.6
2373-2376 |
| Zheng, Qianpeng (<i>Tsinghua University</i>); Chen, Hong* (<i>Tsinghua Univ.</i>) | | |

16:22-16:24 ThDT4-02.7
A Wearable Sensor based Multi-Criteria-Decision-System for Real-Time Seizure Detection 2377-2380
 Ahmed, Abdullah (*National Univ. of Sciences and Technology*); Ahmad, Waqas (*NUST*); Khan, Muhammad Jazib (*National Univ. of Sciences and Technology*); Siddiqui, Shoaib Ahmed (*National Univ. of Sciences and Technology*); Cheema, Hammad M.* (*School of Electrical Engineering and Computer Science, National*)

16:24-16:26 ThDT4-02.8
A Novel Method to Monitor Human Stress States using Ultra-Short-Term ECG Spectral Feature 2381-2384
 Hwang, Bosun (*Seoul National University*); Ryu, Ji Woo (*Kwangwoon University*); Park, Cheolsoo (*Imperial College London*); Zhang, Byoung-Tak* (*Seoul National University*)

16:26-16:28 ThDT4-02.9
A Wearable Action Recognition System based on Acceleration and Attitude Angles using Real-Time Detection Algorithm 2385-2389
 Zhao, Guoru* (*Shenzhen Institutes of Advanced Technology Chinese Academy of Sci*); Wang, Bo (*Wuhan Univ. of Technology*); Liang, Shengyun (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Ni, Xie (*Core Laboratory, Shenzhen Second People's Hospital, First Affili*); Ma, Yingnan (*Beijing Research Center of Urban System Engineering*); Gao, Xing (*Beijing Research Center of Urban System Engineering*)

ThDT4-03: 16:10-17:10	Min Room
Wearable Systems I (Poster Session)	

16:10-16:12 ThDT4-03.1
IoT/M2M Wearable-Based Activity-Calorie Monitoring and Analysis for Elders 2390-2393
 Soraya, Sabrina Ifahdini (*National Chiao Tung Univ.*); Chiang, Ting-Hui (*National Chiao Tung Univ.*); Chan, Guo-Jing (*National Chiao Tung Univ.*); Su, Yi-Juan (*National Chiao Tung Univ.*); Yi, Chih-Wei (*National Chiao Tung Univ.*); Tseng, Yu-Chee (*National Chiao Tung Univ.*); Ching, YuTai* (*National Chiao Tung Univ.*)

16:12-16:14 ThDT4-03.2
High-Density Ear-EEG 2394-2397
 Kappel, Simon Lind* (*Aarhus University, Denmark*); Kidmose, Preben (*Aarhus University, Denmark*)

16:14-16:16 ThDT4-03.3
A Model based Analysis of Optimality of Sit-to-Stand Transition 2398-2401
 Madhushri, Priyanka (*Univ. of Alabama in Huntsville*); Jovanov, Emil* (*Univ. of Alabama in Huntsville*); Milenkovic, Aleksandar (*Univ. of Alabama in Huntsville*); Shtessel, Yuri (*Univ. of Alabama in Huntsville*)

16:16-16:18 ThDT4-03.4
A Novel, Low Cost, Wearable Contact-Based Device for Breathing Frequency Monitoring 2402-2405
 Cesareo, Ambra* (*Dipartimento di Elettronica, Informazione e Bioingegneria, Polit*); Gandolfi, Stefano (*Dipartimento di Elettronica, Informazione e Bioingegneria, Polit*); Pini, Ilaria (*Dipartimento di Elettronica, Informazione e Bioingegneria, Polit*); Biffi, Emilia (*Scientific Institute Eugenio Medea, Bosisio Parini*); Reni, Gianluigi (*IRCCS*); Aliverti, Andrea (*Politecnico di Milano*)

16:18-16:20 ThDT4-03.5
Gait Speed Estimation using Kalman Filtering on Inertial Measurement Unit Data 2406-2409
 Alam, Md Nafiu (*University of North Dakota*); Munia, Tamanna Tabassum Khan (*University of North Dakota*); Fazel-Rezai, Reza* (*University of North Dakota*)

16:20-16:22 ThDT4-03.6
Patient Cloth with Motion Recognition Sensors based on Flexible Piezoelectric Materials 2410-2413
 Cha, Youngsu* (*Korea Institute of Science and Technology*); Nam, Kihyuk (*Korea Institute of Science and Technology*); Kim, Doik (*Korea Institute of Science and Technology*)

16:22-16:24 ThDT4-03.7
Towards an IoT-Based Upper Limb Rehabilitation Assessment System 2414-2417
 Jiang, Yizhou (*Fudan University*); Qin, Yajie* (*Fudan University*); Kim, IkHwan (*Fudan University*); Wang, Yuanyuan (*Fudan University*)

16:24-16:26	ThDT4-03.8
Experimental Characterization and Analysis of the BITalino Platforms against a Reference Device	2418-2421
Batista, Diana* (<i>Instituto Superior Técnico</i>); Plácido da Silva, Hugo (<i>IST - Instituto Superior Técnico</i>); Fred, Ana (<i>IT - Instituto de Telecomunicações</i>)	
16:26-16:28	ThDT4-03.9
Wearable PPG Sensor based Alertness Scoring System	2422-2425
Dey, Jishnu (<i>Samsung R&D Institute India, Bangalore</i>); Bhowmik, Tanmoy* (<i>Samsung Research Institute</i>); Sahoo, S. (<i>Samsung R & D Institute, Bangalore, India</i>); Tiwari, V.N. (<i>Samsung Research India, Bangalore</i>)	
16:28-16:30	ThDT4-03.10
Impedance Spectroscopy of Tripolar Concentric Ring Electrodes with Ten20 and TD246 Pastes	2426-2429
Nasrollahhosseini, Seyed Hadi* (<i>University of Rhode Island</i>); Besio, W. G. (<i>University of Rhode Island</i>); Salazar Herrera, Daniel (<i>University of Rhode Island</i>)	

ThDT8-01: 16:10-17:10	Schwan Room
Human Performance III (Poster Session)	

16:10-16:12	ThDT8-01.1
Using Cognitive Fit Theory to Evaluate Patient Understanding of Medical Images	2430-2433
Gichoya, Judy* (<i>Indiana Univ.</i>); Alarifi, Mohammad (<i>IUPUI</i>); Bhaduri, Ria (<i>Indiana Univ. Purdue Univ. Indianapolis</i>); Tahir, Bilal (<i>Indiana Univ.</i>); Purkayastha, Saptarshi (<i>Indiana Univ. Purdue Univ. Indianapolis</i>)	
16:12-16:14	ThDT8-01.2
Computing the Variations in the Self-Similar Properties of the Various Gait Intervals in Parkinson Disease Patients	2434-2437
Manjeri Keloth, Sana (<i>RMIT</i>); Poosapadi Arjunan, Sridhar* (<i>RMIT Univ.</i>); Kant Kumar, Dinesh (<i>RMIT Univ.</i>)	
16:14-16:16	ThDT8-01.3
CNN based Approach for Activity Recognition using a Wrist-Worn Accelerometer	2438-2441
Panwar, Madhuri (<i>IIT Hyderabad</i>); Sristi, Ram Dyuthi (<i>Indian Institute of Technology Hyderabad</i>); Konkimalla, Chandra Prakash (<i>Indian Institute of Technology Hyderabad</i>); Biswas, Dwaipayan (<i>University of Southampton</i>); Acharyya, Amit* (<i>Indian Institute of Technology Hyderabad</i>); Maharatna, Koushik (<i>University of Southampton</i>); Gautam, Arvind Kumar (<i>IIT Hyderabad</i>); Naik, Ganesh R (<i>University of Technology Sydney</i>)	
16:16-16:18	ThDT8-01.4
The Timing of Theta Phase Synchronization Accords with Vigilant Attention	2442-2445
Wei, Jinwen (<i>Tianjin Univ.</i>); Ke, Yufeng (<i>Tianjin Univ.</i>); Sun, Chang (<i>Tianjin Univ.</i>); An, Xingwei (<i>Tianjin Univ.</i>); Qi, Hongzhi (<i>Tianjin Univ.</i>); Ming, Dong (<i>Tianjin Univ.</i>); Zhou, Peng* (<i>Tianjin Univ.</i>)	
16:18-16:20	ThDT8-01.5
Role of Multisensory Stimuli in Vigilance Enhancement – A Single Trial Event Related Potential Study ..	2446-2449
Abbasi, Nida Itrat* (<i>National University of Singapore</i>); Bodala, Indu Prasad (<i>National University of Singapore</i>); Bezerianos, Anastasios (<i>National University of Singapore</i>); Sun, Yu (<i>National University of Singapore</i>); Al-Nashash, Hasan (<i>American University of Sharjah</i>); Thakor, Nitish (<i>Johns Hopkins University</i>)	
16:20-16:22	ThDT8-01.6
Automatic Visual Impairment Detection System for Age-Related Eye Diseases through Gaze Analysis ..	2450-2453
Yow, Ai Ping* (<i>Institute for Infocomm Research</i>); Wong, Damon (<i>Institute for Infocomm Research</i>); Liu, Huiying (<i>Institute for Infocomm Research</i>); Zhu, Hongyuan (<i>Tan Tock Seng Hospital</i>); Ong, Jing Wen Ivy (<i>Tan Tock Seng Hospital</i>); Laude, Augustinus (<i>Tan Tock Seng Hospital</i>); Lim, Tock Han (<i>Tan Tock Seng Hospital</i>)	
16:22-16:24	ThDT8-01.7
Towards Understanding Addiction Factors of Mobile Devices: An Eye Tracking Study on Effect of Screen Size	2454-2457
Wibirama, Sunu* (<i>Universitas Gadjah Mada</i>); Adi Nugroho, Hanung (<i>Universitas Gadjah Mada</i>)	
16:24-16:26	ThDT8-01.8
Effects of Galvanic Skin Response Feedback on User Experience in Gaze-Controlled Gaming: A Pilot Study	2458-2461
Larradet, Fanny Isabelle* (<i>Istituto Italiano di tecnologia</i>); Barresi, Giacinto (<i>Istituto Italiano di Tecnologia</i>); Mattos, Leonardo (<i>IIT - Istituto Italiano di Tecnologia</i>)	

16:26-16:28	ThDT8-01.9
Stimulation Time Determination for Lower Limb FES by using Gait Event and a “Delay”	2462-2465
<i>Bao, Xueliang (Southeast Univ., State Key Lab of Bioelectronics); Bi, Zhengyang (Southeast Univ., State Key Lab of Bioelectronics); Lü, Xiaoying (Southeast Univ.); Wang, Zhigong* (Southeast Univ.)</i>	
16:28-16:30	ThDT8-01.10
Characterization of the Pierce Two-Node Model under Exercise Load by Parameter Optimization Toward Construction of a Modified Thermal Model for Persons with Spinal Cord Injury	2466-2469
<i>Takizawa, Kenta* (Tokyo Institute of Technology, National Rehabilitation Center fo); Suzurikawa, Jun (Research Institute of National Rehabilitation Center for Persons); Higuchi, Yukiharu (National Rehabilitation Center for Persons with Disabilities); Huang, Ming (Nara Institute of Science and Technology); Tamura, Toshiyo (Waseda University); Kurabayashi, Daisuke (Tokyo Institute of Technology); Inoue, Takenobu (Research Institute of National Rehabilitation Center for Persons); Ogata, Toru (National Rehabilitation Center for Persons with Disabilities); Takashima, Atsushi (National Rehabilitation Center for Persons with Disabilities)</i>	
16:30-16:32	ThDT8-01.11
Evaluation of Different Cochlear Implants in Unilateral Hearing Patients during Word Listening Tasks: A Brain Connectivity Study	2470-2473
<i>Maglione, Anton Giulio (University of Rome Sapienza); Cartocci, Giulia (University of Rome Sapienza); Modica, Enrica (University of Rome Sapienza); Rossi, Dario (University of Rome Sapienza); Colosimo, Alfredo (University of Rome "Sapienza"); Di Flumeri, Gianluca* (University of Rome Sapienza); Malerba, Paolo (Cochlear); Babiloni, Fabio (University of Rome)</i>	
16:32-16:34	ThDT8-01.12
Estimation of Joint Position Error	2474-2477
<i>Agostini, Valentina* (Politecnico di Torino); Rosati, Samanta (Politecnico di Torino); Balestra, Gabriella (Politecnico di Torino); Trucco, Marco (Presidio San Camillo, Torino); Visconti, Lorenzo (Studi Fisioterapici di Montagna, Aosta); Knaflitz, Marco (Politecnico di Torino)</i>	
16:34-16:36	ThDT8-01.13
Measuring Vigilance Decrement using Computer Vision Assisted Eye Tracking in Dynamic Naturalistic Environments	2478-2481
<i>Bodala, Indu Prasad* (National University of Singapore); Abbasi, Nida Itrat (National University of Singapore); Sun, Yu (National University of Singapore); Bezerianos, Anastasios (National University of Singapore); Al-Nashash, Hasan (American University of Sharjah); Thakor, Nitish (Johns Hopkins University)</i>	
16:36-16:38	ThDT8-01.14
Correlation of Reaction Time and EEG Log Bandpower from Dry Frontal Electrodes in a Passive Fatigue Driving Simulation Experiment	2482-2485
<i>Foong, Ruyi* (Agency for Science, Technology and Research (A*Star), Nanyang Te); Ang, Kai Keng (Institute for Infocomm Research); Quek, Chai (Nanyang Technological University)</i>	
16:38-16:40	ThDT8-01.15
Differences in Lower Limb Muscle Activation Patterns during Sit to Stand Task for Different Heel Heights ...	2486-2489
<i>Naik, Ganesh R* (University of Technology Sydney); Pratihast, Manisha (University of Technology Sydney); Al-Ani, Ahmed (University of Technology, Sydney); Chai, Rifai (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney); Acharyya, Amit (Indian Institute of Technology Hyderabad)</i>	
16:40-16:42	ThDT8-01.16
Learning Classifier to Evaluate Movement Quality in Unassisted Pick-and-Place Exercises for Post-Stroke Patients: A Preliminary Study	2490-2493
<i>Jung, Hee-Tae* (Daegu University); Kim, Hwan (Daegu University); Oh Mi Young, Oh Mi Young (Heeyeon Hospital); Ryu, Taekyeong (Heeyeon Hospital); Kim, Yangsoo (Heeyeon Hospital)</i>	
16:42-16:44	ThDT8-01.17
EEG-Based Emergency Braking Intention Prediction for Brain-Controlled Driving Considering Electrode Falling-Off	2494-2497
<i>Wang, Huikang (Beijing Institute of Technology); Bi, Luzheng* (Beijing Institute of Technology); Teng, Teng (Beijing Institute of Technology)</i>	

16:10-16:12	ThDT8-02.1
The Role of Nonmotor Brain Regions during Human Motor Control	2498-2501
Johnson, Jacob J. (<i>Indian Institute of Technology Guwahati</i>); Breault, Macauley S.* (<i>Johns Hopkins University</i>); Sacré, Pierre (<i>Johns Hopkins University</i>); Kerr, Matthew (<i>Johns Hopkins University</i>); Johnson, Matthew (<i>Cleveland Clinic</i>); Bulacio, Juan (<i>Cleveland Clinic</i>); Gonzalez-Martinez, Jorge (<i>Cleveland Clinic</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>); Gale, John (<i>Cleveland Clinic</i>)	
16:12-16:14	ThDT8-02.2
Influence of Pre-Processing in the Extraction of Muscle Synergies during Human Locomotion	2502-2505
Rimini, Daniele (<i>Politecnico di Torino</i>); Agostini, Valentina (<i>Politecnico di Torino</i>); Rosati, Samanta (<i>Politecnico di Torino</i>); Castagneri, Cristina (<i>Politecnico di Torino</i>); Balestra, Gabriella (<i>Politecnico di Torino</i>); Knaflitz, Marco* (<i>Politecnico di Torino</i>)	
16:14-16:16	ThDT8-02.3
Feature Selection for Bayes Classification of Prolonged Fatigue on Rectus Femoris Muscle	2506-2509
Jamaluddin, Nurul Fauzani (<i>Universiti Putra Malaysia</i>); Siti Anom, Ahmad* (<i>Universiti Putra Malaysia</i>)	
16:16-16:18	ThDT8-02.4
Importance of Muscle Selection for EMG Signal Analysis during Upper Limb Rehabilitation of Stroke Patients	2510-2513
Costa, Álvaro* (<i>Brain Science Institute (BSI) BSI-Toyota Collaboration Center (B)</i>); Itkonen, Matti (<i>Brain Science Institute (BSI), RIKEN</i>); Yamasaki, Hiroshi (<i>Brain Science Institute (BSI) BSI-Toyota Collaboration Center (B)</i>); Alnajjar, Fady SK (<i>BTCC, RIKEN</i>); Shimoda, Shingo (<i>RIKEN</i>)	
16:18-16:20	ThDT8-02.5
Variance Distribution Analysis of Surface EMG Signals based on Marginal Maximum Likelihood Estimation	2514-2517
Furui, Akira* (<i>Hiroshima University</i>); Hayashi, Hideaki (<i>Hiroshima University</i>); Kurita, Yuichi (<i>Hiroshima University</i>); Tsuji, Toshio (<i>Hiroshima University</i>)	
16:20-16:22	ThDT8-02.6
Influence of Trans-Spinal Magnetic Stimulation in Electrophysiological Recordings for Closed-Loop Rehabilitative Systems	2518-2521
Insausti-Delgado, Ainhoa* (<i>Eberhard Karls University of Tübingen</i>); López-Larraz, Eduardo (<i>University of Tübingen</i>); Bibián, Carlos (<i>University Tübingen</i>); Nishimura, Yukio (<i>NIPS</i>); Birbaumer, Niels (<i>Eberhard-Karls- University</i>); Ramos-Murguialday, Ander (<i>Eberhard Karls University of Tübingen/TECNALIA</i>)	
16:22-16:24	ThDT8-02.7
Evaluation of Postural Instability in Stroke Patient during Quiet Standing	2522-2525
Wang, Wei (<i>School of Control Science and Engineering, Shandong University</i>); Li, Ke* (<i>Shandong University</i>); Wei, Na (<i>Dept. of Geriatrics, Qilu Hospital, Shandong University</i>); Yin, Cuiping (<i>Dept. of Physical Medicine and Rehabilitation, Qilu Hospital</i>); Yue, Shouwei (<i>Dept. of Physical Medicine and Rehabilitation, Qilu Hospital</i>)	
16:24-16:26	ThDT8-02.8
Influence of Light Finger Touch on Postural Stability during Upright Stance with Cold-Induced Plantar Hypoesthesia	2526-2529
Oshita, Kazushige* (<i>Kyushu Kyoritsu University</i>); Yano, Sumio (<i>Kobe University</i>)	
16:26-16:28	ThDT8-02.9
Entropy of Surface EMG Reflects Object Weight in Grasp-and-Lift Task	2530-2533
Li, Yuqi* (<i>City Univ. of Hong Kong</i>); Jelfs, Beth (<i>RMIT Univ.</i>); Chan, Rosa H. M. (<i>City Univ. of Hong Kong</i>)	
16:28-16:30	ThDT8-02.10
Muscle Synergy Analysis in Dart Throwing	2534-2537
Tran, Nguyen Bao* (<i>Tokyo University of Agriculture and Technology</i>); Yano, Shiro (<i>Tokyo University of Agriculture and Technology</i>); Kondo, Toshiyuki (<i>Tokyo University of Agriculture and Technology</i>)	

16:30-16:32 ThDT8-02.11
Estimation of Joint Angle based on Surface Electromyogram Signals Recorded at Different Load Levels 2538-2541
 Azab, Ahmed* (*University of Sheffield*); Arvaneh, Mahnaz (*University of Sheffield*);
 Mihaylova, Lyudmila (*University of Sheffield*)

ThDT9-01: 16:10-17:10 Plonsey Room
Brain Functional Imaging III (Poster Session)

16:10-16:12 ThDT9-01.1
Spatiotemporal Properties of Magnetic Fields Induced by Auditory Speech Sound Imagery and Perception 2542-2545
 Uzawa, Shihomi* (*Kobe University*); Takiguchi, Tetsuya (*Kobe University*); Ariki, Yasuo (*Kobe University*);
 Nakagawa, Seiji (*Chiba University*)

16:12-16:14 ThDT9-01.2
Prefrontal Cortical Activation while Viewing Urban and Garden Scenes: A Pilot fNIRS Study 2546-2549
 Yu, Juanhong* (*Institute for Infocomm Research, Agency for Science, Technology and*); Ang, Kai Keng (*Institute for Infocomm Research*); Ho, Cyrus SH (*National University Hospital*); Sia, Angelia (*National Parks of Singapore*); Ho, Roger (*National University Hospital*)

16:14-16:16 ThDT9-01.3
Physiological Fluctuations Show Frequency-Specific Networks in fNIRS Signals during Resting State 2550-2553
 Fernandez Rojas, Raul* (*University of Canberra*); Huang, Xu (*University of Canberra*);
 Hernandez-Juarez, Jesus (*UABJO*); Ou, Keng-Liang (*Taipei Medical University*)

16:16-16:18 ThDT9-01.4
Analysis of Cognitive Fatigue using EEG Parameters 2554-2557
 Sengupta, Anwasha* (*IIT KHARAGPUR*); Tiwari, Abhishek (*IIT KHARAGPUR*);
 Routray, Aurobinda (*Indian Institute of Technology, Kharagpur, India*)

16:18-16:20 ThDT9-01.5
Cortical Activity Changes as Related to Oral Irritation – An fNIRS Study 2558-2561
 Zeng, Tianjiao (*Rutgers University*); Peru, Deborah (*Colgate Palmolive*); Maloney, Venda Porter (*Colgate Palmolive*); Najafizadeh, Laleh* (*Rutgers University*)

16:20-16:22 ThDT9-01.6
Correlated Alpha Activity with the Facial Expression Processing Network in a Simultaneous EEG-fMRI Experiment 2562-2565
 Simões, Marco (*University of Coimbra*); Direito, Bruno (*FCTUC, University of Coimbra*); João, Lima (*IBILI, University of Coimbra*); Castelhana, João (*ICNAS, University of Coimbra*); Ferreira, Carlos (*ICNAS, University of Coimbra*); Couceiro, Ricardo* (*University of Coimbra*); de Carvalho, Paulo (*University of Coimbra*); Castelo-Branco, Miguel (*University of Coimbra*)

ThDT9-10: 16:10-17:10 Plonsey Room
Neural Signal Processing (Poster Session)

16:26-16:28 ThDT9-10.9
An Artificial Neural Network Model for the Evaluation of Carotid Artery Stenting Prognosis using a National-Wide Database 2566-2569
 Cheng, Chun An (*Taipei Medical University*); Chiu, Hung-Wen* (*Taipei Medical University*)

ThDT10-01: 16:10-17:10 Schmitt Room
Health Informatics – Computer-Aided Decision Making I (Poster Session)

16:10-16:12 ThDT10-01.1
Combination of Static and Temporal Data Analysis to Predict Mortality and Readmission in the Intensive Care 2570-2573
 Venugopalan, Janani (*Georgia Institute of Technology*); Chanani, Nikhil (*Emory University School of Medicine*);
 Maher, Kevin (*Kids Heart*); Wang, May D.* (*Georgia Tech and Emory University*)

16:12-16:14	ThDT10-01.2
Functional Hemispheric Asymmetry in Female Prefrontal Hemodynamics	
Corresponding to Changes in Auditory Sense during Pregnancy and Child Raising 2574-2577	
Kotani, Hiroko (<i>Tokyo Future University</i>); Kato, Misa (<i>Tokyo Future University</i>); Matsuno, Maka (<i>Tokyo Future University</i>); Kuramoto, Kasumi (<i>Tokyo Future University</i>); Nakagawa, Hidenori* (<i>Tokyo Denki University</i>)	
16:14-16:16	ThDT10-01.3
Queue-Based Modelling and Detection of Parameters Involved in Stroke Outcome 2578-2581	
Vilic, Adnan* (<i>Technical University of Denmark</i>); Petersen, Asger (<i>Bispebjerg Hospital</i>); Wienecke, Troels (<i>Zealand University Hospital, Roskilde</i>); Kjaer, Troels W. (<i>Roskilde University Hospital</i>); Sorensen, Helge B D (<i>Technical University of Denmark</i>)	
16:16-16:18	ThDT10-01.4
Pattern Discovery and Similarity Assessment for Robust Heart Sound Segmentation 2582-2585	
Nunes, Diogo (<i>Univ. of Coimbra</i>); de Carvalho, Paulo (<i>Univ. of Coimbra</i>); Henriques, Jorge (<i>Univ. of Coimbra</i>); Teixeira, César (<i>Univ. of Coimbra</i>); Ruano, M. Graça* (<i>FCT, Univ. of Algarve & CISUC-Univ. of Coimbra</i>)	
16:18-16:20	ThDT10-01.5
The Application of Individual Virtual Nostalgic Game Design to the Evaluation of Cognitive Function 2586-2589	
Hou, Chun-Ju (<i>Southern Taiwan University of Science and Technology</i>); Huang, Min-Wei (<i>National Cheng Kung University</i>); Zhou, Jia-Ying (<i>Asia University Dept. of Psychology</i>); Hsu, Pin Chen (<i>Southern Taiwan University of Science and Technology</i>); Zeng, Jia Hong (<i>Southern Taiwan University of Science and Technology</i>); Chen, Yen-Ting* (<i>Southern Taiwan University of Science and Technology</i>)	
16:20-16:22	ThDT10-01.6
Correlation of P300 ERPs with Visual Stimuli and its Application to Vigilance Detection 2590-2593	
Samima, Shabnam* (<i>Indian Institute of Technology Kharagpur</i>); Sarma, Monalisa (<i>Indian Institute of Technology Kharagpur</i>); Samanta, Debasis (<i>Indian Institute of Technology Kharagpur</i>)	
16:22-16:24	ThDT10-01.7
Mobile Concussion Management Application for Amateur Sports 2594-2597	
Fischer, Joshua* (<i>Stellenbosch University</i>); Smith, Gerard (<i>Stellenbosch University</i>); Rodriguez, Rafael (<i>Federal University of Paraná</i>); Afzal, Muhammad Raheel (<i>Gyeongsang National University</i>); Van Den Heever, Dawie (<i>Stellenbosch University</i>); Viviers, Pierre (<i>Stellenbosch University</i>); Viljoen, Jeandre (<i>Institute of Sport and Exercise Medicine, Division of Orthopaedi</i>)	
ThDT10-02: 16:10-17:10	Schmitt Room
Health Informatics – Health Data Acquisition, Transmission, Management and Visualization I (Poster Session)	
16:10-16:12	ThDT10-02.1
Efficient Implementation of Stockwell Transform for Real-Time Embedded Processing of Physiologic Signals 2598-2601	
Holmes, David* (<i>Mayo Clinic</i>); Cerqueira Pinto, Samuel (<i>Instituto Tecnológico de Aeronáutica</i>); Felton, Christopher (<i>Mayo Clinic</i>); Smital, Lukas (<i>Brno University of Technology, Brno, CZ</i>); Leinveber, Pavel (<i>St. Anne's University Hospital</i>); Jurak, Pavel (<i>Inst of Scientific Instruments Academy</i>); Gilbert, Barry (<i>Mayo Clinic College of Medicine</i>); Haider, Clifton (<i>Mayo Clinic</i>)	
16:12-16:14	ThDT10-02.2
APEX_SCOPE: A Graphical User Interface for Visualization of Multi-Modal Data in Inter-Disciplinary Studies 2602-2605	
Kanbar, Lara* (<i>McGill Univ.</i>); Shalish, Wissam (<i>McGill Univ.</i>); Precup, Doina (<i>McGill Univ.</i>); Brown, Karen (<i>McGill Univ.</i>); Sant'Anna, Guilherme Mendes (<i>McGill Univ.</i>); Kearney, Robert Edward (<i>McGill Univ.</i>)	
16:14-16:16	ThDT10-02.3
CTG Analyzer: A Graphical User Interface for Cardiotocography 2606-2609	
Sbrollini, Agnese (<i>Università Politecnica delle Marche</i>); Agostinelli, Angela (<i>Polytechnic University of Marche</i>); Burattini, Luca (<i>Università Politecnica delle Marche</i>); Morettini, Micaela (<i>Università Politecnica delle Marche</i>); Di Nardo, Francesco (<i>Polytechnic University of Marche</i>); Fioretti, Sandro (<i>Università Politecnica delle Marche</i>); Burattini, Laura* (<i>Università Politecnica delle Marche</i>)	

16:16-16:18 ThDT10-02.4
A Comparative Study of Electronic Stethoscopes for Cardiac Auscultation 2610-2613
 Pinto, Cristiana (*Instituto de Telecomunicações, Faculdade de Ciências da Universi*); Pereira, Daniel (*Faculty of Medicine, University of Porto*); Ferreira-Coimbra, João (*Internal Medicine Dept., Centro Hospitalar de São João*); Português, João (*Serviço de Cardiologia do Hospital Senhora da Oliveira*); Gama, Vasco (*Hospital Santos Silva*); Coimbra, Miguel* (*Instituto de Telecomunicações / Universidade do Porto*)

ThDT10-03: 16:10-17:10 Schmitt Room
Health Informatics – Information Technologies for Healthcare Delivery and Management I (Poster Session)

16:10-16:12 ThDT10-03.1
Symptom-Based Data Preprocessing for the Detection of Disease Outbreak 2614-2617
 Duangchaemkarn, Khanita* (*Chiang Mai University*); Boonchieng, Ekkarat (*Chiang Mai University*); Chaovatur, Varin (*Chiang Mai University*); Wiwatanadate, Phongtape (*Faculty of Medicine, Chiang Mai University*)

16:12-16:14 ThDT10-03.2
Predictive Modeling to Identify Scheduled Radiology Appointments Resulting in Non-Attendance in a Hospital Setting 2618-2621
 Mieloszyk, Rebecca* (*Philips Healthcare, Univ. of Washington*); Rosenbaum, Joshua (*Univ. of Washington*); Bhargava, Puneet (*Univ. of Washington*); Hall, Christopher (*Philips Healthcare, Univ. of Washington*)

16:14-16:16 ThDT10-03.3
New Tele-Diagnostic Model using Volume Sweep Imaging for Rural Areas 2622-2625
 Ferrer, Jose (*Pontificia Univ. Católica del Peru*); Castañeda, Benjamín* (*Pontificia Univ. Católica del Perú*); Chaumont, Thomas (*Medical Innovation & Technology*); Garra, Gail (*Medical Imaging Ministries of The Americas*); Garra, Katherine (*Medical Imaging Ministries of The Americas*); Stephens, Nicole (*Medical Imaging Ministries of The Americas*); Jacobo, Sylvia (*Medical Imaging Ministries of The Americas*); Waks, Erin (*Medical Imaging Ministries of The Americas*); Miele, Frank (*Medical Imaging Ministries of The Americas*); Stewart, Pilar (*Medical Innovation & Technology*); Fernandez, Italo (*Medical Innovation & Technology*); Campos, Maria Fernanda (*Medical Innovation & Technology*); Trujillo, Leslie (*Medical Innovation & Technology*); Guerrero, Jorge (*Oncosalud*); Garra, Brian (*Washington DC VA Medical Center and Center for Devices & Radiolo*)

16:16-16:18 ThDT10-03.4
Exploratory Multivariate Analysis of Hospital Admissions Data in Conjunction with Workforce Data 2626-2629
 Xie, Yang* (*CSIRO (Commonwealth Scientific and Industrial Research Organisat)*); Good, Norm (*CSIRO Australian e-Health Research Centre*); Khanna, Sankalp (*CSIRO Australian e-Health Research Centre*); Boyle, Justin (*CSIRO*)

16:18-16:20 ThDT10-03.5
Design of an Mhealth System for Maternal and Children HIV Care 2630-2633
 Koesoema, Allya Paramita* (*UNSW*); Ariani, Arni (*Univ. of New South Wales*); Irawan, Yoke Saadia (*Institut Teknologi Bandung*); Soegijoko, Soegijardjo (*Dept. of Electrical Engineering, Institut Teknologi Nasiona*)

16:20-16:22 ThDT10-03.6
Modelling and Analysis of Four Telemedicine Italian Experiences 2634-2637
 Rosati, Samanta (*Politecnico di Torino*); Zema, Maddalena (*Reply S.p.A.*); Castagneri, Cristina (*Politecnico di Torino*); Marchetti, Fulvio (*Healthy Reply*); Balestra, Gabriella* (*Politecnico di Torino*)

ThDT10-04: 16:10-17:10 Schmitt Room
Health Informatics – Knowledge Discovery and Management I (Poster Session)

16:10-16:12 ThDT10-04.1
Towards Objective and Reproducible Study of Patient-Doctor Interaction: Automatic Text Analysis based VR-CoDES Annotation of Consultation Transcripts 2638-2641
 Charlotte, Birkett (*University of St Andrews*); Arandjelovic, Ognjen* (*University of St Andrews*); Humphris, Gerald (*University of St Andrews*)

16:12-16:14 ThDT10-04.2
An Ordinal Classification Approach for CTG Categorization 2642-2645
 Georgoulas, George (*TEI of Epirus*); Karvelis, Petros (*University of Ioannina*); Gavrillis, Dimitris (*University of Patras*); Stylios, Chrysostomos* (*TEI of Epirus*); Nikolakopoulos, George (*Luleå University of Technology*)

16:16-16:18 ThDT10-04.4
An Interpretable Data-Driven Approach for Rules Construction: Application to Cardiovascular Risk Assessment 2646-2649
 Mendes, Diana (*Universidade de Coimbra*); Paredes, Simao (*Instituto Politécnico de Coimbra*); Rocha, Teresa (*Inst Superior de Eng de Coimbra*); de Carvalho, Paulo (*University of Coimbra*); Henriques, Jorge* (*University of Coimbra*); Morais, João (*Hospital de Santo André, Leiria*)

16:20-16:22 ThDT10-04.6
Classification Models to Predict Vasopressor Administration for Septic Shock in the Emergency Department 2650-2653
 Prasad, Varesh* (*Massachusetts Institute of Technology*); Lynch, James (*Massachusetts Institute of Technology*); Pasakarnis, Corey (*Massachusetts General Hospital*); Thorsen, Jill (*Massachusetts General Hospital*); Filbin, Michael (*Massachusetts General Hospital*); Reisner, Andrew (*Massachusetts General Hospital*); Heldt, Thomas (*Massachusetts Institute of Technology*)

16:22-16:24 ThDT10-04.7
Reconciliation of SNOMED CT and Domain Clinical Model for Interoperable Medical Knowledge Creation ... 2654-2657
 Ali, Taqdir (*Kyung Hee University, South Korea*); Lee, Sungyoung* (*Kyung Hee University*)

ThDT10-05: 16:10-17:10	Schmitt Room
Health Informatics – Telemedicine I (Poster Session)	

16:10-16:12 ThDT10-05.1
Design and Development of a Customizable Telemedicine Platform for Improving Access to Healthcare for Underserved Populations 2658-2661
 Goel, Neha* (*Johns Hopkins University*); Alam, Amal Afroz (*Johns Hopkins University*); Eggert, Emily (*Johns Hopkins University*); Acharya, Soumyadipta (*Johns Hopkins University*)

16:12-16:14 ThDT10-05.2
Wireless Gyroscope Platform Enabled by a Portable Media Device for Quantifying Wobble Board Therapy .. 2662-2666
 LeMoyné, Robert* (*Northern Arizona University*); Mastroianni, Timothy (*Independent*)

16:14-16:16 ThDT10-05.3
Improving the Accuracy of Existing Camera based Fall Detection Algorithms through Late Fusion 2667-2671
 Baldewijns, Greet (*KU Leuven Campus Geel, AdvISe Technology Lab, Belgium*); Debard, Glen (*Thomas More Kempen*); Mertes, Gert* (*KU Leuven*); Croonenborghs, Tom (*KU Leuven Campus Geel, AdvISe Technology Lab, Belgium*); Vanrumste, Bart (*Katholieke Universiteit Leuven*)

16:16-16:18 ThDT10-05.4
An Integrated System for the Monitoring of Therapy and Drug's Side Effects in Lymphoproliferative Disorders 2672-2675
 Vollero, Luca* (*Università Campus Bio-Medico di Roma*); Annibali, Ombretta (*UOC Ematologia, Trapianto di Cellule Staminali*); Schena, Emiliano (*University of Rome Campus Bio-Medico*); Tomarchio, Valeria (*Campus Biomedico University*); Cimino, Giuseppe (*Ospedale Santa Maria Goretti, Latina, Italia*); Cenfra, Natalia (*UOC Ematologia, Ospedale Santa MARIA Goretti Latina*); Avvisati, Giuseppe (*UOC Ematologia Trapianto di cellule Staminali, Università Campus*)

16:18-16:20 ThDT10-05.5
Real-Time WebRTC-Based Design for a Telepresence Wheelchair 2676-2679
 Ha, Van Kha Ly* (*University of Technology, Sydney*); Chai, Rifai (*University of Technology, Sydney*); Nguyen, Hung T. (*University of Technology, Sydney*)

ThDT11-01: 16:10-17:10	Greatbatch Room
Modeling Cellular Function and Structure I (Poster Session)	

16:10-16:12 ThDT11-01.1
Model Evaluation-Based Approaches for Endothelial Function 2680-2683
 Asami, Naoya* (*Aichi Prefectural University*); Yamazaki, Yoichi (*Kwansei Gakuin University*); Kamiyama, Yoshimi (*Aichi Prefectural University*)

16:12-16:14	ThDT11-01.2
Tracking of Non-Dividing Cells by using Generalized Voronoi Diagram	2684-2687
Pengdong, Xiao* (<i>National Heart Centre Singapore</i>); Zhong, Liang (<i>National Heart Centre Singapore</i>)	
16:14-16:16	ThDT11-01.3
A Mathematical Model of the Effects of Anoctamin-1 Loss on Intestinal Slow Wave Entrainment	2688-2691
Qian, Anna (<i>The University of Auckland</i>); Means, Shawn (<i>The University of Auckland</i>); Cheng, Leo K (<i>The University of Auckland</i>); Sneyd, James (<i>The University of Auckland</i>); Du, Peng* (<i>The University of Auckland</i>)	
16:16-16:18	ThDT11-01.4
A Computational Model of Intracellular Calcium Oscillations in Urinary Bladder Smooth Muscle Cells ...	2692-2695
Gupta, Suranjana* (<i>IIT Bombay</i>); Majawadia, Avni (<i>SGSITS, Indore</i>); Manchanda, Rohit (<i>IIT Bombay</i>)	
16:18-16:20	ThDT11-01.5
A Computational Study of the Role of Mitochondrial Organization on Cardiac Bioenergetics	2696-2699
Ghosh, Shouryadipa (<i>University of Melbourne</i>); Crampin, Edmund (<i>University of Auckland</i>); Hanssen, Eric (<i>University of Melbourne</i>); Rajagopal, Vijayaraghavan* (<i>University of Melbourne</i>)	
16:20-16:22	ThDT11-01.6
Cell Dynamic Morphology Analysis by Deep Convolutional Features	2700-2703
Li, Heng (<i>Beijing Institute of Technology</i>); Liu, Zhiwen* (<i>Beijing Institute of Technology</i>); Pang, Fengqian (<i>Beijing Institute of Technology</i>); Shi, Yonggang (<i>Beijing Institute of Technology</i>)	
ThDT11-02: 16:10-17:10 Greatbatch Room	
Modeling Medical Devices, Diseases and Therapies I (Poster Session)	
16:10-16:12	ThDT11-02.1
A Pharmacokinetic Model of Drug-Drug Interaction between Clopidogrel and Omeprazole at CYP 2C19 in Humans	2704-2707
Tangamornsuksan, Wimonchat (<i>Naresuan University</i>); Thiansupornpong, Pongpak (<i>Naresuan University</i>); Morasuk, Thirawut (<i>Naresuan University</i>); Lohitnavy, Ornrat (<i>Center of Excellence for Environmental Health and Toxicology, Na</i>); Lohitnavy, Manupat* (<i>Naresuan University</i>)	
16:12-16:14	ThDT11-02.2
Improved MicroRNA Biomarkers to Predict Stages in Lung Adenocarcinoma via Clustering of MicroRNA-Target Dysregulations	2708-2711
Tran, Nhat* (<i>University of Texas at Arlington</i>); Gao, Jean (<i>University of Texas</i>)	
16:14-16:16	ThDT11-02.3
Multi-Scale Immunological and Biomechanical Model of Emphysema Progression	2712-2715
Ceresa, Mario* (<i>Universitat Pompeu Fabra</i>); Olivares, Andy (<i>University Pompeu Fabra, Barcelona Spain</i>); Fernández Suelves, Silvia (<i>University Pompeu Fabra, Barcelona Spain</i>); Noailly, Jérôme (<i>University Pompeu Fabra, Barcelona Spain</i>); Gonzalez Ballester, Miguel Angel (<i>Universitat Pompeu Fabra</i>)	
16:16-16:18	ThDT11-02.4
A Continuum Model of Electrical Stimulation of Multi-Compartmental Retinal Ganglion Cells	2716-2719
Alqahtani, Abdulrahman* (<i>University of New South Wales</i>); Al Abed, Amr (<i>University of New South Wales</i>); Guo, Tianruo (<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>)	
16:18-16:20	ThDT11-02.5
The Tensile Stress Caused Nonuniform Degradation of a Poly (lactic-Co-Glycolic Acid) Stent – A Finite Element Analysis	N/A
Guo, Meng (<i>Beihang University</i>); Chu, Zhaowei (<i>Beihang University</i>); Yao, Jie (<i>Beihang University</i>); Feng, Wentao (<i>Beihang University</i>); Wang, Lizhen (<i>Beihang University</i>); Fan, Yubo* (<i>Beihang University</i>)	
16:20-16:22	ThDT11-02.6
In Silico Investigation of the Effects of Hemolysis on the Hyperspectral Absorptance of Blood in Motion ...	2724-2727
Van Leeuwen, Spencer Richard* (<i>University of Waterloo</i>); Baranoski, Gladimir Valerio Guimaraes (<i>University of Waterloo</i>); Kimmel, Bradley William (<i>University of Waterloo</i>)	

Pharmacokinetics, Systems Biology, and Synthetic Biology I (Poster Session)

- 16:10-16:12 ThDT11-03.1
A Physiologically-Based Pharmacokinetic Model of Methotrexate Incorporating Hepatic Excretion via Multidrug-Resistance-Associated Protein 2 (Mrp2) in Mice, Rats, Dogs, and Humans 2728-2731
 Lohitnavy, Manupat* (*Naresuan University*); Lu, Yasong (*Dept. of Environmental & Radiological Health Sciences, Colo*); Lohitnavy, Ornrat (*Center of Excellence for Environmental Health and Toxicology, Na*); Yang, Raymond (*Dept. of Environmental & Radiological Health Sciences, Colo*)
- 16:12-16:14 ThDT11-03.2
Development of a Physiologically based Pharmacokinetic Model of Paraquat 2732-2735
 Lohitnavy, Manupat* (*Naresuan Univ.*); Chitsakhon, Arnon (*Center of Excellence for Environmental Health and Toxicology, Na*); Jomprasert, Kritsada (*Center of Excellence for Environmental Health and Toxicology, Na*); Lohitnavy, Ornrat (*Center of Excellence for Environmental Health and Toxicology, Na*); Reinfeld, Brad (*Colorado State Univ.*)
- 16:14-16:16 ThDT11-03.3
ActiveMotif: Interactive Motif Discovery with Human Feedback 2736-2739
 Kim, Younghoon* (*Hanyang Univ.*); Lee, Woonghee (*Hanyang Univ.*); Kim, Keonwoo (*Hanyang Univ.*)
- 16:16-16:18 ThDT11-03.4
An in Silico Method to Predict Net Calcium Transfer during Hemodialysis 2740-2743
 Maheshwari, Vaibhav* (*Renal Research Institute*); Cherif, Alhaji (*Renal Research Institute*); Fuertinger, Doris (*Renal Research Institute*); Schappacher, Gudrun (*University of Graz*); Preciado, Priscila (*Renal Research Institute*); Thijssen, Stephan (*Renal Research Institute*); Bushinsky, David (*University of Rochester Medical Center*); Kotanko, Peter (*Renal Research Institute*)

Acoustic Signal Analysis I (Poster Session)

- 16:10-16:12 ThDT17-01.1
Remote Monitoring, Distress Detection by Slightest Invasive Systems: Sound Recognition based on Hierarchical I-Vectors 2744-2748
 ROBIN, Maxime* (*UTC, KRG Corporate*); Istrate, Dan (*UTC*); Boudy, Jerome (*IT-Sudparis*)
- 16:12-16:14 ThDT17-01.2
An Anchored Dynamic Time-Warping for Alignment and Comparison of Swallowing Acoustic Signals 2749-2752
 Rosa, Marcelo* (*Universidade Tecnológica Federal do Paraná*); Fugmann, Elmar Allen (*Universidade Federal do Paraná*); Santana, Gisele (*Ufpr Hc*); Nunes, Maria Cristina de Alencar (*Federal University of Parana - UFPR*)
- 16:14-16:16 ThDT17-01.3
Analysis of Phonocardiogram Signals through Proactive Denoising using Novel Self-Discriminant Learner 2753-2756
 Puri, Chetanya* (*Research and Innovation, Tata Consultancy Services, India*); Singh, Rituraj (*TATA Consultancy Services*); Bandyopadhyay, Soma (*TATA Consultancy Services*); Ukil, Arijit (*TATA Consultancy Services*); Mukherjee, Ayan (*Tata Consultancy Services*)
- 16:16-16:18 ThDT17-01.4
A Multichannel Acoustic Approach to Define a Pulmonary Pathology as Combined Pulmonary Fibrosis and Emphysema Syndrome 2757-2760
 Santiago-Fuentes, Laura Mercedes (*Universidad Autónoma Metropolitana*); Charleston-Villalobos, Sonia* (*Universidad Autónoma Metropolitana*); Gonzalez-Camarena, Ramon (*Universidad Autónoma Metropolitana*); Mejía Ávila, Mayra (*Instituto Nacional de Enfermedades Respiratorias*); Mateos-Toledo, Heidegger (*National Institute of Respiratory Diseases*); Buendia-Roldan, Ivette (*National Institute of Respiratory Diseases*); Aljama-Corrales, Tomas (*Universidad Autónoma Metropolitana*)

16:18-16:20 ThDT17-01.5
Detection of Explosive Cough Events in Audio Recordings by Internal Sound Analysis 2761-2764
 Rocha, Bruno (*University of Coimbra*); Mendes, Luis (*University of Coimbra*); Couceiro, Ricardo (*University of Coimbra*); Henriques, Jorge* (*University of Coimbra*); de Carvalho, Paulo (*University of Coimbra*); Paiva, Rui Pedro (*University of Coimbra*)

ThDT17-02: 16:10-17:10 Eindhoven Hall
Physiological Systems Modeling II (Poster Session)

16:10-16:12 ThDT17-02.1
Kernel-Based Adaptive Learning Improves Accuracy of Glucose Predictive Modelling in Type 1 Diabetes: A Proof-of-Concept Study 2765-2768
 Georga, Eleni I. (*University of Ioannina*); Principe, Jose (*University of Florida*); Rizos, Evangelos C. (*Dept. of Internal Medicine, University Hospital of Ioannina*); Fotiadis, Dimitrios I.* (*University of Ioannina*)

16:12-16:14 ThDT17-02.2
Suppression of Ventilation Artifacts for Gastrointestinal Slow Wave Recordings 2769-2772
 Paskaranandavadivel, Niranchan* (*The University of Auckland*); Alighaleh, Saeed (*Auckland Bioengineering Institute, University of Auckland*); Du, Peng (*The University of Auckland*); O'Grady, Gregory (*University of Auckland*); Cheng, Leo K (*The University of Auckland*)

16:14-16:16 ThDT17-02.3
An Adaptive Prediction Method for Signal Fusion 2773-2777
 Holland, Alex* (*Edwards LifeSciences*); Asgari, Shadnaz (*California State University, Long Beach*)

16:16-16:18 ThDT17-02.4
Establishing and Validating a New Source Analysis Method using Phase 2778-2781
 Chirumamilla, Venkata Chaitanya* (*Johannes Gutenberg University, Dept. of Neurology Mainz*); Gonzalez-Escamilla, Gabriel (*Johannes Gutenberg University*); Kumar, Saurabh (*Max Planck Institute for Human Cognitive and Brain Sciences, Lei*); Longfei, Xiong (*Christian Albrechts University Kiel*); Groppa, Sergiu (*Johannes Gutenberg University*); Muthuraman, Muthuraman (*Johannes Gutenberg University*)

16:18-16:20 ThDT17-02.5
Evaluating the Effectiveness of Different External Cues on Non-Invasive Brain-Computer Interfaces 2782-2785
 Pearce, Sarah* (*University of Waterloo*); Boger, Jennifer (*University of Waterloo*); Mrachacz-Kersting, Natalie (*Aalborg University*); Farina, Dario (*Bernstein Center for Computational Neuroscience, University Medic*); Jiang, Ning (*University of Waterloo*)

ThDT17-03: 16:10-17:10 Eindhoven Hall
Principal and Independent Component Analysis II (Poster Session)

16:10-16:12 ThDT17-03.1
Cortico-Muscular Coherence Enhancement via Coherent Wavelet Enhanced Independent Component Analysis 2786-2789
 Xu, Yuhang* (*King's College London*); McClelland, Verity M. (*King's College London*); Cvetkovic, Zoran (*King's College London*); Mills, Kerry R. (*King's College London*)

16:12-16:14 ThDT17-03.2
Reliable Gradient Search Directions for Kurtosis-Based Deflationary ICA: Application to Physiological Signal Processing 2790-2793
 Saleh, Majd (*Université de Rennes 1*); Karfoul, Ahmad* (*Université de Rennes1*); Kachenoura, Amar (*Université de Rennes1 and INSERM*); Senhadji, Lotfi (*Université de Rennes 1 and INSERM*); Albera, Laurent (*Université de Rennes 1 and INSERM*)

16:14-16:16 ThDT17-03.3
Real-Time Fetal ECG Extraction from Multichannel Abdominal ECG using Compressive Sensing and ICA ... 2794-2797
 Gurve, Dharmendra* (*Ryerson University*); Pant, Jeevan Kumar (*Ryerson University*); Krishnan, Sridhar (*Ryerson University*)

16:16-16:18 ThDT17-03.4
A Reliable Brain-Computer Interface based on SSVEP using Online Recursive Independent Component Analysis 2798-2801
 Chen, Chiu-Kuo* (*National Chiao Tung University (NCTU); Bureau of Standards, Metrology*);
 Fang, Wai-Chi (*National Chiao Tung University*)

ThDT17-04: 16:10-17:10 Eindhoven Hall
Signal Processing in Physiological Systems – Epilepsy I (Poster Session)

16:10-16:12 ThDT17-04.1
Linear Time-Varying Model Characterizes Invasive EEG Signals Generated from Complex Epileptic Networks 2802-2805
 Li, Adam* (*Neuromedical Control Systems Lab*); Gunnarsdottir, Kristin (*Johns Hopkins Univ.*); Inati, Sara (*National Institute of Health*); Zaghloul, Kareem (*National Institute of Health*); Gale, John (*Cleveland Clinic*); Bulacio, Juan (*Cleveland Clinic*); Gonzalez-Martinez, Jorge (*Cleveland Clinic*); Sarma, Sridevi V. (*Johns Hopkins Univ.*)

16:12-16:14 ThDT17-04.2
Functional Clustering Approach for the Analysis of Stereo-EEG Activity Patterns in Correspondence of Epileptic Seizures 2806-2809
 Coelli, Stefania* (*Dept. of Electronics, Information and Bioengineering*); Maggioni, Eleonora (*Scientific Institute IRCCS E.Medea*); Cerutti, Sergio (*Politecnico di Milano*); Nobili, Lino (*Center for Sleep Medicine at Niguarda Ca' Granda Hospital, Milan*); Rubino, Annalisa (*Centre for Epilepsy Surgery, Niguarda Hospital, Milan, Italy*); Campana, Chiara (*Centre for Epilepsy Surgery, Niguarda Hospital, Milan, Italy*); Bianchi, Anna Maria (*Politecnico di Milano*)

16:14-16:16 ThDT17-04.3
Improved Neonatal Seizure Detection using Adaptive Learning 2810-2813
 Ansari, Amir Hossein* (*KU Leuven*); Cherian, Perumpillichira Joseph (*Clinical Neurophysiology, Dept. of Neurology, ErasmusMC, Rot*); Caicedo Dorado, Alexander (*Katholieke Univ. Leuven*); De Vos, Maarten (*Univ. of Oxford*); Naulaers, Gunnar (*Univ. Hospitals Leuven*); Van Huffel, Sabine (*Katholieke Univ. Leuven*)

16:16-16:18 ThDT17-04.4
Epileptic Seizure Detection based on Expected Activity Measurement and Neural Network Classification 2814-2817
 Dhif, Imen* (*UPMC-LIP6*); Hachicha, Khalil (*UPMC*); Pinna, Andrea (*LIP6 UMR 7606, Université Pierre et Marie Curie, CNRS, Paris*); Hochberg, Sylvain (*CIRA*); Mhedhbi, Imen (*UPMC*); Garda, Patrick (*UPMC*)

ThDT17-05: 16:10-17:10 Eindhoven Hall
Signal Processing in Physiological Systems – Sleep I (Poster Session)

16:10-16:12 ThDT17-05.1
Respiration Estimation and Apnea Detection using Fuzzy Logic 2818-2821
 Mudvari, Akrit* (*Trinity College*); Ning, Taikang (*Trinity College*)

16:12-16:14 ThDT17-05.2
Automatic Picking of Snore Events from Overnight Breath Sound Recordings 2822-2825
 Swarnkar, Vinayak (*University of Queensland*); Abeyratne, Udantha R (*University of Queensland*); Sharan, Roneel V* (*University of Queensland*)

16:14-16:16 ThDT17-05.3
Characterizing the NREM/REM Sleep Specific Obstructive Sleep Apnea Severity using Snore Sounds 2826-2829
 Akhter, Shahin* (*University of Queensland*); Abeyratne, Udantha R (*University of Queensland*); Swarnkar, Vinayak (*University of Queensland*)

16:16-16:18 ThDT17-05.4
Blood Pressure and Cardiovascular Parameters during Sleep Arousals 2830-2833
 Salari Shahrabaki, Sobhan* (*RMIT University*); Ahmed, Beena (*Texas A&M University at Qatar*); Penzel, Thomas (*Charite Universitätsmedizin Berlin*); Cvetkovic, Dean (*RMIT University*)

ThDT17-06: 16:10-17:10 Eindhoven Hall
Signal Processing in Wearable Technology I (Poster Session)

- 16:10-16:12 ThDT17-06.1
Serial Fusion of Eulerian and Lagrangian Approaches for Accurate Heart-Rate Estimation using Face Videos 2834-2837
Puneet, Gupta* (*Tata Consultancy Services Ltd.*); Bhowmick, Brojeshwar (*Innovation Labs, Tata Consultancy Services Ltd.*); Pal, Arpan (*Tata Consultancy Services*)
- 16:12-16:14 ThDT17-06.2
A Simple Non-Contact Vital Sensing Method using Doppler Sensors Applicable to Multiple Targets 2838-2842
Kamiya, Yukihiko* (*Aichi Prefectural University*)
- 16:14-16:16 ThDT17-06.3
Automated Analysis of in Meal Eating Behavior using a Commercial Wristband IMU Sensor 2843-2846
Kyritsis, Konstantinos (*Aristotle Univ. of Thessaloniki*); Tatli, Christina (*Imperial College Business School*); Diou, Christos* (*Aristotle Univ. of Thessaloniki*); Delopoulos, Anastasios (*Aristotle Univ. of Thessaloniki*)
- 16:16-16:18 ThDT17-06.4
Non-Contact Acquisition of Respiration and Heart Rates using Doppler Radar with Time Domain Peak-Detection Algorithm 2847-2850
Yang, Xiaofeng* (*The University of Electro-Communications*); Sun, Guanghao (*The University of Electro-Communications*); Ishibashi, Koichiro (*The University of Electro-Communications*)
- 16:18-16:20 ThDT17-06.5
Effect of Motion Artifact on Digital Camera based Heart Rate Measurement 2851-2854
Mohamed Ameen Mashood, Mohamed Abul Hassan* (*UTP*); Malik, Aamir Saeed (*Universiti Teknologi PETRONAS*); Fofi, David (*Univ. Bourgogne Franche-Com*); Saad, Naufal (*Universiti Teknologi PETRONAS*); Meriaudeau, Fabrice (*Universite de Bourgogne*)

ThDT18-01: 16:10-17:10 Montgomery Hall
Neural Networks and Support Vector Machines II (Poster Session)

- 16:10-16:12 ThDT18-01.1
Classifying Hard and Soft Bone Tissues using Drilling Sounds 2855-2858
Zakeri, Vahid* (*University of British Columbia*); Hodgson, Antony J. (*University of British Columbia*)
- 16:12-16:14 ThDT18-01.2
Predictive Local Receptive Fields based Respiratory Motion Tracking for Motion-Adaptive Radiotherapy ... 2859-2862
Wang, Yubo (*Xidian University*); Tatinati, Sivanagaraja* (*Nanyang Technological University*); Huang, Liyu (*School of Life Science and Technology, Xidian University*); Kim, Jeong Hong (*Kyungpook National University*); Shafiq, Ghufuran (*Kyungpook National University*); Veluvolu, Kalyana C. (*Kyungpook National University*); Khong, Andy W H (*Nanyang Technological University*)
- 16:14-16:16 ThDT18-01.3
Motor Imagery EEG Classification with Optimal Subset of Wavelet based Common Spatial Pattern and Kernel Extreme Learning Machine 2863-2866
Park, Hyeong-jun* (*Gwangju Institute of Science and Technology*); Kim, Jongjin (*Gwangju Institute of Science and Technology*); BeomJun, Min (*Gwangju Institute of Science and Technology (GIST)*); Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)
- 16:16-16:18 ThDT18-01.4
Freezing-of-Gait Detection using Temporal, Spatial, and Physiological Features with a Support-Vector-Machine Classifier 2867-2870
Tahafchi, Parisa* (*University of Florida*); Molina, Rene (*University of Florida*); Roper, Jaimie (*University of Florida*); Sowalsky, Kristen (*University of Florida*); Hass, Chris (*University of Florida*); Gunduz, Aysegul (*University of Florida*); Okun, Michael (*University of Florida*); Judy, Jack (*University of Florida*)

16:18-16:20	ThDT18-01.5
Recognition Physical Activities with Optimal Number of Wearable Sensors using Data Mining Algorithms and Deep Belief Network	2871-2874
Al-fatlawi, Ali H. (<i>University of Kufa</i>); Fatlawi, Hayder K. (<i>University of Kufa</i>); Ling, Steve* (<i>University of Technology Sydney</i>)	
16:20-16:22	ThDT18-01.6
PCA-MLP SVM Distinction of Salivary Raman Spectra of Dengue Fever Infection	2875-2878
Mohd Radzol, Afaf Rozan (<i>Universiti Teknologi MARA</i>); Lee, Khuan Y.* (<i>Universiti Teknologi MARA</i>); Mansor, Wahidah (<i>Universiti Teknologi MARA</i>); Wong, Peng Shyan (<i>Infectious Disease Unit, Pulau Pinang General Hospital</i>); Looi, Irene (<i>Head of Dept., Consultant Neurologist, Hospital Seberang Ja</i>)	
16:22-16:24	ThDT18-01.7
Classification of Familiarity based on Cross-Correlation Features between EEG and Music	2879-2882
Kumagai, Yuiko* (<i>Tokyo University of Agriculture and Technology</i>); Arvaneh, Mahnaz (<i>University of Sheffield</i>); Okawa, Haruki (<i>Tokyo University of Agriculture and Technology</i>); Wada, Tomoya (<i>Tokyo University of Agriculture and Technology</i>); Tanaka, Toshihisa (<i>Tokyo University of Agriculture and Technology</i>)	
16:24-16:26	ThDT18-01.8
Assessment of Support Vector Machines and Convolutional Neural Networks to Detect Snoring using Emfit Mattress	2883-2886
Perez-Macias, Jose Maria* (<i>Tampere Univ. of Tech.</i>); Adavanne, Sharath (<i>Tampere Univ. of Tech.</i>); Viik, Jari (<i>Tampere Univ. of Tech.</i>); Värri, Alpo (<i>Tampere Univ. of Tech.</i>); Himanen, Sari-Leena (<i>Irkanmaa Hospital District</i>); Tenhunen, Mirja (<i>Dept. of Clinical Neurophysiology, Pirkanmaa Hospital</i>)	
16:26-16:28	ThDT18-01.9
Using LSTMs to Learn Physiological Models of Blood Glucose Behavior	2887-2891
Mirshekarian, Sadegh (<i>Ohio University</i>); Bunescu, Razvan* (<i>Ohio University</i>); Marling, Cindy (<i>Ohio University</i>); Schwartz, Frank (<i>Ohio University</i>)	
16:28-16:30	ThDT18-01.10
Convolutional Neural Network Classifier for Distinguishing Barrett's Esophagus and Neoplasia Endomicroscopy Images	2892-2895
Hong, Jisu (<i>Sungkyunkwan University</i>); Park, Bo-yong (<i>Sungkyunkwan University</i>); Park, Hyunjin* (<i>Sungkyunkwan University</i>)	
16:30-16:32	ThDT18-01.11
A Deep Learning Approach to Adherence Detection for Type 2 Diabetics	2896-2899
Mohebbi, Ali* (<i>Technical University of Denmark</i>); Aradóttir, Tinna Björk (<i>Technical University of Denmark</i>); Johansen, Alexander Rosenberg (<i>Technical University of Denmark</i>); Bengtsson, Henrik (<i>Novo Nordisk A/S</i>); Fraccaro, Marco (<i>Technical University of Denmark</i>); Morup, Morten (<i>DTU Compute</i>)	
16:32-16:34	ThDT18-01.12
Character Recognition from Trajectory by Recurrent Spiking Neural Networks	2900-2903
Shen, Jiangrong (<i>Zhejiang University</i>); Wang, Yueming* (<i>Zhejiang University</i>); Lin, Kang (<i>Zhejiang University</i>); Pan, Gang (<i>ZheJiang University</i>)	
16:34-16:36	ThDT18-01.13
Three Drowsiness Categories Assessment by Electroencephalogram in Driving Simulator Environment ...	2904-2907
Akbar, Izzat Aulia* (<i>Kumamoto Univ.</i>); Rumagit, Arthur Mourits (<i>Kumamoto Univ.</i>); Utsunomiya, Mitaku (<i>Kumamoto Univ.</i>); Morie, Takamasa (<i>Kumamoto Univ.</i>); Igasaki, Tomohiko (<i>Kumamoto Univ.</i>)	

ThDT18-02: 16:10-17:10	Montgomery Hall
Time-Frequency and Time-Scale Analysis I (Poster Session)	

16:10-16:12	ThDT18-02.1
Objective Assessment of Perceived Effort in Listening by Employing EEG Features	2908-2911
Mortezapouraghdam, Zeinab* (<i>Saarland University</i>); Strauss, Daniel J. (<i>Saarland University, Medical Faculty</i>); Bernarding, Corinna (<i>Saarland University Hospital</i>)	

16:12-16:14	ThDT18-02.2
Measurement of Human Enamel Mechanical Characteristics with Resonant Ultrasound Spectroscopy	2912-2915
Feng, Dandan (<i>Beihang University</i>); Fan, Fan (<i>Beihang University</i>); Wang, Rui (<i>Beihang University</i>); Zhang, Qiang (<i>Beihang University</i>); Niu, Haijun* (<i>Beihang University</i>)	
16:14-16:16	ThDT18-02.3
Estimation of Pulse Rate from Ambulatory PPG using Ensemble Empirical Mode Decomposition and Adaptive Thresholding	2916-2919
Pittara, Melpo* (<i>University of Cyprus</i>); Theocharides, Theocharis (<i>University of Cyprus</i>); Orphanidou, Christina (<i>University of Cyprus</i>)	
16:16-16:18	ThDT18-02.4
Non-Invasive Diagnosis of Non-Alcoholic Fatty Liver Disease (NAFLD) using Ultrasound Image Echogenicity	2920-2923
Benjamin, Alex (<i>MIT</i>); Zubajlo, Rebecca (<i>MIT</i>); Thomenius, Kai Erik (<i>MIT</i>); Dhyani, Manish (<i>Massachusetts General Hospital</i>); Kaliannan, Kanakaraju (<i>Massachusetts General Hospital - Harvard University</i>); Samir, Anthony Edward (<i>Harvard Medical School, Massachusetts General Hospital</i>); Anthony, Brian W.* (<i>Massachusetts Institute of Technology</i>)	
16:18-16:20	ThDT18-02.5
Comparison of Electrohysterogram Characteristics during Uterine Contraction and Non-Contraction during Labor	2924-2927
Liu, Zhihui (<i>Beijing Univ. of Technology</i>); Hao, Dongmei* (<i>Beijing Univ. of Technology</i>); Zhang, Lei (<i>Beijing Univ. of Technology</i>); Liu, Juntao (<i>Peking Union Medical College Hospital</i>); Zhou, Xiya (<i>Peking Union Medical College Hospital</i>); Yang, Lin (<i>Beijing Univ. of Technology</i>); Yang, Yimin (<i>Beijing Univ. of Technology</i>); Li, Xuwen (<i>Beijing Univ. of Technology</i>); Zhang, Song (<i>Beijing Univ. of Technology</i>); Zheng, Dingchang (<i>Anglia Ruskin Univ.</i>)	
16:20-16:22	ThDT18-02.6
Performance Comparison of Wavelet based Denoising Methods on Discontinuous Adventitious Lung Sounds	2928-2931
Ulukaya, Sezer* (<i>Bogazici University / Trakya University</i>); Serbes, Gorkem (<i>Yildiz Technical University</i>); Kahya, Yasemin P. (<i>Bogazici University</i>)	
16:22-16:24	ThDT18-02.7
Analysis of Dynamic Antral Scintigraphy using Empirical Mode Decomposition	2932-2935
Ngamsirijit, Panasun (<i>Faculty of Engineering, Chulalongkorn University</i>); Jarumaneeroj, Pisit (<i>Chulalongkorn University</i>); Chaiwatanarat, Tawatchai (<i>Faculty of Medicine, Chulalongkorn University</i>); Rakvongthai, Yothin* (<i>Faculty of Medicine, Chulalongkorn University</i>)	
16:24-16:26	ThDT18-02.8
Feature Reconstruction of LFP Signals based on PLSR in the Neural Information Decoding Study	2936-2939
Dong, Yonghui* (<i>Zhengzhou Univ.</i>); Shang, Zhigang (<i>Zhengzhou Univ.</i>); Li, Mengmeng (<i>Zhengzhou Univ.</i>); Liu, Xinyu (<i>Zhengzhou Univ.</i>); Wan, Hong (<i>Zhengzhou Univ.</i>)	
16:26-16:28	ThDT18-02.9
Gender Differences in Dynamic Functional Connectivity based on Resting-State fMRI	2940-2943
Mao, Nini (<i>Beijing Normal University</i>); Zheng, Hongna (<i>Beijing Normal University</i>); Long, Zhiying (<i>Beijing Normal University</i>); Li, Yao (<i>College of Information Science and Technology, Beijing Normal Un</i>); Xia, Wu* (<i>Beijing Normal University</i> ,)	
16:28-16:30	ThDT18-02.10
Physical Activity Classification using Time-Frequency Signatures of Motion Artifacts in Multi-Channel Electrical Impedance Plethysmographs	2944-2947
Khan, Hassan Aqeel* (<i>National University of Sciences & Technology</i>); Gore, Amit (<i>GE Global Research</i>); Ashe, Jeffrey (<i>GE Global Research</i>); Chakrabartty, Shantanu (<i>Washington University in Saint Louis Missouri</i>)	
16:32-16:34	ThDT18-02.12
Variation-Based Sparse Source Imaging in Localizing Uterine Activity	2948-2951
Zahran, Saeed* (<i>Université de technologie de Compiègne</i>); Yochum, Maxime (<i>Université de Rennes 1</i>); Diab, Ahmad (<i>Université de technologie de Compiègne - UTC</i>); Khalil, Mohamad (<i>Lebanese Univ., Doctoral School for Sciences and Technology</i> ,); Marque, Catherine (<i>Univ. of technology of compiegne</i>)	

16:34-16:36 ThDT18-02.13
Respiratory Sounds Classification using Statistical Biomarker 2952-2955
Mondal, Ashok (*Dept. of Electronics and Communication Engineering*); Tang, Hong* (*Dept. of Biomedical Engineering, Dalian University of Tech*)

16:36-16:38 ThDT18-02.14
Significance of Modified Empirical Mode Decomposition for ECG Denoising 2956-2959
Singh, Pratik* (*NIT Patna*); Shahnawazuddin, S (*NIT Patna*); Pradhan, Gayadhar (*NIT Patna*)

Friday, 14 July 2017

FrAT1: 08:00-09:30 Roentgen Hall
Signal Pattern Classification – Brain Computer Interface (Oral Session)
Chair: Guan, Cuntai (*Nanyang Technological University*)

08:00-08:15 FrAT1.1
Evaluation of Filtering Techniques to Extract Movement Intention Information from Low-Frequency EEG Activity 2960-2963
Bibián, Carlos (*Univ. Tübingen*); López-Larraz, Eduardo* (*Univ. of Tübingen*); Irastorza-Landa, Nerea (*Univ. of Tübingen*); Birbaumer, Niels (*Eberhard-Karls-Univ.*); Ramos-Murguialday, Ander (*Eberhard Karls Univ. of Tübingen/TECNALIA*)

08:15-08:30 FrAT1.2
Reject Option to Improve Decoding Accuracy for EEG-Motor Imagery based BCI 2964-2967
M, Ganeshkumar (*National University of Singapore (NUS)*); So, Rosa* (*Institute for Infocomm Research*); Ang, Kai Keng (*Institute for Infocomm Research*); Guan, Cuntai (*Nanyang Technological University*)

08:30-08:45 FrAT1.3
Decoding Complex Imagery Hand Gestures 2968-2971
Mohseni Salehi, Seyed Sadegh* (*Northeastern University*); Moghadamfalahi, Mohammad (*Northeastern University*); Quivira, Fernando (*Northeastern University*); Piers, Alexander (*Northeastern University*); Nezamfar, Hooman (*Northeastern University*); Erdogmus, Deniz (*Northeastern University*)

08:45-09:00 FrAT1.4
Context-Aware Recursive Bayesian Graph Traversal in BCIs 2972-2975
Mohseni Salehi, Seyed Sadegh* (*Northeastern University*); Moghadamfalahi, Mohammad (*Northeastern University*); Nezamfar, Hooman (*Northeastern University*); Haghighi, Marzieh (*Northeastern University*); Erdogmus, Deniz (*Northeastern University*)

09:00-09:15 FrAT1.5
Motor Imagery Classification of Upper Limb Movements based on Spectral Domain Features of EEG Patterns 2976-2979
Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Tech.*); Li, Xiangxin (*Shenzhen Institutes of Advanced Tech., Chinese Academy of Sc*); Geng, Yanjuan (*Shenzhen Institutes of Advanced Tech.*); Fang, Peng (*Shenzhen Institutes of Advanced Tech., Chinese Academy of S*); Chen, Shixiong (*Shenzhen Institutes of Advanced Tech.*); Li, Guanglin* (*Shenzhen Institutes of Advanced Tech.*)

09:15-09:30 FrAT1.6
A Robust Beamforming Approach for Early Detection of Readiness Potential with Application to Brain-Computer Interface Systems 2980-2983
Mahmoodi, Maryam (*Tehran Univ. of Medical Sciences*); Makki Abadi, Bahador* (*Tehran Univ. of Medical Sciences*); Khajepour, Hassan (*Tehran Univ. of Medical Sciences*); Harirchian, Mohammad Hosein (*Medical Sciences/Univ. of Tehran*)

FrAT2: 08:00-09:30	Cho Room
Ultrasound Imaging – Elastography I (Oral Session)	
Chair: Managuli, Ravi (<i>Hitachi Aloka Medical America, Inc.</i>)	
Co-Chair: Yoo, Yangmo (<i>Sogang University</i>)	

08:00-08:15 FrAT2.1
ARFI Variance of Acceleration (VoA) for Noninvasive Characterization of Human Carotid Plaques in Vivo 2984-2987
 Torres, Gabriela* (*Univ. of North Carolina at Chapel Hill and North Carolina S*); Czernuszewicz, Tomasz (*Univ. of North Carolina at Chapel Hill*); Homeister, Jonathon (*Univ. of North Carolina at Chapel Hill*); Farber, Mark (*Univ. of North Carolina at Chapel Hill*); Gallippi, Caterina (*The Univ. of North Carolina at Chapel Hill*)

08:15-08:30 FrAT2.2
The Influence of Hepatic Steatosis on the Evaluation of Fibrosis with Non-Alcoholic Fatty Liver Disease by Acoustic Radiation Force Impulse 2988-2991
 Guo, Yanrong (*Shenzhen Univ.*); Lin, Haoming (*Shenzhen Univ.*); Zhang, Xin-Yu (*Shenzhen Univ.*); Wen, Huiying (*Shenzhen Univ.*); Chen, Siping (*Shenzhen Univ.*); Chen, Xin* (*Shenzhen Univ.*)

08:30-08:45 FrAT2.3
Application of Compressive Sensing to Portable Ultrasound Elastography 2992-2995
 Shin, Bonghun Shin (*University of Waterloo*); Jeon, Soo (*University of Waterloo*); Ryu, Jeongwon (*Healcerion Inc.*); Kwon, Hyock Ju* (*University of Waterloo*)

08:45-09:00 FrAT2.4
Radiofrequency Ultrasound Data Acquisition with a 640-Element Array Transducer for Strain Imaging: Experimental Results with Phantoms and Biological Tissue Samples 2996-2999
 Brusseau, Elisabeth* (*CREATIS*); Bernard, Adeline (*CREATIS*); Meynier, Cyril (*VERMON*); Ferin, Guillaume (*VERMON*); Nguyen-Dinh, An (*VERMON*); Basset, Olivier (*CREATIS*)

09:00-09:15 FrAT2.5
Measurement of Surface Acoustic Waves in High-Frequency Ultrasound: Preliminary Results 3000-3003
 Saavedra, Ana Cecilia* (*Pontificia Univ. Católica del Perú*); Zvietcovich, Fernando (*University of Rochester*); Lavarello, Roberto (*Pontificia Univ. Católica del Peru*); Castañeda, Benjamín (*Pontificia Univ. Católica del Perú*)

09:15-09:30 FrAT2.6
Shear Wave Estimation by using Shear Wave Holography with Normal Vibration: Preliminary Results .. 3004-3007
 Arroyo, Junior* (*Pontificia Univ. Católica del Perú*); Castañeda, Benjamín (*Pontificia Univ. Católica del Perú*)

FrAT3: 08:00-09:30	Park Room
MRI Neuroimaging (Oral Session)	
Chair: Wang, Yi (<i>Cornell University</i>)	
Co-Chair: Wang, Ze (<i>Temple University</i>)	

08:00-08:15 FrAT3.1
Central Sulcus Depth and Sulcal Profile Differences between Congenitally Blind and Sighted Individuals .. 3008-3011
 James, Clarissa* (*University of Southern California*); Lepore, Franco (*University of Montreal*); Collignon, Olivier (*Université Catholique de Louvain*); Lepore, Natasha (*University of Southern California / Children's Hospital Los Ange*); Coulon, Olivier (*Aix-Marseille University*)

08:15-08:30 FrAT3.2
MRI based Objective Ischemic Core-Penumbra Quantification in Adult Clinical Stroke 3012-3015
 Vupputuri, Anusha* (*Indian Institute of Technology Kharagpur*); Ashwal, Stephen (*Dept. of Pediatrics, Loma Linda University*); Tsao, Bryan (*Dept. of Neurology, Loma Linda University*); Haddad, Elia (*Dept. of Neurology, Loma Linda University*); Ghosh, Nirmalya (*Indian Institute of Technology Kharagpur*)

08:30-08:45 FrAT3.3
Brain Functional Connectivity Alterations in a Rat Model of Excessive Alcohol Drinking: A Resting-State Network Analysis 3016-3019
 Pérez-Ramírez, Úrsula (*Universitat Politècnica de València*); Díaz-Parra, Antonio (*Universitat Politècnica de València*); Ciccocioppo, Roberto (*School of Pharmacy University of Camerino, Camerino, Italy*); Canals, Santiago (*Instituto de Neurociencias, Consejo Superior de Investigaciones*); Moratal, David* (*Universitat Politècnica de València*)

08:45-09:00 FrAT3.4
Difference of Alzheimer's Disease Sub-Groups using Two Features from Intensity Size Zone Matrix 3020-3023
Lee, Seunghak (*Sungkyunkwan Univ.*); Park, Hyunjin* (*Sungkyunkwan University*)

09:00-09:15 FrAT3.5
**Early Axonal Damage in Normal Appearing White Matter in Multiple Sclerosis:
Novel Insights from Multi-Shell Diffusion MRI** 3024-3027
De Santis, Silvia (*Universidad Miguel Hernandez de Elche*); Granberg, Tobias (*Karolinska Institutet*); Ouellette, Russell (*Dept. of Radiology, Athinoula A. Martinos Center for Biomed*); Treaba, Constantina (*Dept. of Radiology, Athinoula A. Martinos Center for Biomed*); Fan, Qiuyun (*Dept. of Radiology, Athinoula A. Martinos Center for Biomed*); Herranz, Elena (*Athinoula A. Martinos Center for Biomedical Imaging*); Mainero, Caterina (*Dept. of Radiology, Athinoula A. Martinos Center for Biomed*); Toschi, Nicola* (*University of Rome "Tor Vergata", Faculty of Medicine*)

09:15-09:30 FrAT3.6
Brain Age Estimation from T1-Weighted Images using Effective Local Features 3028-3031
Fujimoto, Ryuichi* (*Tohoku University*); Ito, Koichi (*Tohoku University*); Wu, Kai (*South China University of Technology*); Sato, Kazunori (*Tohoku University*); Taki, Yasuyuki (*Tohoku University*); Fukuda, Hiroshi (*Tohoku Pharmaceutical University*); Aoki, Takafumi (*Tohoku University*)

FrAT4: 08:00-09:30 Min Room
Body Sensor Networks – Molecules, Radio, and Machine Learning – I (Invited Session)
Chair: Balasingham, Ilango (*Oslo University Hospital and Norwegian University of Science and Technology*)
Co-Chair: Anzai, Daisuke (*Nagoya Institute of Technology*)

08:30-08:45 FrAT4.3
Wideband Phantoms of Different Body Tissues for Heterogeneous Models in Body Area Networks 3032-3035
Castelló-Palacios, Sergio (*Universitat Politècnica de Valencia*); Garcia-Pardo, Concepcion (*Universidad Politecnica de Valencia*); Fornes-Leal, Alejandro (*Universitat Politècnica de Valencia*); Cardona, Narcis (*Universitat Politècnica de València*); Vallés-Lluch, Ana* (*Universitat Politècnica de València*)

08:45-09:00 FrAT4.4
A Wireless Capsule Endoscopy Steering Mechanism using Magnetic Field Platform 3036-3039
Alsunaydih, Fahad Nasser* (*Monash University*); Redouté, Jean-Michel (*Monash University*); Yuce, Mehmet (*Monash University*)

09:00-09:15 FrAT4.5
A Swallowable Sensing Device Platform with Wireless Power Feeding and Chemical Reaction Actuator 3040-3043
Nakamura, Ryota* (*Kobe University*); Izumi, Shintaro (*Kobe University*); Kawaguchi, Hiroshi (*Kobe University*); Ohta, Hidetoshi (*Sapporo Orthopedics and Cardiovascular Hospital*); Yoshimoto, Masahiko (*Kobe University*)

FrAT7: 08:00-09:30 Herrick Room
Neurological Disorders I (Oral Session)
Chair: Nguyen, Hung T. (*University of Technology, Sydney*)

08:00-08:15 FrAT7.1
Detection of Turning Freeze in Parkinson's Disease based on S-Transform Decomposition of EEG Signals ... 3044-3047
Ly, Quynh Tran* (*University of Technology Sydney*); Handojoseno, Aluysius Maria Ardi (*University of Technology, Sydney*); Gilat, Moran (*Parkinson's Disease Research Clinic, Brain and Mind Research Ins*); Chai, Rifai (*University of Technology, Sydney*); Ehgoetz Martens, Kaylena (*University of Sydney*); Georgiades, Matthew (*University of Sydney*); Naik, Ganesh R (*University of Technology Sydney*); Tran, Yvonne (*University of Technology, Sydney*); Lewis, Simon J.G. (*Parkinson's Disease Research Clinic, Brain and Mind Research Ins*); Nguyen, Hung T. (*University of Technology, Sydney*)

08:15-08:30	FrAT7.2
Detection of Gait Initiation Failure in Parkinson's Disease based on Wavelet Transform and Support Vector Machine	3048-3051
Ly, Quynh Tran* (<i>University of Technology Sydney</i>); Handojoseno, Aluysius Maria Ardi (<i>University of Technology, Sydney</i>); Gilat, Moran (<i>Parkinson's Disease Research Clinic, Brain and Mind Research Ins</i>); Chai, Rifai (<i>University of Technology, Sydney</i>); Ehgoetz Martens, Kaylena (<i>University of Sydney</i>); Georgiades, Matthew (<i>University of Sydney</i>); Naik, Ganesh R (<i>University of Technology Sydney</i>); Tran, Yvonne (<i>University of Technology, Sydney</i>); Lewis, Simon J.G. (<i>Parkinson's Disease Research Clinic, Brain and Mind Research Ins</i>); Nguyen, Hung T. (<i>University of Technology, Sydney</i>)	
08:30-08:45	FrAT7.3
Posturography Stability Score Generation for Stroke Patient using Kinect: Fuzzy based Approach	3052-3056
Mazumder, Oishee* (<i>Tata Consultancy Services</i>); Chakravarty, Kingshuk (<i>Tata Consultancy Services Ltd.</i>); Chatterjee, Debatri (<i>TCS Innovation Lab</i>); Sinha, Aniruddha (<i>Tata Consultancy Services Ltd.</i>); Das, Abhijit (<i>Institute of NeuroSciences Kolkata</i>)	
08:45-09:00	FrAT7.4
Automated Epileptiform Spike Detection via Affinity Propagation-Based Template Matching	3057-3060
Thomas, John* (<i>Nanyang Technological Univ.</i>); Jing, Jin (<i>Nanyang Technological Univ.</i>); Dauwels, Justin (<i>NTU</i>); Cash, Sydney (<i>Massachusetts General Hospital</i>); Westover, Brandon (<i>Massachusetts General Hospital</i>)	
09:00-09:15	FrAT7.5
A New Infarction Detection Method based on Heart Rate Variability in Rat Middle Cerebral Artery Occlusion Model	3061-3064
Kodama, Tomonobu (<i>The Jikei University School of Medicine</i>); Kamata, Keisuke (<i>Kyoto University</i>); Fujiwara, Koichi* (<i>Kyoto University</i>); Kano, Manabu (<i>Kyoto University</i>); Yamakawa, Toshitaka (<i>Kumamoto University</i>); Yuki, Ichiro (<i>The Jikei University School of Medicine</i>); Murayama, Yuichi (<i>Jikei University School of Medicine</i>)	
09:15-09:30	FrAT7.6
Stroke Lesion Location Influences the Decoding of Movement Intention from EEG	3065-3068
López-Larraz, Eduardo* (<i>University of Tübingen</i>); Ray, Andreas Markus (<i>Tuebingen University</i>); da Cruz Figueiredo, Thiago (<i>University of Tübingen</i>); Bibián, Carlos (<i>University Tübingen</i>); Birbaumer, Niels (<i>Eberhard-Karls-University</i>); Ramos-Murguialday, Ander (<i>Eberhard Karls University of Tübingen/TECNALIA</i>)	
FrAT8: 08:00-09:30 Schwan Room	
Brain Image Analysis I (Oral Session)	
Chair: Hu, Qingmao (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences</i>)	
Co-Chair: Park, Hyunjin (<i>Sungkyunkwan University</i>)	
08:00-08:15	FrAT8.1
Automated Subdural Hematoma Segmentation for Traumatic Brain Injured (TBI) Patients	3069-3072
Farzaneh, Negar* (<i>University of Michigan</i>); Soroushmehr, S.M.Reza (<i>University of Michigan, Ann Arbor</i>); Williamson, Craig (<i>University of Michigan</i>); Jiang, Cheng (<i>University of Michigan</i>); Srinivasan, Ashok (<i>University of Michigan</i>); Bapuraj, Jayapalli Rajiv (<i>University of Michigan</i>); Ward, Kevin (<i>University of Michigan</i>); Korley, Frederick K (<i>University of Michigan</i>); Najarian, Kayvan (<i>University of Michigan - Ann Arbor</i>)	
08:15-08:30	FrAT8.2
Compartmental Sparse Feature Selection Method for Alzheimer's Disease Identification	3073-3076
Liu, Yan (<i>University of Chinese Academy of Sciences</i>); Wang, Ling* (<i>University of Electronic Science and Technology of China</i>); Zeng, Xiangzhu (<i>Peking University Third Hospital, Beijing, China</i>); Wang, Zheng (<i>Capital University of Medical Sciences</i>); Gao, Yajun (<i>The General Hospital of Petroleum Administration of North China</i>); Wang, Qiuyue (<i>The General Hospital of Petroleum Administration of North China</i>)	
08:30-08:45	FrAT8.3
Low Grade Glioma Growth Modeling Considering Chemotherapy and Radiotherapy Effects from Magnetic Resonance Images	3077-3080
Elazab, Ahmed (<i>Shenzhen Institutes of Advanced Technology</i>); Bai, Hongmin (<i>Dept. of Neurosurgery, Guangzhou General Hospital of Guangz</i>); Zhang, Xiaodong (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Hu, Qingmao* (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>)	

08:45-09:00 FrAT8.4
Classification of Low-Grade and High-Grade Glioma using Multi-Modal Image Radiomics Features 3081-3084
Cho, Hwan-ho (*Sungkyunkwan University*); Park, Hyunjin* (*Sungkyunkwan University*)

09:00-09:15 FrAT8.5
Contribution to Speech Development of the Right Anterior Putamen Revealed with Multivariate Tensor-Based Morphometry 3085-3087
Vlasova, Roza* (*CIBORG Lab, Dept. of Radiology, Children's Hospital Los Angeles*); Wang, Yalin (*Arizona State University*); Dirks, Holly (*Brown University*); Dean, Douglas (*University of Wisconsin-Madison*); O'Muircheartaigh, Jonathan (*Brown University*); Gonzalez, Sara (*CIBORG Lab, Dept. of Radiology, Children's Hospital Los Angeles*); Nguyen, Binh Kien (*CIBORG Lab, Dept. of Radiology, Children's Hospital Los Angeles*); Nelson, Marvin (*University of Southern California and Keck School of Medicine*); Deoni, Sean (*University of Colorado*); Lepore, Natasha (*University of Southern California / Children's Hospital Los Angeles*)

FrAT10: 08:00-09:30 Schmitt Room
General and Theoretical Informatics – Machine Learning I (Oral Session)
Chair: Kim, Yongwook Bryce (*Massachusetts Institute of Technology*)
Co-Chair: Ikeda, Kazushi (*Nara Institute of Science and Technology*)

08:00-08:15 FrAT10.1
Collision Frequency Locality-Sensitive Hashing for Prediction of Critical Events 3088-3093
Kim, Yongwook Bryce* (*Massachusetts Institute of Technology*); Hemberg, Erik (*MIT CSAIL*); O'Reilly, Una-May (*Massachusetts Institute of Technology*)

08:15-08:30 FrAT10.2
Optimized Automatic Sleep Stage Classification using the Normalized Mutual Information Feature Selection (NMIFS) Method 3094-3097
Cho, Dongrae* (*Gwangju Institute of Science and Technology*);
Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)

08:30-08:45 FrAT10.3
Application of SsVGMM to Medical Data – Classification with Novelty Detection 3098-3101
Yang, Fan (*Nara Institute of Science and Tech.*); Soriano, Jaymar (*Nara Institute of Science and Tech.*); Kubo, Takatomi* (*Nara Institute of Science and Tech.*); Ikeda, Kazushi (*Nara Institute of Science and Tech.*)

08:45-09:00 FrAT10.4
Ensemble Transfer Learning for Alzheimer's Disease Diagnosis 3102-3105
Colbaugh, Richard (*Periander Ltd*); Glass, Kristin* (*Periander Ltd*); Gallegos, Gil (*New Mexico Highlands Univ.*)

09:00-09:15 FrAT10.5
Learning about Individuals' Health from Aggregate Data 3106-3109
Colbaugh, Richard (*Periander Ltd*); Glass, Kristin* (*Periander Ltd*)

09:15-09:30 FrAT10.6
Comparing Deep Neural Network and Other Machine Learning Algorithms for Stroke Prediction in a Large-Scale Population-Based Electronic Medical Claims Database 3110-3113
Hung, Chen-Ying (*National Tsing Hua Univ.*); Chen, Wei-Chen (*Dept. of Electrical Engineering, National Tsing Hua Univ.*); Lai, Po-Tsun (*Dept. of Electrical Engineering, National Tsing Hua Univ.*); Lin, Ching-Heng (*Dept. of Medical Research, Taichung Veterans General Hospital*); Lee, Chi-Chun* (*National Tsing Hua Univ.*)

FrAT11: 08:00-09:30 Greatbatch Room
Cardiovascular Variability (Oral Session)
Chair: Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)

08:00-08:15 FrAT11.1
Evaluating the Association between Cardiac and Peripheral Resistance Arms of the Baroreflex 3114-3117
Porta, Alberto* (*Univ. degli Studi di Milano*); Bari, Vlasta (*IRCCS Policlinico San Donato*); Ranuzzi, Giovanni (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive*); De Maria, Beatrice (*IRCCS Fondazione Salvatore Maugeri, Milano*); Malacarne, Mara (*Dipartimento di Biotecnologie Mediche e Medicina Traslazionale*); Pagani, Massimo (*Univ. degli studi di Milano*); Lucini, Daniela (*Univ. degli studi di Milano*)

08:15-08:30 FrAT11.2
Changes in Heart Rate Variability of Patients with Delirium in Intensive Care Unit 3118-3121
 Oh, Jooyoung* (*Gwangju Institute of Science and Technology*); Cho, Dongrae (*Gwangju Institute of Science and Technology*); Kim, Jongin (*Gwangju Institute of Science and Technology*); Heo, Jaeseok (*Yonsei University*); Park, Jaesub (*Yonsei University*); Na, Se Hee (*Yonsei University*); Shin, Cheung Soo (*Yonsei University*); Kim, Jae-Jin (*Yonsei University*); Park, Jin Young (*Yonsei University*); Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)

08:30-08:45 FrAT11.3
A Stochastic and Mathematically Integrative Model of the Control of Human Heart Rate 3122-3125
 BuSha, Brett* (*The College of New Jersey*)

08:45-09:00 FrAT11.4
Towards the Identification of Subjects Prone to Develop Atrial Fibrillation after Coronary Artery Bypass Graft Surgery via Univariate and Multivariate Complexity Analysis of Heart Period Variability ... 3126-3129
 Bari, Vlasta* (*IRCCS Policlinico San Donato*); Ranucci, Marco (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive*); De Maria, Beatrice (*IRCCS Fondazione Salvatore Maugeri, Milano*); Ranuzzi, Giovanni (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive*); Pistuddi, Valeria (*Dept. of Cardiothoracic, Vascular Anesthesia and Intensive*); Porta, Alberto (*Universita' degli Studi di Milano*)

09:00-09:15 FrAT11.5
Respiratory-Gated Auricular Vagal Afferent Nerve Stimulation (RAVANS) Effects on Autonomic Outflow in Hypertension 3130-3133
 Sclocco, Roberta* (*Massachusetts General Hospital, Harvard Medical School*); Garcia, Ronald (*Massachusetts General Hospital*); Gabriel, Aileen (*Brigham and Women's Hospital*); Kettner, Norman (*Logan College of Chiropractic*); Napadow, Vitaly (*Massachusetts General Hospital*); Barbieri, Riccardo (*Politecnico di Milano*)

09:15-09:30 FrAT11.6
Multiscale Sample Entropy of Heart Rate and Blood Pressure: Methodological Aspects 3134-3137
 Castiglioni, Paolo* (*Fondazione Don Carlo Gnocchi ONLUS*); Brambilla, Lorenzo (*Fondazione Don Carlo Gnocchi, Parma, Italy*); Bini, Matteo (*Dept. of Clinical and Experimental Medicine*); Coruzzi, Paolo (*Dept. of Clinical and Experimental Medicine*); Faini, Andrea (*Istituto Auxologico Italiano*)

FrAT14: 08:00-09:30	Schaldach Room
Image Classification I (Oral Session)	

08:00-08:15 FrAT14.1
CAD for Prostate Cancer Detection based on Multiparametric Data 3138-3141
 Meriaudeau, Fabrice* (*Universite de Bourgogne*); Lemaitre, Guillaume (*LE2I - UMR 6306*); Ratsgoo, Mojdeh (*LE2I - UMR 6306*); Martí, Robert (*University of Girona*)

08:15-08:30 FrAT14.2
Detecting Impaired Vision Caused by AMD from Gaze Data 3142-3145
 Liu, Huiying* (*Institute for Infocomm Research*); Xu, Yanwu (*Institute for Infocomm Research*); Wong, Damon (*Institute for Infocomm Research*); Yow, Ai Ping (*Institute for Infocomm Research*); Laude, Augustinus (*Tan Tock Seng Hospital*); Lim, Tock Han (*Tan Tock Seng Hospital*)

08:30-08:45 FrAT14.3
Gabor-Based Automatic Spinal Level Identification in Ultrasound 3146-3149
 Ikhsan, Mohammad* (*National University of Singapore*); Tan, Kok Kiong (*National University of Singapore*); Oh, Ting Ting (*KK Women's and Children's Hospital*); Sng, Ban Leong (*KK Women's and Children's Hospital*); Lew, John Paul (*KK Women's and Children's Hospital*)

08:45-09:00 FrAT14.4
Image Recognition with Missing-Features based on Gaussian Mixture Model and Graph Constrained Nonnegative Matrix Factorization 3150-3153
 Zhang, Zhuyan (*East China University of Science and Technology*); Zhu, Hongqing* (*East China University of Science and Technology*); Tao, Xuan (*East China University of Science and Technology*)

09:00-09:15 FrAT14.5
Gastrointestinal Bleeding Detection in Wireless Capsule Endoscopy Images using Handcrafted and CNN Features 3154-3157
Jia, Xiao* (*The Chinese University of Hong Kong*); Meng, Max Q.-H. (*The Chinese University of Hong Kong*)

09:15-09:30 FrAT14.6
Automated Angiodysplasia Detection from Wireless Capsule Endoscopy 3158-3161
Noya, Ferran (*Automatic Control Dept., Univ. Politècnica de Catalun*); Álvarez-González, Marco Antonio (*Endoscopy Unit, Dept. of Digestive Diseases, Hospital del M*); Benitez, Raul* (*Univ. Politécnica de Catalunya*)

FrAT17: 08:00-09:30 Einthoven Hall
Signal Processing – Cardiovascular Signals (Oral Session)
Chair: Burattini, Laura (*Università Politecnica delle Marche*)

08:00-08:15 FrAT17.1
Intracardiac Electrogram Envelope Detection during Atrial Fibrillation using Fast Orthogonal Search ... 3162-3165
Hashemi, Javad* (*Queen's Univ.*); Shariat, Mohammad Hassan (*Queen's Univ., Kingston, Ontario, Canada*); Redfearn, Damian P (*Queen's Univ.*)

08:15-08:30 FrAT17.2
Statistical Baseline Assessment in Cardiocography 3166-3169
Agostinelli, Angela (*Polytechnic Univ. of Marche*); Braccili, Eleonora (*Univ. Politecnica delle Marche*); Marchegiani, Enrico (*Univ. Politecnica delle Marche*); Rosati, Riccardo (*Univ. Politecnica delle Marche*); Sbrollini, Agnese (*Univ. Politecnica delle Marche*); Burattini, Luca (*Univ. Politecnica delle Marche*); Morettini, Micaela (*Univ. Politecnica delle Marche*); Di Nardo, Francesco (*Polytechnic Univ. of Marche*); Fioretti, Sandro (*Univ. Politecnica delle Marche*); Burattini, Laura* (*Univ. Politecnica delle Marche*)

08:30-08:45 FrAT17.3
Nonlinear Analysis of Heart Rate Variability for the Assessment of Dysphoria 3170-3173
Greco, Alberto* (*University of Pisa*); Messerotti Benvenuti, Simone (*University of Padova*); Gentili, Claudio (*University of Pisa*); Palomba, Daniela (*University of Padova*); Valenza, Gaetano (*University of Pisa*); Scilingo, Enzo Pasquale (*University of Pisa*)

08:45-09:00 FrAT17.4
Classification Enhancement for Post-Stroke Dementia using Fuzzy Neighborhood Preserving Analysis with QR-Decomposition 3174-3177
Al-Qazzaz, Noor* (*UKM*); Md Ali, Sawal Hamid (*National Univ. of Malaysia*); Siti Anom, Ahmad (*Univ. Putra Malaysia*); Escudero, Javier (*Univ. of Edinburgh*)

09:00-09:15 FrAT17.5
Attenuation of Vagal Modulation with Aging: Univariate and Bivariate Analysis of HRV 3178-3181
Costa Oliveira Junior, Evandro* (*University of Brasilia*); Oliveira, Flavia M. G. S. A. (*University of Brasilia*)

FrAT18: 08:00-09:30 Montgomery Hall
Nonlinear Dynamic Analysis I – Biomedical Signals (Oral Session)

08:00-08:15 FrAT18.1
Multiscale Dispersion Entropy for the Regional Analysis of Resting-State Magnetoencephalogram Complexity in Alzheimer's Disease 3182-3185
Azami, Hamed (*Univ. of Edinburgh*); Kinney-Lang, Eli* (*Univ. of Edinburgh*); Ebied, Ahmed (*Univ. of Edinburgh*); Fernandez, Alberto (*Universidad Complutense de Madrid*); Escudero, Javier (*Univ. of Edinburgh*)

08:15-08:30 FrAT18.2
Gait Variability Assessment in Neuro-Degenerative Patients by Measuring Complexity of Independent Sources 3186-3189
Heydarzadeh, Mehrdad (*The University of Texas at Dallas*); Nourani, Mehrdad (*University of Texas at Dallas*); Tan, Chin-Tuan* (*University of Texas, Dallas*); Ostadabbas, Sarah (*Northeastern University*)

08:30-08:45 FrAT18.3
Complexity Analysis of Resting State fMRI Signals in Depressive Patients 3190-3193
Ho, Pei-Shan (*National Tsing Hua Univ., Hsinchu*); Lin, Chemin (*Keelung Chang Gung Memorial Hospital*);
Chen, Guan-Yen (*National Tsing Hua Univ.*); Liu, Ho-Ling (*Univ. of Texas, MD Anderson Cancer Center*);
Huang, Chih-Mao (*National Chiao Tung Univ.*); Lee, Tatia Mei-Chun (*The Univ. of Hong Kong*); Lee, Shwu-Hua
(*Linkou Chang Gung Memorial Hospital*); Wu, Shun Chi* (*National Tsing Hua Univ.*)

08:45-09:00 FrAT18.4
**Predicting Learning Dynamics in Multiple-Choice Decision-Making Tasks
using a Variational Bayes Technique** 3194-3197
Yousefi, Ali* (*Massachusetts General Hospital and Harvard Medical School*); Kakooee, Reza (*Tarbiat Modares
University*); Hamidi Beheshti, Mohammad Taghi (*Tarbiat Modares University*); Dougherty, Darin (*Massachusetts
General Hospital*); Eskandar, Emad (*Massachusetts General Hospital*); Widge, Alik (*Massachusetts General
Hospital*); Eden, Uri (*Boston University*)

09:00-09:15 FrAT18.5
**A Closed-Form Unsupervised Geometry-Aware Dimensionality Reduction Method
in the Riemannian Manifold of SPD Matrices** 3198-3201
Congedo, Marco* (*CNRS, University Grenoble Alpes, Grenoble Institute of Technology*); Rodrigues, Pedro
Luiz Coelho (*Escola Politécnica USP*); Bouchard, Florent (*Gipsa-lab, Univ. Grenoble Alpes*);
Barachant, Alexandre (*Independent Researcher*); Jutten, Christian (*University of Grenoble*)

09:15-09:30 FrAT18.6
Real-Time Physiological Tremor Estimation using Recursive Singular Spectrum Analysis 3202-3205
Adhikari, Kabita* (*Newcastle University*); Tatinati, Sivanagaraja (*Nanyang Technological University*);
Veluvolu, Kalyana C. (*Kyungpook National University*); Chambers, Jonathon A. (*Newcastle University*);
Nazarpour, Kianoush (*Newcastle University*)

FrBT1: 10:50-12:20 Roentgen Hall
Signal Pattern Classification – EEG I (Oral Session)
Chair: Zhang, Dan (*Tsinghua University*)

10:50-11:05 FrBT1.1
Integrating Channel Selection and Feature Selection in a Real Time Epileptic Seizure Detection System 3206-3211
Wang, Hongda* (*The Chinese University of Hong Kong*); Shi, Weiwei (*Shenzhen University*);
Choy, Chiu Sing (*The Chinese University of Hong Kong*)

11:05-11:20 FrBT1.2
Evidences of Brain Functional Deficits following Sport-Related Mild Traumatic Brain Injury 3212-3215
Munia, Tamanna Tabassum Khan (*University of North Dakota*); Haider, Md. Ali (*University of North Dakota*);
Fazel-Rezai, Reza* (*University of North Dakota*)

11:20-11:35 FrBT1.3
Estimating Unmeasured Invasive EEG Signals using a Reduced-Order Observer 3216-3219
Gunnarsdottir, Kristin* (*Johns Hopkins Univ.*); Li, Adam (*Neuromedical Control Systems Laboratory*); Bulacio,
Juan (*Cleveland Clinic*); Gonzalez-Martinez, Jorge (*Cleveland Clinic*); Sarma, Sridevi V. (*Johns Hopkins Univ.*)

11:35-11:50 FrBT1.4
**A Mental Fatigue Index based on Regression using Multiband EEG Features
with Application in Simulated Driving** 3220-3223
Dimitrakopoulos, Georgios (*Univ. of Patras*); Kakkos, Ioannis (*National Univ. Singapore*); Thakor, Nitish (*Johns
Hopkins Univ.*); Bezerianos, Anastasios* (*National Univ. of Singapore*); Sun, Yu (*National Univ. of Singapore*)

11:50-12:05 FrBT1.5
Decoding Brain Cognitive Activity across Subjects using Multimodal M/EEG Neuroimaging 3224-3227
Fatima, Sarwat (*National University of Science and Technology*); Kamboh, Awais Mehmood* (*School of
Electrical Engineering and Computer Science, National*)

12:05-12:20

FrBT1.6

EEG-Based Approach-Withdrawal Index for the Pleasantness Evaluation during Taste Experience in Realistic Settings

3228-3231

Di Flumeri, Gianluca* (*University of Rome Sapienza*); Arico, Pietro (*Fondazione Santa Lucia*); Borghini, Gianluca (*University of Rome Sapienza*); Sciaraffa, Nicolina (*Dept. of Computer, Control and Management Engineering*); Maglione, Anton Giulio (*University of Rome Sapienza*); Rossi, Dario (*University of Rome Sapienza*); Modica, Enrica (*University of Rome Sapienza*); Mascarell Llorens, Ignacio (*Dept. of Clinical and Experimental Neuroscience*); Trettel, Arianna (*BrainSigns*); Babiloni, Fabio (*University of Rome*); Colosimo, Alfredo (*University of Rome "Sapienza"*); Herrero Exquerro, Maria Trinidad (*University of Murcia*)

FrBT2: 10:50-12:20

Cho Room

Innovative Ultrasound Imaging (Oral Session)

Chair: Lavarello, Roberto (*Pontificia Universidad Catolica del Peru*)

Co-Chair: Park, Kwan Kyu (*Hanyang University*)

10:50-11:05

FrBT2.1

Multimodal Ultrasound Imaging based Diagnosis of Liver Cancers with a Two-Stage Multi-View Learning Framework

3232-3235

Yiyi, Qian (*Shanghai University*); Shi, Jun* (*Shanghai University*); Zheng, Xiao (*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*)

11:05-11:20

FrBT2.2

Myocardial Elastogram using a Fast Mapping Algorithm

3236-3239

Wang, Yinong (*Institute of Medical Information, School of Biomedical Engineeri*); Song, Xiangfen (*Institute of Medical Information, School of Biomedical Engineeri*); Huang, Zhijie (*Institute of Medical Information, School of Biomedical Engineeri*); Wang, Qing* (*Southern Medical University*.)

11:20-11:35

FrBT2.3

Image-Guided Laparoscopic Pelvic Lymph Node Dissection using Stereo Visual Tracking Free-Hand Laparoscopic Ultrasound

3240-3243

Ma, Lei* (*School of Bioengineering, The Univ. of Tokyo*); Nakamae, Kenta (*The Univ. of Tokyo*); Wang, Junchen (*The Univ. of Tokyo*); Kiyomatsu, Hidemichi (*The Univ. of Tokyo*); Tsukihara, Hiroyuki (*The Univ. of Tokyo*); Kobayashi, Etsuko (*The Univ. of Tokyo*); Sakuma, Ichiro (*The Univ. of Tokyo*)

11:35-11:50

FrBT2.4

Tracking Large Anterior Mitral Leaflet Displacements by Incorporating Optical Flow in an Active Contours Framework

3244-3247

Sultan, Malik Saad (*University of Porto*); Martins, Nelson (*Enermeter, Sistemas de Mediçã, Lda & Instituto de Telecomunicac*); Eva, Costa (*Enermeter, Sistemas de Mediçã, Lda, Braga, Portugal*); Veiga, Diana (*Enermeter, Sistemas de Mediçã Ida/ Centro Algoritmi, University*); Ferreira, Manuel Joao (*University of Minho*); Sandra, Mattos (*Cículo do Coraçã de Pernambuco, Recife PE, Brazil*); Coimbra, Miguel* (*Instituto de Telecomunicações / Universidade do Porto*)

11:50-12:05

FrBT2.5

Automatic Initialization for Active Contour Model in Breast Cancer Detection Utilizing Conventional Ultrasound and Color Doppler

3248-3251

Keatmanee, Chadaporn* (*Japan Advanced Institute of Science and Technology (JAIST)*); Makhanov, Stanislav (*Sirinthorn International Institute of Technology*); Kazunori, Kotani (*Japan Advanced Institute of Science and Technology (JAIST)*); Lohitvisate, Wanrudee (*Dept. of Radiology, Thammasat University*); Tongvigitmanee, Saowapak (*National Electronics and Computer Technology Center*)

FrBT3: 10:50-12:20

Park Room

MRI Image Reconstruction (Oral Session)

Chair: Qu, Xiaobo (*Xiamen University*)

10:50-11:05

FrBT3.1

4D Real-Time Phase-Contrast Flow MRI with Sparse Sampling

3252-3255

Sun, Aiqi* (*Center for Biomedical Imaging Research, Tsinghua University*); Zhao, Bo (*Martinos Center for Biomedical Imaging, MGH and Harvard Medical*); Li, Rui (*Tsinghua University*); Yuan, Chun (*Tsinghua University, Center of Biomedical Imaging Research; Univ*)

11:05-11:20 FrBT3.2
Fast Dictionary Generation and Searching for Magnetic Resonance Fingerprinting 3256-3259
 Xie, Jun (*Hangzhou Normal Univ.*); Jian, Zhang (*Hangzhou Normal Univ.*); Lyu, Mengye (*Hong Kong Univ.*);
 Hui, Edward S. (*The Univ. of Hong Kong*); Wu, Ed X. (*The Univ. of Hong Kong*); Wang, Ze* (*Temple Univ.*)

11:20-11:35 FrBT3.3
Parallel Compressive Sensing in a Hybrid Space: Application in Interventional MRI 3260-3263
 Vafay Eslahi, Samira* (*Texas A&M University*); Dhulipala, Pranav Vaidik (*Texas A&M University*); Shi, Caiyun
 (*Shenzhen Institutes of Advanced Technology, Lauterbur Research C*); Xie, Guoxi (*Shenzhen Institutes of
 Advanced Technology, Lauterbur Research C*); Ji, Jim Xiuquan (*Texas A&M University*)

11:35-11:50 FrBT3.4
Simultaneous Multislice Magnetic Resonance Fingerprinting with Low-Rank and Subspace Modeling ... 3264-3268
 Zhao, Bo* (*MGH/HST Athinoula Martinos Center for Biomedical Imaging, Harvar*); Bilgic, Berkin (*Martinos
 Center for Biomedical Imaging*); Adalsteinsson, Elfar (*MIT/MGH Martinos Center*); Griswold, Mark (*Case
 Western Reserve University*); Wald, Lawrence L. (*A. A. Martinos Center for Biomedical Imaging, Dept. of
 Radiology*); Setsompop, Kawin (*Harvard Medical School*)

11:50-12:05 FrBT3.5
A Low Rank Hankel Matrix Reconstruction Method for Ultrafast Magnetic Resonance Spectroscopy 3269-3272
 Lu, Hengfa (*Xiamen Univ.*); Zhang, Xinlin (*Xiamen Univ.*); Qiu, Tianyu (*Xiamen Univ.*); Yang, Jian (*Xiamen
 Univ.*); Guo, Di (*Xiamen Univ. of Technology*); Chen, Zhong (*Xiamen Univ.*); Qu, Xiaobo* (*Xiamen Univ.*)

FrBT4: 10:50-12:20 Min Room
Body Sensor Networks – Molecules, Radio, and Machine Learning – II (Invited Session)
Chair: Balasingham, Ilangko (*Oslo University Hospital and Norwegian University of Science and Technology*)
Co-Chair: Sugimachi, Masaru (*Natl Cardio Center Research Inst*)

11:35-11:50 FrBT4.4
Flexible Wearable Sensor Nodes with Solar Energy Harvesting 3273-3276
 Wu, Taiyang* (*Monash University*); Arefin, Md Shamsul (*Monash University*); Redouté, Jean-Michel (*Monash
 University*); Yuce, Mehmet (*Monash University*)

11:50-12:05 FrBT4.5
**Comparison of Hand-Craft Feature based SVM and CNN based Deep Learning
 Framework for Automatic Polyp Classification** 3277-3280
 Shin, Younghak* (*NTNU (Norwegian University of Science and Technology)*); Balasingham, Ilangko (*Oslo
 University Hospital and Norwegian University of Science and*)

FrBT5: 10:50-12:20 Lee Room
Wearable Sensors and Systems I (Oral Session)
Chair: Armentano, Ricardo Luis (*Republic University*)

10:50-11:05 FrBT5.1
**A Wearable Autonomous Heart Rate Sensor based on Piezoelectric-Charge-Gated Thin-Film
 Transistor for Continuous Multi-Point Monitoring** 3281-3284
 Rasheed, Ahmed (*Sun Yat-Sen University (SYSU)-Carnegie Mellon University (CMU) J*);
 Iranmanesh, Emad (*SYSU-CMU, JIE*); Wang, Kai* (*Sun Yat-Sen University*)

11:05-11:20 FrBT5.2
Low Group Delay Signal Conditioning for Wearable Central Blood Pressure Monitoring Device 3285-3288
 Fierro, Germán (*Universidad de la Republica*); Silveira, Fernando* (*Universidad de la Republica*);
 Armentano, Ricardo Luis (*Republic University*)

11:20-11:35 FrBT5.3
Hemodynamic Sensing of 3D Fingertip Force using PPG Device on Proximal Part 3289-3292
 Yoshimoto, Shunsuke* (*Osaka University*); Hinatsu, Shun (*Osaka University*); Kuroda, Yoshihiro (*Osaka
 University*); Oshiro, Osamu (*Osaka University*)

11:35-11:50 FrBT5.4
Tarsusmeter: Development of a Wearable Device for Ankle Joint Impedance Estimation 3293-3296
Hassan, Modar* (*University of Tsukuba*); Yagi, Keisuke (*University of Tsukuba*); Hsiao, Kaiwen (*University of Tsukuba*); Mochiyama, Hiromi (*University of Tsukuba*); Suzuki, Kenji (*University of Tsukuba*)

11:50-12:05 FrBT5.5
Development of a Smartphone-Based Pulse Oximeter with Adaptive SNR/Power Balancing 3297-3300
Phelps, Thomas (*University of California, San Diego*); Jiang, Haowei (*University of California San Diego*); Hall, Drew* (*University of California, San Diego*)

12:05-12:20 FrBT5.6
Measurement of Heartbeat Intervals in a Sitting Position using Multiple Piezoelectric Sensors with Body Movement Reduction 3301-3304
Igasaki, Tomohiko* (*Kumamoto University*); Shimai, Shogo (*Kumamoto University*); Kobayashi, Makiko (*Kumamoto University*)

FrBT8: 10:50-12:20 Schwan Room
Brain Networks and Connectivity (Oral Session)
Chair: Barbieri, Riccardo (*Politecnico di Milano*)

10:50-11:05 FrBT8.1
Dynamical Brain Connectivity Estimation using GARCH Models: An Application to Personality Neuroscience 3305-3308
Riccelli, Roberta (*Lab. of Neuromotor Physiology, IRCCS Santa Lucia Foundatio*); Passamonti, Luca (*Univ. of Cambridge*); Duggento, Andrea (*Univ. of Rome "Tor Vergata"*); Guerrisi, Maria (*Univ. of Rome "Tor Vergata"*); Indovina, Iole (*Lab of Neuromotor Physiology, IRCCS Santa Lucia Foundation*); Terracciano, Antonio (*Dept. of Geriatrics, Florida State Univ. College of Med*); Toschi, Nicola* (*Univ. of Rome "Tor Vergata", Faculty of Medicine*)

11:05-11:20 FrBT8.2
Mapping the Full Vascular Network in the Mouse Brain at Submicrometer Resolution 3309-3312
Lee, Junseok* (*Texas A&M University, Dept. of Computer Science and Eng*); An, Wookyung (*Texas A&M University*); Choe, Yoonsuck (*Texas A&M University*)

11:20-11:35 FrBT8.3
Dynamic Inter-Network Connectivity in the Human Brain 3313-3316
Riccelli, Roberta (*Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundatio*); Passamonti, Luca (*University of Cambridge*); Duggento, Andrea* (*University of Rome "Tor Vergata"*); Guerrisi, Maria (*University of Rome "Tor Vergata"*); Indovina, Iole (*Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundatio*); Toschi, Nicola (*University of Rome "Tor Vergata", Faculty of Medicine*)

11:35-11:50 FrBT8.4
Resting-State Brain Correlates of Cardiovascular Complexity 3317-3320
Valenza, Gaetano (*University of Pisa*); Duggento, Andrea (*University of Rome "Tor Vergata"*); Passamonti, Luca (*University of Cambridge*); Diciotti, Stefano (*Alma Mater Studiorum, University of Bologna*); Tessa, Carlo (*Versilia Hospital, Azienda USL 12 Viareggio*); Toschi, Nicola (*University of Rome "Tor Vergata", Faculty of Medicine*); Barbieri, Riccardo* (*Politecnico di Milano*)

11:50-12:05 FrBT8.5
Cognitive Control Related Network Analysis a Novel Way to Measure Neuron Fiber Connection of Alzheimer's Disease 3321-3324
Zhang, Changle (*Harbin Institute of Technology Shenzhen Graduate School*); Chai, Tao (*Harbin Institute of Technology*); Mao, Shuai (*Harbin Institute of Technology Shenzhen Graduate School*); Gao, Na (*Harbin Institute of Technology*); Ma, Heather Ting* (*Harbin Institute of Technology Shenzhen Graduate School*)

12:05-12:20 FrBT8.6
Resting-State Brain Correlates of Instantaneous Autonomic Outflow 3325-3328
Valenza, Gaetano (*University of Pisa*); Duggento, Andrea (*University of Rome "Tor Vergata"*); Passamonti, Luca (*University of Cambridge*); Diciotti, Stefano (*Alma Mater Studiorum, University of Bologna*); Tessa, Carlo (*Versilia Hospital, Azienda USL 12 Viareggio*); Barbieri, Riccardo (*Politecnico di Milano*); Toschi, Nicola* (*University of Rome "Tor Vergata", Faculty of Medicine*)

FrBT9: 10:50-12:20	Plonsey Room
Neural Signal Processing I (Oral Session)	
Chair: Li, Haifeng (<i>Harbin Institute of Technology</i>)	
Co-Chair: Santaniello, Sabato (<i>University of Connecticut</i>)	

10:50-11:05	FrBT9.1
A Model Study of the Neural Interaction via Mutual Coupling Factor Identification	3329-3332
Zhang, Qichun (<i>University of Essex</i>); Sepulveda, Francisco* (<i>University of Essex</i>)	
11:05-11:20	FrBT9.2
On Electrophysiological Signal Complexity during Biological Neuronal Network Development and Maturation	3333-3338
Kapucu, Fikret Emre* (<i>Tampere University of Technology</i>); Vornanen, Inkeri (<i>Tampere University of Technology</i>); Christophe, Francois (<i>Tampere University of Technology</i>); Tanskanen, Jarno M. A. (<i>Tampere University of Technology</i>); Johansson, Julia (<i>Tampere University of Technology</i>); Mikkonen, Tommi (<i>Tampere University of Technology</i>); Hyttinen, Jari (<i>Tampere University of Technology</i>)	
11:20-11:35	FrBT9.3
Nonmotor Regions Encode Path-Related Information during Movements	3339-3342
Breault, Macauley S.* (<i>Johns Hopkins University</i>); Sacré, Pierre (<i>Johns Hopkins University</i>); Johnson, Jacob J. (<i>Indian Institute of Technology Guwahati</i>); Kerr, Matthew (<i>Johns Hopkins University</i>); Johnson, Matthew (<i>Cleveland Clinic</i>); Bulacio, Juan (<i>Cleveland Clinic</i>); Gonzalez-Martinez, Jorge (<i>Cleveland Clinic</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>); Gale, John (<i>Cleveland Clinic</i>)	
11:35-11:50	FrBT9.4
Importance of Vesicle Release Stochasticity in Neuro-Spike Communication	3343-3347
Ramezani, Hamideh* (<i>Koc University</i>); Akan, Ozgur B. (<i>Koc University</i>)	
11:50-12:05	FrBT9.5
Music-Evoked Emotion Classification using EEG Correlation-Based Information	3348-3351
Bo, Hongjian (<i>Harbin Institute of Technology</i>); Ma, Lin (<i>Harbin Institute of Technology</i>); Li, Haifeng* (<i>Harbin Institute of Technology</i>)	
12:05-12:20	FrBT9.6
Effects of the Temporal Pattern of Subthalamic Deep Brain Stimulation on the Neuronal Complexity in the Globus Pallidus	3352-3355
Deng, Callie (<i>Johns Hopkins University</i>); Sun, Tony (<i>Los Altos High School</i>); Zhang, Manning (<i>Johns Hopkins University</i>); Gale, John (<i>Cleveland Clinic</i>); Montgomery, Erwin (<i>University of Alabama at Birmingham</i>); Santaniello, Sabato* (<i>University of Connecticut</i>)	

FrBT10: 10:50-12:20	Schmitt Room
General and Theoretical Informatics – Deep learning and Big Data to Knowledge (Oral Session)	
Chair: Nguyen, Hung T. (<i>University of Technology, Sydney</i>)	

10:50-11:05	FrBT10.1
A Separated Feature Learning based DBN Structure for Classification of SSMVEP Signals	3356-3359
Jia, Yaguang (<i>Xi'an Jiaotong University</i>); Xie, Jun* (<i>Xi'an Jiaotong University</i>); Xu, Guanghua (<i>Xi'an Jiaotong University</i>); Li, Min (<i>School of Mechanical Engineering, Xi'an Jiaotong University</i>); Zhang, Sicong (<i>Xi'an Jiaotong University</i>); Luo, Ailing (<i>Xi'an Jiaotong University</i>); Han, Xingliang (<i>Xi'an Jiaotong University</i>)	
11:05-11:20	FrBT10.2
The Obesity Paradox in ICU Patients	3360-3364
Pan, Janice* (<i>The University of Texas at Austin</i>); Shaffer, Robert (<i>The University of Texas at Austin</i>); Sinno, Zeina (<i>The University of Texas at Austin</i>); Tyler, Marcus (<i>The University of Texas at Austin</i>); Ghosh, Joydeep (<i>Univ. of Texas at Austin</i>)	
11:20-11:35	FrBT10.3
Automated Embolic Signal Detection using Deep Convolutional Neural Network	3365-3368
Sombune, Praotasna (<i>Thammasat Univ.</i>); Phienphanich, Phongphan (<i>Thammasat Univ.</i>); Phuechpanpaisal, Sutanya (<i>Thammasat Univ.</i>); Muengtaweepongsa, Sombat (<i>Thammasat Univ.</i>); Ruamthanthong, Anuchit (<i>Radiology Dept. Phramongkutklaow Hospital Bangkok</i>); Tantibundhit, Charturong* (<i>Thammasat Univ.</i>)	

11:35-11:50	FrBT10.4
A CHF Detection Method based on Deep Learning with RR Intervals	3369-3372
Chen, Wenhui (<i>University of Technology Sydney</i>); Liu, Guan-Zheng (<i>Shenzhen Institutes of Advanced Technology</i>); Su, Steven Weidong (<i>University of Technology, Sydney</i>); Jiang, Qing (<i>Sun Yat-sen University</i>); Nguyen, Hung T.* (<i>University of Technology, Sydney</i>)	
11:50-12:05	FrBT10.5
DeepDeath: Learning to Predict the Underlying Cause of Death with Big Data	3373-3376
Hassanzadeh, Hamid* (<i>Georgia Institute of Technology</i>); Wang, May D. (<i>Georgia Tech and Emory University</i>); Sha, Ying (<i>Georgia Institute of Technology</i>)	
12:05-12:20	FrBT10.6
Automated Vision-Based Analysis of Levodopa-Induced Dyskinesia with Deep Learning	3377-3380
Li, Michael Hong Gang (<i>University of Toronto</i>); Mestre, Tiago (<i>Ottawa Hospital Research Institute</i>); Fox, Susan (<i>University of Toronto</i>); Taati, Babak* (<i>Toronto Rehabilitation Institute and University of Toronto</i>)	
FrBT11: 10:50-12:20	Greatbatch Room
Cardiovascular Simulations (Oral Session)	
Chair: Shim, Eun Bo (<i>Kangwon National University</i>)	
Co-Chair: Chbat, Nicolas W. (<i>Center of Excellence in Critical Care Innovation</i>)	
10:50-11:05	FrBT11.1
Pilot Study on Vascular Intervention Training based on Blood Flow Effected Guidewire Simulation	3381-3384
Cai, Jiayin (<i>School of Biomedical Engineering, Shanghai Jiao Tong Univ.</i>); Xie, Hongzhi (<i>Peking Union Medical College Hospital</i>); Zhang, Shuyang (<i>Peking Union Medical College Hospital</i>); Gu, Lixu* (<i>Shanghai Jiaotong Univ.</i>)	
11:05-11:20	FrBT11.2
Applying Computer Simulation to the Design of Flow-Diversion Treatment for Intracranial Aneurysms .	3385-3388
Zhang, Mingzi* (<i>Tohoku University</i>); Li, Yujie (<i>Tohoku University</i>); Verrelli, David I. (<i>Macquarie University</i>); Chong, Winston (<i>Interventional Neuroradiology Unit, Dept. of Diagnostic Ima</i>); Ohta, Makoto (<i>University of Tohoku</i>); Qian, Yi (<i>Macquarie University</i>)	
11:20-11:35	FrBT11.3
A Sensitivity Study on Modelling a Flow-Diverting Stent as a Porous Medium using Computational Fluid Dynamics	3389-3392
Li, Yujie* (<i>Tohoku University</i>); Zhang, Mingzi (<i>Tohoku University</i>); Verrelli, David I. (<i>Macquarie University</i>); Yang, William (<i>Mineral Resources, CSIRO</i>); Chong, Winston (<i>Interventional Neuroradiology Unit, Dept. of Diagnostic Ima</i>); Ohta, Makoto (<i>University of Tohoku</i>); Qian, Yi (<i>Macquarie University</i>)	
11:35-11:50	FrBT11.4
An HMM-Based Recognition Framework for Endovascular Manipulations	3393-3396
Zhou, Xiaohu (<i>Institute of Automation, Chinese Academy of Sciences</i>); Bian, Gui-Bin (<i>Institute of Automation, Chinese Academy of Sciences</i>); Xie, Xiao-Liang (<i>Chinese Academy of Sciences</i>); Hou, Zeng-Guang* (<i>Institute of Automation, Chinese Academy of Sciences</i>)	
11:50-12:05	FrBT11.5
Effect of Catheter Positions on Hemodynamics and Coil Formation after Coil Embolization	3397-3400
Fujimura, Soichiro* (<i>Tokyo University of Science</i>); Takao, Hiroyuki (<i>Jikei University School of Medicine</i>); Suzuki, Takashi (<i>Tokyo University of Science</i>); Dahmani, Chiheb (<i>Technical University of Munich</i>); Mamori, Hiroya (<i>Tokyo University of science</i>); Fukushima, Naoya (<i>Tokyo University of Science</i>); Yamamoto, Makoto (<i>Tokyo University of Science</i>); Murayama, Yuichi (<i>Jikei University School of Medicine</i>)	
12:05-12:20	FrBT11.6
Effects of Septum and Pericardium on Heart-Lung Interactions in a Cardiopulmonary Simulation Model	3401-3404
Karamolegkos, Nikolaos* (<i>Columbia University</i>); Albanese, Antonio (<i>Philips Research North America</i>); Chbat, Nicolas W. (<i>Center of Excellence in Critical Care Innovation</i>)	

10:50-11:05 FrBT14.1
Volumetric Analysis of Respiratory Gated Whole Lung and Liver CT Data with Motion-Constrained Graph Cuts Segmentation 3405-3408
 Cha, Jung Won* (*University of Louisville*); Farhangi, Mohammad Mehdi (*University of Louisville*); Dunlap, Neal (*University of Louisville, Louisville*); Amini, Amir (*University of Louisville*)

11:05-11:20 FrBT14.2
Development of a Radiobiological Evaluation Tool to Assess the Expected Clinical Impacts of Contouring Accuracy between Manual and Semi-Automated Segmentation Algorithms 3409-3412
 Kim, Yusung (*Dept. of Radiation Oncology, The University of Iowa*); Patwardhan, Kaustubh (*The University of Iowa*); Beichel, Reinhard (*The University of Iowa*); Smith, Brian (*University of Iowa*); Mart, Christopher (*Medical University of South Carolina*); Plichta, Kristin (*University of Iowa*); Tangel, Chang (*Case Western Reserve University*); Sonka, Milan (*University of Iowa*); Graham, Michael (*University of Iowa*); Magnotta, Vincent Alfonso (*University of Iowa*); Casavant, Benjamin (*University of Wisconsin-Madison*); Xia, Junyi* (*University of Iowa*); Buatti, John (*Dept. of Radiation Oncology, The University of Iowa*)

11:20-11:35 FrBT14.3
Angled Tooth Segmentation from Computerized Tomography Images 3413-3416
 Gan, Yangzhou (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Xia, Zeyang* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Xiong, Jing (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Zhou, Xinwen (*Shanghai Jiao Tong University*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*); Zhao, Qunfei (*Shanghai Jiao Tong University*)

11:35-11:50 FrBT14.4
Automatic Measurement of Fetal Nuchal Translucency from Three-Dimensional Ultrasound Data 3417-3420
 Nie, Siqing (*Fudan University*); Yu, Jinhua* (*Fudan University*); Chen, Ping (*First Maternity and Infant Hospital*); Wang, Yuanyuan (*Fudan University*); Guo, Yi (*Fudan University*); Zhang, Jianqiu (*Fudan University*)

11:50-12:05 FrBT14.5
Brain Segmentation in MR Images using a Texture-Based Classifier Associated with Mathematical Morphology 3421-3424
 Chang, Heng-Hua* (*National Taiwan University*); Hsieh, Chih-Chung (*National Taiwan University*)

12:05-12:20 FrBT14.6
Segmentation of Hyper-Acute Cerebral Infarct based on Random Forest and Sparse Coding from Diffusion Weighted Imaging 3425-3428
 Zhang, Xiaodong (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Elazab, Ahmed (*Shenzhen Institutes of Advanced Technology*); Hu, Qingmao* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*)

10:50-11:05 FrBT15.1
Development of a Gesture and Voice Controlled System for Burn Injury Prevention in Individuals with Disabilities 3429-3432
 Swanepoel, Liam (*Stellenbosch University*); Van Den Heever, Dawie* (*Stellenbosch University*); Dellimore, Kiran (*Philips Research*)

11:05-11:20 FrBT15.2
A Novel Mainstream Capnometer System for Endoscopy Delivering Oxygen 3433-3436
 Kabumoto, Kenichiro* (*Nihon Kohden Corporation*); Takatori, Fumihiko (*Nihon Kohden Corporation*); Inoue, Masayuki (*Nihon Kohden Corporation*)

11:20-11:35 FrBT15.3
A Novel Smartphone Camera-LED Communication for Clinical Signal Transmission in Mhealth-Rehabilitation System 3437-3440
Pradana Rachim, Vega (*Pukyong National University*); An, Jinyoung (*Pukyong National University*); Pham, Ngoc Quan (*Pukyong National University*); Chung, Wan-Young* (*Pukyong National University*)

11:35-11:50 FrBT15.4
Profiling a Multiplex Short Tandem Repeat Loci from Human Urine with use of Low Cost On-Site Technology for Verification of Sample Authenticity 3441-3444
Pires, Nuno M. M. (*University College of Southeast Norway and Institute of Appl*); Dong, Tao* (*University College of Southeast Norway - HSN, TekMar*); Berntzen, Lasse (*Dept. of Business, History and Social Sciences, School of B*); Lønningdal, Torill (*Innovatoriet at Dept. of Research and Internationalisation*)

11:50-12:05 FrBT15.5
Fall Detection using Smart Floor Sensor and Supervised Learning 3445-3448
Minvielle, Ludovic* (*ENS Cachan University*), Tarkett GDL SA (*Company*)); Atiq, Mounir (*ENS Cachan University*), Tarkett GDL SA (*Company*)); Serra, Renan (*Tarkett GDL SA*); Mougeot, Mathilde (*Université Paris-Diderot*); Vayatis, Nicolas (*Centre de Mathématiques et Leurs Applications, ENS Cachan, CNRS,*)

12:05-12:20 FrBT15.6
Respiration and Heartbeat Monitoring using a Distributed Pulsed MIMO Radar 3449-3452
Walterscheid, Ingo* (*Fraunhofer FHR*); Smith, Graeme E. (*The Ohio State University*)

FrBT17: 10:50-12:20 Einthoven Hall
Signal Processing – Electromyography (Oral Session)
Chair: Kerkman, Jennifer N. (*Vrije Universiteit Amsterdam*)
Co-Chair: Zhang, Yingchun (*University of Houston*)

10:50-11:05 FrBT17.1
Simulations of High-Density Surface Electromyograms in Dynamic Muscle Contractions 3453-3456
Glaser, Vojko* (*University of Maribor, Faculty of Electrical Engineering and Comp*); Farina, Dario (*Bernstein Center for Computational Neuroscience, University Medic*); Holobar, Ales (*University of Maribor, Faculty of Electrical Engineering and Compu*)

11:05-11:20 FrBT17.2
Performance Evaluation of Noise-Assisted Multivariate Empirical Mode Decomposition and Its Application to Multichannel EMG Signals 3457-3460
Zhang, Yi* (*Univ. of Electronic Science and Technology of China*); Su, Steven Weidong (*Univ. of Technology, Sydney*); Xu, Peng (*Univ of Electr Science and Tech of China*); Yao, Dezhong (*Univ. of Electronic Science and Technology of China*)

11:20-11:35 FrBT17.3
Measuring the Interactions between Different Locations in a Muscle to Monitor Localized Muscle Fatigue ... 3461-3464
Bingham, Adrian* (*RMIT University Melbourne*); Poosapadi Arjunan, Sridhar (*RMIT University*); Kant Kumar, Dinesh (*RMIT University*)

11:35-11:50 FrBT17.4
Analysis of One Repetition during Biceps Curl Exercise among Age-Matched Adult Volunteers using Endurance, Curl Speed and Surface Electromyography Signals 3465-3468
Marri, Kiran (*Indian Institute of Technology Madras, Chennai*); Maitra, Diptasree (*IIT Madras*); Ramakrishnan, Swaminathan* (*IIT Madras, India*)

11:50-12:05 FrBT17.5
Antagonist Thigh-Muscle Activity in 6-to-8-Year-Old Children Assessed by Surface EMG during Walking .. 3469-3472
Di Nardo, Francesco* (*Polytechnic Univ. of Marche*); Strazza, Annachiara (*Univ. Politecnica delle Marche*); Mengarelli, Alessandro (*Univ. Politecnica delle Marche*); Ercolani, Serena (*Univ. Politecnica delle Marche*); Burattini, Laura (*Univ. Politecnica delle Marche*); Fioretti, Sandro (*Univ. Politecnica delle Marche*)

FrBT18: 10:50-12:20	Montgomery Hall
Nonlinear Dynamic Analysis II – Cardiovascular Signals (Oral Session)	
Chair: Castiglioni, Paolo (<i>Fondazione Don Carlo Gnocchi ONLUS</i>)	
Co-Chair: Lee, Jong-Ha (<i>Keimyung University, School of Medicine</i>)	

10:50-11:05	FrBT18.1
Characterization of Doctor-Patient Communication using Heartbeat Nonlinear Dynamics:	
A Preliminary Study using Lagged Poincaré Plots	3473-3476
Nardelli, Mimma (<i>University of Pisa</i>); Del Piccolo, Lidia (<i>University of Verona</i>); Danzi, Olivia Purnima (<i>University of Verona</i>); Perlini, Cinzia (<i>University of Verona</i>); Tedeschi, Federico (<i>University of Verona</i>); Greco, Alberto (<i>University of Pisa</i>); Scilingo, Enzo Pasquale (<i>University of Pisa</i>); Valenza, Gaetano* (<i>University of Pisa</i>)	
11:05-11:20	FrBT18.2
Multifractal Multiscale DFA of Cardiovascular Time Series: Differences in Complex Dynamics of Systolic Blood Pressure, Diastolic Blood Pressure and Heart Rate	
	3477-3480
Castiglioni, Paolo* (<i>Fondazione Don Carlo Gnocchi ONLUS</i>); Lazzeroni, Davide (<i>Fondazione Don Carlo Gnocchi, Parma, Italy</i>); Brambilla, Valerio (<i>Fondazione Don Carlo Gnocchi, Parma, Italy</i>); Coruzzi, Paolo (<i>Dept. of Clinical and Experimental Medicine</i>); Faini, Andrea (<i>Istituto Auxologico Italiano</i>)	
11:20-11:35	FrBT18.3
Cardiovascular and Respiratory Variability during Orthostatic and Mental Stress:	
A Comparison of Entropy Estimators	3481-3484
Valente, Martina (<i>University of Trento</i>); Javorka, Michal (<i>Comenius University, Jessenius Faculty of Medicine</i>); Turianikova, Zuzana (<i>Dept. of Physiology, Comenius University, Jessenius Faculty</i>); Czippelova, Barbora (<i>Dept. of Physiology, Comenius University, Jessenius Faculty</i>); Krohova, Jana (<i>Comenius University in Bratislava</i>); Nollo, Giandomenico (<i>University of Trento</i>); Faes, Luca* (<i>University of Trento</i>)	
11:35-11:50	FrBT18.4
Secondary Measures of Regularity from an Entropy Profile in Detecting Arrhythmia	
	3485-3488
Udhayakumar, Radhagayathri* (<i>University of Melbourne</i>); Karmakar, Chandan (<i>Deakin University</i>); Palaniswami, Marimuthu (<i>The University of Melbourne</i>)	
11:50-12:05	FrBT18.5
Multivariate Symbolic Dynamics for Analysis of Respiratory-Cardiovascular Interactions	
	3489-3492
Reulecke, Sina (<i>Univ. Autónoma Metropolitana</i>); Charleston-Villalobos, Sonia* (<i>Univ. Autónoma Metropolitana</i>); Voss, Andreas (<i>University of Applied Sciences Jena</i>); Gonzalez-Camarena, Ramon (<i>Univ. Autónoma Metropolitana</i>); Gaitan-Gonzalez, Mercedes (<i>Univ. Autónoma Metropolitana</i>); Gonzalez-Hermosillo, Jesus Antonio (<i>Instituto Nacional de Cardiología</i>); Hernandez-Pacheco, Guadalupe (<i>Instituto Nacional de Cardiología "Ignacio Chavez"</i>); Aljama-Corrales, Tomas (<i>Univ. Autónoma Metropolitana</i>)	
12:05-12:20	FrBT18.6
Nonlinear Dynamic Analysis of the Cardiorespiratory System in Patients Undergoing the Weaning Process	
	3493-3496
Arizmendi, Carlos (<i>Universidad Autónoma de Bucaramanga</i>); Trapero, Jose Ignacio (<i>Universidad Autónoma de Bucaramanga</i>); Gonzalez Acevedo, Hernando (<i>Universidad Autónoma de Bucaramanga</i>); Forero, Carlos Adolfo (<i>Universidad Autónoma de Bucaramanga</i>); Giraldo, Beatriz* (<i>Universitat Politècnica de Catalunya</i>)	

FrCT1: 14:20-15:50	Roentgen Hall
Signal Pattern Classification – Cardiovascular Signals I (Oral Session)	
Chair: Wu, Shun Chi (<i>National Tsing Hua University</i>)	
Co-Chair: Kim, Kiwoong (<i>Korea Research Institute of Standards and Science</i>)	

14:20-14:35	FrCT1.1
A Cancelable Biometric Scheme based on Multi-Lead ECGs	
	3497-3500
Chen, Peng-Tzu (<i>National Tsing Hua University</i>); Wu, Shun Chi* (<i>National Tsing Hua University</i>); Hsieh, Jui Hsuan (<i>National Tsing Hua University</i>)	
14:35-14:50	FrCT1.2
Adaptive Fourier Decomposition based R-Peak Detection for Noisy ECG Signals	
	3501-3504
Wang, Ze (<i>Faculty of Science and Technology, University of Macau</i>); Wong, Chi Man (<i>University of Macau</i>); Wan, Feng* (<i>University of Macau</i>)	

14:50-15:05	FrCT1.3
A Robust Automatic Mechanism for Electrocardiogram Interpretation in Telehealthcare	3505-3508
Ho, Te-Wei* (<i>National Taiwan University</i>); Lai, Feipei (<i>National Taiwan University</i>)	
15:05-15:20	FrCT1.4
Designing ECG-Based Physical Unclonable Function for Security of Wearable Devices	3509-3512
Yin, Shihui* (<i>Arizona State University</i>); Bae, ChiSung (<i>Samsung Advanced Institute of Technology</i>); Kim, Sang Joon (<i>Samsung Electronics</i>); Seo, Jae-sun (<i>Arizona State University</i>)	
15:20-15:35	FrCT1.5
A Body Position Influence on ECG Derived Respiration	3513-3516
Przystup, Piotr (<i>Gdansk University of Technology</i>); Polinski, Artur (<i>Gdansk University of Technology</i>); Wtorek, Jerzy* (<i>Gdansk University of Technology</i>); Bujnowski, Adam (<i>Gdansk University of Technology</i>); Kociejko, Tomasz (<i>Gdansk University of Technology</i>)	
15:35-15:50	FrCT1.6
Analysis of PAM Clustering Accuracy for Cardiac Signals Classification	3517-3520
kianimajd, Adell (<i>University of Algarve</i>); Ruano, M. Graça* (<i>FCT, University of Algarve & CISUC-University of Coimbra</i>); de Carvalho, Paulo (<i>University of Coimbra</i>); Henriques, Jorge (<i>University of Coimbra</i>); Rocha, Teresa (<i>Inst Superior de Eng de Coimbra</i>); Ruano, Antonio (<i>University of Algarve</i>)	
FrCT3: 14:20-15:50	Park Room
Innovative MRI Method (Oral Session)	
14:20-14:35	FrCT3.1
White Matter Integrity Correlates with Choline Level in Dorsal Anterior Cingulate Cortex of Obsessive Compulsive Disorder Patients: A Combined DTI-MRS Study	3521-3524
Wang, Ruilin (<i>Shanghai Jiao Tong University</i>); Fan, Qing (<i>Shanghai Mental Health Center, Shanghai Jiao Tong University Sch</i>); Zhang, Zongfeng (<i>Shanghai Mental Health Center, Shanghai Jiao Tong University Sch</i>); Chen, Yongjun (<i>Shanghai Mental Health Center, Shanghai Jiao Tong University Sch</i>); Tong, Shanbao (<i>Shanghai Jiao Tong University</i>); Li, Yao* (<i>Shanghai Jiao Tong University</i>)	
14:35-14:50	FrCT3.2
A 3D Model-Based Simulation of Demyelination to Understand Its Effects on Diffusion Tensor Imaging ...	3525-3528
Salan, Teddy* (<i>University of Memphis</i>); Jacobs, Eddie (<i>University of Memphis</i>); Reddick, Wilburn (<i>St. Jude Children's Research Hospital</i>)	
14:50-15:05	FrCT3.3
Multi-View Collaborative Segmentation for Prostate MRI Images	3529-3532
Wang, Xiu Ying (<i>The University of Sydney</i>); Tang, Wensi (<i>University of Sydney</i>); Cui, Hui* (<i>The University of Sydney</i>); Zeng, Shan (<i>Wuhan Polytechnic University</i>); Feng, Dagan (<i>The University of Sydney</i>); Fulham, Michael (<i>Royal Prince Alfred Hospital</i>)	
15:05-15:20	FrCT3.4
A Portable, Low-Cost, 3D-Printed Main Magnetic Field System for Magnetic Imaging	3533-3536
Kang, Iksung* (<i>Seoul National University</i>)	
15:20-15:35	FrCT3.5
Accelerated Magnetic Resonance Spectroscopy with Vandermonde Factorization	3537-3540
Qu, Xiaobo* (<i>Xiamen University</i>); Ying, Jiayi (<i>Dept. of Electronic Science, Xiamen University</i>); Cai, Jian-Feng (<i>Dept. of Mathematics, Hong Kong University of Science and T</i>); Chen, Zhong (<i>Xiamen University</i>)	
15:35-15:50	FrCT3.6
A Novel 3D-Printed Mechanical Actuator using Centrifugal Force for Magnetic Resonance Elastography ...	3541-3544
Neumann, Wiebke* (<i>Heidelberg University</i>); Schad, Lothar R. (<i>Heidelberg University</i>); Zöllner, Frank G. (<i>Heidelberg University</i>)	

FrCT5: 14:20-15:50	Lee Room
Wearable Sensors and Systems II (Oral Session)	
Chair: Kang, Hongki (KAIST)	

14:20-14:35	FrCT5.1
Inkjet-Printed Gold Nanorods using Biocompatible Polyelectrolyte Layer-by-Layer Coating for Patterned Photothermal Applications	3545-3548
Kang, Hongki* (KAIST); Lee, Gu-Haeng (KAIST); Nam, Yoonkey (Korea Advanced Institute of Science & Tech.)	
14:35-14:50	FrCT5.2
A System for Finger Tremor Quantification in Patients with Parkinson's Disease	3549-3552
Bravo Guamán, Marco Fernando* (Universidad Politécnica Salesiana); Bermeo Maldonado, Alexander Vinicio (Universidad Politécnica Salesiana); Huerta, Mónica (Simon Bolivar University); Llumiguano, Carlos (Universidad San Francisco and Vozandes Hospital); Bermeo, Juan Pablo (Universidad Politécnica Salesian); Clotet, Roger (Simón Bolívar University); Soto, Angel (Universidad Politécnica Salesiana)	
14:50-15:05	FrCT5.3
Robust Motion Artefact Resistant Circuit for Calculation of Mean Arterial Pressure from Pulse Transit Time	3553-3556
Bhattacharya, Tinish (Indian Institute of Technology Delhi); Gupta, Ankesh* (Indian Institute of Technology Delhi); Singh, Thoithoi (Indian Institute of Technology Delhi); Roy, Sitikantha (Indian Institute of Technology Delhi); Prasad, Anamika (South Dakota State)	
15:05-15:20	FrCT5.4
A Wearable, EEG-Based Massage Headband for Anxiety Alleviation	3557-3560
Nair, Chaitanya Muralidharan* (National University of Singapore)	
15:20-15:35	FrCT5.5
TongueToSpeech (TTS): Wearable Wireless Assistive Device for Augmented Speech	3561-3563
Marjanovic, Nicholas* (University of Illinois at Chicago); Piccinini, Giacomo (University of Illinois at Chicago); Kerr, Kevin (University of Illinois-Chicago); Esmailbeigi, Hananeh (University of Illinois at Chicago (UIC))	
15:35-15:50	FrCT5.6
One Size Fits All Electronics for Insole-Based Activity Monitoring	3564-3567
Hegde, Nagaraj (The University of Alabama); Bries, Matthew (The University of Alabama); Melanson, Ed (University of Colorado at Denver); Sazonov, Edward* (University of Alabama)	

FrCT6: 14:20-15:50	Zworykin Room
Cell and Protein Interaction with External Fields I (Oral Session)	

14:20-14:35	FrCT6.1
Electrical Bioimpedance Spectroscopy as Biosensor Technique to Identify Cells Linages and Cell Differentiation Process	3568-3571
Guerrero Robles, Carla* (Instituto Politécnico Nacional); Vázquez Zapién, Gustavo Jesús (Escuela Médico Militar); Mata Miranda, Mónica Maribel (Escuela Médico Militar); Noriega González, Jesús Emmanuel (Escuela Médico Militar); Gonzalez, Cesar (Universidad del Ejercito y Fuerza Aerea)	
14:35-14:50	FrCT6.2
Finite-Element Modelling and Preliminary Validation of Microneedle-Based Electrodes for Enhanced Tissue Electroporation	3572-3575
Houlihan, Ruth (Tyndall National Institute, University College Cork); Grygoryev, Konstantin (Tyndall National Institute, University College Cork); Ning, Zhenfei (School of Biochemistry and Cell Biology, University College Cork); Williams, John Michael (School of Biochemistry and Cell Biology, University College Cork); Moore, Tom (School of Biochemistry and Cell Biology, University College Cork); O'Mahony, Conor* (Tyndall National Institute, University College Cork)	
14:50-15:05	FrCT6.3
EM Fields Comparison between Planar vs. Solenoidal uMS Coil Designs for Nerve Stimulation	3576-3579
Bonmassar, Giorgio* (A. A. Martinos Ctr. for Biomedical Imaging); Golestanirad, Laleh (University of Toronto)	

15:05-15:20 FrCT6.4
Design and Construction of a Synthetic E. Coli Protease Inhibitor Detecting Biomachine 3580-3583
 Boonyalekha, Phenbunya (*King Mongkut's University of Technology Thonburi (KMUTT)*); Meechai, Asawin (*King Mongkut's University of Technology Thonburi (KMUTT)*); Waraho-Zhmayev, Dujduan* (*King Mongkut's University of Technology Thonburi (KMUTT)*); Tayapiwatana, Chatchai (*Chiang Mai University*); Kitidee, Kuntida (*Chiang Mai University*)

15:20-15:35 FrCT6.5
Determination of Red Blood Cell Fatigue using Electrodeformation 3584-3587
 Amirouche, Amin* (*Institut des Nanotechnologies de Lyon*); Faivre, Magalie (*Institut des Nanotechnologies de Lyon*); Chateaux, Jean-François (*Université Lyon1 Claude Bernard*); Ferrigno, Rosaria (*Université Claude Bernard Lyon 1*)

15:35-15:50 FrCT6.6
Analysis of Dielectrophoresis based 3D-Focusing in Microfluidic Devices with Planar Electrodes 3588-3591
 Hilal-Alnaqbi, ali (*United arab emirates University*); Alazzam, Anas (*Khalifa University*); Dagher, Sawsan (*UAE University*); Mathew, Bobby* (*UAE University*)

15:35-15:50 FrCT6.7
Effect of Laser Diode Light Irradiation on Growth Capability of Human Hair Follicle Dermal Papilla Cells 3592-3595
 Jampa-ngern, Sira (*King Mongkut's University of Technology Thonburi*); Khantachawana, Anak* (*King Mongkut's University of Technology Thonburi*); Viravaidya-Pasuwat, Kwanchanok (*King Mongkut's University of Technology, Thonburi*); Suvanasuthi, Saroj (*Samitivej Sukhumvit Hospital*)

FrCT8: 14:20-15:50	Schwan Room
EEG and Electrical Source Imaging (Oral Session)	

14:20-14:35 FrCT8.1
Gamma-Variate Modeling of Indicator Dilution Curves in Electrical Impedance Tomography 3596-3599
 Hentze, Benjamin* (*RWTH Aachen University*); Muders, Thomas (*Dept. of Anaesthesiology and Intensive Care Medicine, Univ.*); Luepschen, Henning (*RWTH Aachen University*); Leonhardt, Steffen (*RWTH Aachen University*); Putensen, Christian (*Dept. of Anaesthesiology and Intensive Care Medicine*); Walter, Marian (*RWTH Aachen University*)

14:35-14:50 FrCT8.2
Localization of Stereoelectroencephalography Signals using a Finite Difference Complete Electrode Model 3600-3603
 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*)

14:50-15:05 FrCT8.3
ICA on Sensor or Source Data: A Comparison Study in Deriving Resting State Networks from EEG 3604-3607
 Li, Chuang (*University of Oklahoma*); Yuan, Han (*University of Oklahoma*); Urbano, Diamond (*Laureate Institute for Brain Research*); Cha, Yoon-Hee (*Laureate Institute of Brain Research*); Ding, Lei* (*University of Oklahoma*)

15:05-15:20 FrCT8.4
Spatial Regularization based on dMRI to Solve EEG/MEG Inverse Problem 3608-3611
 Belaoucha, Brahim* (*Université Côte d'Azur, Inria*); Papadopoulo, Théodore (*INRIA Sophia-Antipolis*)

15:20-15:35 FrCT8.5
EEG Fluctuations of Wake and Sleep in Mild Cognitive Impairment 3612-3615
 O'Keefe, Johnny (*The Univ. of Oklahoma*); Carlson, Barbara (*The Univ. of Oklahoma*); DeStefano, Lisa (*The Univ. of Oklahoma*); Wenger, Michael (*Univ. of Oklahoma*); Craft, Melissa (*The Univ. of Oklahoma*); Hershey, Linda (*The Univ. of Oklahoma*); Hughes, Jeremy (*The Univ. of Oklahoma*); Wu, Dee (*Univ of Oklahoma Health Sciences*); Ding, Lei (*Univ. of Oklahoma*); Yuan, Han* (*Univ. of Oklahoma*)

15:35-15:50 FrCT8.6
Computation of Surface Laplacian for Tri-Polar Ring Electrodes on High-Density Realistic Geometry Head Model 3616-3619
 Ma, Junwei* (*University of Oklahoma*); Yuan, Han (*University of Oklahoma*); Sunderam, Sridhar (*University of Kentucky*); Besio, W. G. (*University of Rhode Island*); Ding, Lei (*University of Oklahoma*)

FrCT9: 14:20-15:50 Plonsey Room
Neural Signal Processing II (Oral Session)
Chair: Wheeler, Bruce (*University of Florida*)

14:20-14:35 FrCT9.1
Independent Component Analysis-Based Spatial Filtering Improves Template-Based SSVEP Detection ... 3620-3623
 Nakanishi, Masaki* (*University of California San Diego*); Wang, Yijun (*Institute of Semiconductors, Chinese Academy of Sciences*); Hsu, Sheng-Hsiou (*University of California, San Diego*); Wang, Yu-Te (*University of California San Diego*); Jung, Tzyy-Ping (*University of California San Diego*)

14:35-14:50 FrCT9.2
Using Monkey Hand Exoskeleton to Explore Finger Passive Joint Movement Response in Primary Motor Cortex 3624-3627
 Qian, Kai* (*Illinois Institute of Technology*); Antonio dos Anjos Jr., Luiz (*Illinois Institute of Chicago*); Balasubramanian, Karthikeyan (*University of Chicago*); Stilson, Kelsey (*The University of Chicago*); Balcer, Carrie Anne (*University of Chicago*); Hatsopoulos, Nicholas (*University of Chicago*); Kamper, Derek (*Rehabilitation Institute of Chicago*)

14:50-15:05 FrCT9.3
Specific CA3 Neurons Decode Neural Information of Dentate Granule Cells Evoked by Paired-Pulse Stimulation in Co-Cultured Networks 3628-3631
 Poli, Daniele (*University of California, Irvine*); DeMarse, Thomas B. (*University of Florida*); Wheeler, Bruce* (*University of Florida*); Brewer, Gregory (*University of California Irvine, Southern Illinois University*)

15:05-15:20 FrCT9.4
Information Transmission in the Primary Visual Cortex of Retinal Degenerated Rats 3632-3635
 Wang, Yi* (*City University of Hong Kong*); Chen, Ke (*University of Electronic Science and Technology of China*); Chan, Leanne LH (*City University of Hong Kong*)

15:20-15:35 FrCT9.5
Sparse Coding of ECoG Signals Identifies Interpretable Components for Speech Control in Human Sensorimotor Cortex 3636-3639
 Bouchard, Kristofer E.* (*LBNL*); Bujan, Alejandro F (*UC Berkeley*); Chang, Edward (*UCSF*); Sommer, Friedrich (*University of California Berkeley*)

15:35-15:50 FrCT9.6
A New EMG-Based Index towards the Assessment of Elbow Spasticity for Post-Stroke Patients 3640-3643
 Wang, Lei (*Shenzhen Institutes of Advanced Technology Chinese Academy of Sc*); Guo, Xin (*Hebei University of Technology*); Fang, Peng (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Wei, Yue (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Samuel, Oluwarotimi Williams (*Shenzhen Institutes of Advanced Technology*); Huang, Pin-Gao (*Chinese Academy of Sciences*); Geng, Yanjuan (*Shenzhen Institutes of Advanced Technology*); Wang, Hui* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)

FrCT10: 14:20-15:50 Schmitt Room
General and Theoretical Informatics – Data Mining I (Oral Session)
Chair: Fotiadis, Dimitrios I. (*University of Ioannina*)

14:20-14:35 FrCT10.1
Gamaid: Greedy CP Tensor Decomposition for Supervised EHR-Based Disease Trajectory Differentiation .. 3644-3647
 Henderson, Jette (*Univ. of Texas at Austin*); Ho, Joyce C.* (*Emory Univ.*); Ghosh, J. (*Univ of Texas, Austin*)

14:35-14:50 FrCT10.2
A Computational Approach for the Estimation of Heart Failure Patients Status using Saliva Biomarkers 3648-3651
 Tripoliti, Evanthia (*University of Ioannina*); Papadopoulos, Theofilos (*Unit of Medical Technology and Intelligent Information Systems*); Karanasiou, Georgia (*Institute of Molecular Biology and Biotechnology, FORTH, Ioannin*); Kalatzis, Fanis (*Dept. of Biomedical Research, Institute of Molecular Biology*); Goletsis, Yorgos (*University of Ioannina*); Bechlioulis, Aris (*Michaelidion Cardiac Center, University of Ioannina, and 2nd Dep*); Ghimenti, Silvia (*University of Pisa, Dept. of Chemistry and Industrial Chemi*); Lomonaco, Tommaso (*University of Pisa, Dept. of Chemistry and Industrial Chemi*); Bellagambi, Francesca (*University of Pisa, Dept. of Chemistry and Industrial Chemi*); Trivella, Maria G. (*Istituto di Fisiologia Clinica-CNR, Pisa*); Fuoco, Roger (*University of Pisa, Dept. of Chemistry and Industrial Chemi*); Marzilli, Mario (*Azienda Ospedaliera-Universitaria Pisana, Cardiothoracic and Vas*); Scali, Maria Chiara (*Azienda Ospedaliera-Universitaria Pisana, Cardiothoracic and Vas*); Naka, Katerina (*University of Ioannina*); Abdelhamid, Errachid (*Université de Lyon, Institut de Sciences Analytiques (ISA)*); Fotiadis, Dimitrios I.* (*University of Ioannina*)

14:50-15:05 FrCT10.3
Exploration of Unsupervised Feature Selection Methods to Predict Chronological Age of Individuals by Utilising CpG Dinucleotics from Whole Blood 3652-3655
 Sarac, Ferdi (*Northumbria University at Newcastle*); Seker, Huseyin* (*The University of Northumbria at Newcastle*); Bouridane, Ahmed (*Northumbria University*)

15:05-15:20 FrCT10.4
Wrapper Method for Feature Selection to Classify Cardiac Arrhythmia 3656-3659
 Mustaqeem, Anam (*University of Engineering and Technology, Taxila*); Anwar, Syed* (*University of Engineering and Technology*); Majid, Muhammad (*University of Engineering and Technology, Taxila*); Khan, Abdul Rashid (*POF Hospital, Wah Cantt.*)

15:20-15:35 FrCT10.5
Prediction and Imputation in Irregularly Sampled Clinical Time Series Data using Hierarchical Linear Dynamical Models 3660-3663
 Sengupta, Abhishek (*Walmart Labs India*); Ap, Prathosh (*Xerox Research Centre India*); Shukla, Satya Narayan (*University of Massachusetts Amherst*); Rajan, Vaibhav (*Yen4Ken Software Pvt. Ltd.*); Reddy, Chandan K (*Virginia Tech*); Shukla, Satya Narayan* (*University of Massachusetts Amherst*)

15:35-15:50 FrCT10.6
Identifying Frauds and Anomalies in Medicare-B Dataset 3664-3667
 Seo, Jiwon* (*UNIST*); Mendelevitch, Ofer (*LendUp.com*)

FrCT11: 14:20-15:50	Greatbatch Room
Models of Cardiac Function and Blood Flow (Oral Session)	

14:20-14:35 FrCT11.1
A Computational Model of Myocardial Microcirculation including Interstitial Flow 3668-3671
 Shimayoshi, Takao* (*Kyushu Univ.*); Yamamoto, Yuta (*Kyoto Univ.*); Matsuda, Tetsuya (*Kyoto Univ.*)

14:35-14:50 FrCT11.2
PWPSim: A New Simulation Tool of Pulse Wave Propagation in the Human Arterial Tree 3672-3675
 Xiao, Hanguang (*Chongqing University of Technology*); Butlin, Mark (*Macquarie University*); Tan, Isabella (*Macquarie University*); Avolio, Alberto P* (*Macquarie University*)

14:50-15:05 FrCT11.3
Global Sensitivity Analysis for Developing Biological Models: Application to K+ Channel Model in Mouse Ventricular Myocytes 3676-3679
 Du, Dongping* (*Texas Tech University*); Du, Yuncheng (*Clarkson University*)

15:05-15:20 FrCT11.4
A Generic Cardiac Biventricular Fluid-Electromechanics Model 3680-3683
 Ahmad Bakir, Azam (*The University of New South Wales*); Al Abed, Amr (*University of New South Wales*); Lovell, Nigel H. (*University of New South Wales*); Dokos, Socrates* (*University of New South Wales*)

15:20-15:35 FrCT11.5
Effects of Island-Distribution of Mid-Cardiomyocytes on Ventricular Electrical Excitation Associated with the KCNQ1-Linked Short QT Syndrome 3684-3687
 Luo, Cunjin* (*Harbin Institute of Technology, School of Computer Science and T*); Wang, Kuanquan (*Harbin Institute of Technology*); Zhang, Henggui (*Harbin Institute of Technology, School of Computer Science and T*); Zhang, Yue (*Harbin Engineering University*)

15:35-15:50 FrCT11.6
Hyperthermia Dependence of Cardiac Conduction Velocity in Rat Myocardium: Optical Mapping and Cardiac Near Field Measurements 3688-3691
 Pollnow, Stefan* (*Karlsruhe Institute of Technology*); Arnold, Robert (*Medical University of Graz, Austria*); Werber, Matthias (*Karlsruhe Institute of Technology (KIT)*); Doessel, Olaf (*Karlsruhe Institute of Technology (KIT)*); Seemann, Gunnar (*University Heart Center Freiburg - Bad Krozingen*)

FrCT14: 14:20-15:50 Schaldach Room
Image Rendering and Enhancement (Oral Session)
Chair: Lepore, Natasha (*University of Southern California / Children's Hospital Los Angeles*)

14:20-14:35 FrCT14.1
An Enhanced Hybrid Tracking-Mosaicking Approach for Surgical View Expansion 3692-3695
 Takada, Chisato* (*Chiba University*); Afifi, Ahmed (*Chiba University*); Suzuki, Toshiyuki (*Chiba University*); Nakaguchi, Toshiya (*Chiba University*)

14:35-14:50 FrCT14.2
A Low-Dimensional Representation for Individual Head Geometries 3696-3699
 Miklody, Daniel* (*Technische Universität Berlin*); Bagdasarian, Milena Teresa (*Technische Universität Berlin, Fraunhofer HHI*); Blankertz, Benjamin (*Technische Universität Berlin*)

14:50-15:05 FrCT14.3
GPU-Based Volume Reconstruction for Freehand 3D Ultrasound Imaging 3700-3703
 Wen, Tiexiang* (*Shenzhen Institutes of Advanced Technology, Chinese Academy*); Liu, Lei (*Shenzhen Institutes of Advanced Technology, Chinese Academy*); Qin, Wenjian (*Shenzhen Institutes of Advanced Technology, Chinese Academy*); Gu, Jia (*Shenzhen Inst of Advanced Technology*)

15:05-15:20 FrCT14.4
BrainWatch Software for Interactive Exploration of Brain Scans in 3D Virtual Reality Systems 3704-3707
 Taswell, S. Koby (*Brain Health Alliance*); Veeramacheneni, Teja (*Brain Health Alliance*); Taswell, Carl* (*Brain Health Alliance*)

15:20-15:35 FrCT14.5
Image Recognition of Triangular Tissue of an Organ Pulled by Forceps in Surgical Working Area for Laparoscope Robot 3708-3711
 Nakasuji, Hisa* (*Osaka Institute of Technology*); Naruki, Kazuki (*Osaka Institute of Technology*); Kawai, Toshikazu (*Osaka Institute of Technology*); Nishikawa, Atsushi (*Shinshu University*); Nishizawa, Yuji (*Dept. of Gastroenterological Surgery, Faculty of Medicine*); Nakamura, Tatsuo (*Kyoto University*)

FrCT15: 14:20-15:50 Webster Room
Medical Technology – Clinical Testing (Oral Session)

14:20-14:35 FrCT15.1
Cardiac Safety Profile for Random Complex Waveforms 3712-3718
 Pratt, Hugh (*CPLSO*); Andrews, Chris (*University of Queensland*); Panescu, Dorin* (*Advanced Cardiac Therapeutics*); Lake, Blossom (*Shrewsbury and Telford Hospital*)

14:35-14:50 FrCT15.2
Development of Respiratory Function Monitor for Neonates 3719-3722
 Takatori, Fumihiko* (*Nihon Kohden Corporation*); Inoue, Shinichiro (*Nihon Kohden Corporation*); Togo, Satoru (*Nihon Kohden Corporation*); Yamamori, Shinji (*Nihon Kohden Corporation*)

14:50-15:05	FrCT15.3
Transmission Delay Performance in Telemedicine: A Case Study	3723-3727
Wang, Gang* (<i>Univ. of Connecticut</i>); Lin, Shan (<i>Stony brook Univ.</i>); Mullen-Fortino, Margaret (<i>Univ. of Pennsylvania</i>); Sokolsky, Oleg (<i>Univ. of Pennsylvania</i>); Lee, Insup (<i>Univ. of Pennsylvania</i>)	
15:05-15:20	FrCT15.4
A Novel Platform for Distributed and Remote Real-Time Monitoring of Animal Model Behavior in a Bioterium	3728-3731
Manso, André (<i>Instituto Superior Técnico, Universidade de Lisboa</i>); Martinho, Miguel (<i>Instituto Superior Técnico, Universidade de Lisboa</i>); Plácido da Silva, Hugo* (<i>IST - Instituto Superior Técnico</i>); Silvério Cabrita, António (<i>Coimbra Chemistry Center, University of Coimbra</i>); Banganho, António Francisco (<i>Instituto Politécnico de Coimbra, ISEC</i>); Machado, Gonçalo (<i>Isec</i>); Macedo, Milton (<i>IPC - ISEC and LIBPhys</i>)	
15:20-15:35	FrCT15.5
Iquant™ Analyser: A Rapid Quantitative Immunoassay Reader	3732-3736
Joseph, Jayaraj* (<i>HTIC, Indian Institute of Tech. Madras</i>); Vasan, Jayaraman Kiruthi (<i>Healthcare Tech. Innovation Center</i>); Shah, Malay Ilesh (<i>Healthcare Tech. Innovation Center (HTIC), Indian Institute</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Tech. Madras</i>); Mahajan, Lalit (<i>J Mitra & Co Pvt. Ltd.</i>)	

FrCT17: 14:20-15:50	Eindhoven Hall
Signal Processing – Sleep Analysis (Oral Session)	

14:20-14:35	FrCT17.1
Snore Sound Recognition: On Wavelets and Classifiers from Deep Nets to Kernels	3737-3740
Qian, Kun (<i>Technical University of Munich</i>); Janott, Christoph (<i>Technical University of Munich</i>); Jun, Deng (<i>University of Passau</i>); Heiser, Clemens (<i>Technical University of Munich</i>); Hohenhorst, Winfried (<i>Alfried Krupp Krankenhaus</i>); Herzog, Michael (<i>Carl-Thiem-Klinikum Cottbus</i>); Cummins, Nicholas* (<i>University of Passau</i>); Schuller, Bjoern (<i>University of Passau</i>)	
14:35-14:50	FrCT17.2
A Bayesian Neural Network Approach to Compare the Spectral Information from Nasal Pressure and Thermistor Airflow in the Automatic Sleep Apnea Severity Estimation	3741-3744
Gutierrez, Gonzalo Cesar* (<i>University of Valladolid</i>); de Frutos, Julio (<i>Hospital Universitario Río Hortega de Valladolid</i>); Álvarez, Daniel (<i>University of Valladolid</i>); Vaquerizo-Villar, Fernando (<i>Biomedical Engineering Group, University of Valladolid</i>); Barroso-García, Verónica (<i>Biomedical Engineering Group, E.T.S.I. de Telecomunicación, Univ</i>); Crespo, Andrea (<i>Hospital Universitario Río Hortega, Valladolid</i>); del Campo, Félix (<i>Hospital del Río Hortega. Universidad de Valladolid</i>); Hornero, Roberto (<i>University of Valladolid</i>)	
14:50-15:05	FrCT17.3
Estimation of a Prior Probabilities of Sleep Stages: A Cycle-Based Approach	3745-3748
Tataraidze, Alexander* (<i>Bauman Moscow State Technical University</i>); Anishchenko, Lesya (<i>BMSTU</i>); Korostovtseva, Lyudmila (<i>Federal North-West Medical Research Centre</i>); Bochkarev, Mikhail (<i>Federal North-West Medical Research Centre</i>); Sviryayev, Yurii (<i>Sleep Laboratory, Federal Almazov Medical Research Centre</i>); Ivashov, Sergey (<i>Bauman Moscow State Technical University</i>)	
15:05-15:20	FrCT17.4
Comparing Two Insomnia Detection Models of Clinical Diagnostic Techniques	3749-3752
Mulafter, Lamana* (<i>Texas A&M University at Qatar</i>); Shahin, Mostafa (<i>Texas A&M University at Qatar</i>); Glos, Martin (<i>Charite-Universitaetsmedizin Berlin</i>); Penzel, Thomas (<i>Charite Universitätsmedizin Berlin</i>); Ahmed, Beena (<i>Texas A&M University at Qatar</i>)	
15:20-15:35	FrCT17.5
Usefulness of Discrete Wavelet Transform in the Analysis of Oximetry Signals to Assist in Childhood Sleep Apnea-Hypopnea Syndrome Diagnosis	3753-3756
Vaquerizo-Villar, Fernando (<i>Biomedical Engineering Group, University of Valladolid</i>); Álvarez, Daniel (<i>University of Valladolid</i>); Gutierrez, Gonzalo Cesar (<i>University of Valladolid</i>); Barroso-García, Verónica (<i>Biomedical Engineering Group, E.T.S.I. de Telecomunicación, Univ</i>); Kheirandish-Goza, Leila (<i>Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc</i>); Crespo, Andrea (<i>Hospital Universitario Río Hortega, Valladolid</i>); del Campo, Félix (<i>Hospital del Río Hortega. Universidad de Valladolid</i>); Goza, David (<i>Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc</i>); Hornero, Roberto* (<i>University of Valladolid</i>)	

15:35-15:50 FrCT17.6
Detecting Obstructive Sleep Apnea in Children by Self-Affine Visualization of Oximetry 3757-3760
 Garde, Ainar* (*University of Twente*); Kheirkhah Dehkordi, Parastoo (*University of British Columbia*);
 Petersen, Christian (*British Columbia Children's Hospital*); Ansermino, J. Mark (*British Columbia's
 Children's Hospital*); Dumont, Guy (*University of British Columbia*)

FrCT18: 14:20-15:50 Montgomery Hall
**Biomedical Data Beyond Linear Correlation: Higher Order Statistics and
 Non-Gaussianity, Non-Linearity and Multifractality** (Invited Session)
Chair: Yamamoto, Yoshiharu (*The University of Tokyo*)
Co-Chair: Abry, Patrice (*ENS Lyon, CNRS*)

15:05-15:20 FrCT18.4
**Multiscale Properties of Instantaneous Parasympathetic Activity in Severe
 Congestive Heart Failure: A Survivor vs Non-Survivor Study** 3761-3764
 Valenza, Gaetano* (*Univ. of Pisa*); Wendt, Herwig (*CNRS, Univ. of Toulouse*); Kiyono, Ken (*Osaka Univ.*);
 Hayano, Junichiro (*Nagoya City Univ.*); Watanabe, Eiichi (*Fujita Health Univ.*); Yamamoto, Yoshiharu (*The Univ.
 of Tokyo*); Abry, Patrice (*ENS Lyon, CNRS*); Barbieri, Riccardo (*Politecnico di Milano*)

15:20-15:35 FrCT18.5
**Validation of Instantaneous Bispectral High-Frequency Power of
 Heartbeat Dynamics as a Marker of Cardiac Vagal Activity** 3765-3768
 Valenza, Gaetano (*University of Pisa*); Greco, Alberto (*University of Pisa*); Scilingo, Enzo Pasquale (*University
 of Pisa*); Barbieri, Riccardo* (*Politecnico di Milano*)

15:35-15:50 FrCT18.6
Spatially Regularized Multifractal Analysis for fMRI Data 3769-3772
 Ciuciu, Philippe (*CEA*); Wendt, Herwig* (*CNRS, University of Toulouse*); Combexelle, Sébastien (*IRIT,
 University of Toulouse*); Abry, Patrice (*ENS Lyon, CNRS*)

FrDT12-03: 16:10-17:10 Geddes Room
Health Technology Management and Assessment (Poster Session)

16:18-16:20 FrDT12-03.5
Development and Assessment of a Novel Ankle Rehabilitation System for Stroke Survivors 3773-3776
 Lee, Beom-Chan* (*Univ. of Houston*); Dae-Hee, Kim (*Korea Institute of Robot and Convergence*); Son,
 Younsun (*Univ. of Houston*); Kap-Ho, Seo (*Korea Institute of Robot and Convergence*); Sung Ho, Park (*Korea
 Institute of Robot and Convergence*); Yoo, Dongyual (*Univ. of Houston*); Alberto, Fung (*Univ. of Houston*)

16:20-16:22 FrDT12-03.6
**A New Fall-Inducing Technology Platform: Development and Assessment of a
 Programmable Split-Belt Treadmill** 3777-3780
 Lee, Beom-Chan* (*University of Houston*); Martin, Bernard (*University of Michigan*); Thrasher, Timothy Adam
 (*University of Houston*); Layne, Charles (*University of Houston*)

FrDT15-01: 16:10-17:10 Webster Room
Empowering Individual Healthcare Decisions through Technology I (Poster Session)

16:10-16:12 FrDT15-01.1
Smart Mobility Solution with Multiple Input Output Interface 3781-3784
 Sethi, Aartika* (*IIIT Delhi*); Deb, Sujay (*Indraprastha Institute of Information Technology, Delhi*);
 Ranjan, Prabhat (*TIFAC*); Sardar, Arghya (*TIFAC*)

16:12-16:14 FrDT15-01.2
Simple and Low-Cost Polymer Lens Fabrication using a Pressure-Driven Micro Chamber 3785-3788
 Seo, Min-Won (*Seoul National University*); Koo, Kyoin (*University of Ulsan*); Seo, Jong Mo* (*Seoul National
 University, School of Engineering*)

16:14-16:16

FrDT15-01.3

Proposal of Custom Made Wrist Orthoses based on 3D Modelling and 3D Printing 3789-3792

Abreu de Souza, Mauren* (*Federal University of Technology – Paraná (UTFPR)*); Schmitz, Cristiane (*Federal University of Technology – Paraná (UTFPR)*); Marega Pinhel, Marcelo (*UTFPR*); Palma Setti, João (*UTFPR*); Nohama, Percy (*Universidade Tecnológica Federal do Parana*)

Saturday, 15 July 2017

SaAT1: 08:00-09:30

Roentgen Hall

Data Mining and Processing in Biosignals I (Oral Session)

08:00-08:15

SaAT1.1

A Flexible Method for the Automated Offline-Detection of Artifacts in**Multi-Channel Electroencephalogram Recordings** 3793-3796

Waser, Markus* (*Technical Univ. of Denmark*); Garn, Heinrich (*AIT Austrian Institute of Technology GmbH*); Benke, Thomas (*Innsbruck Medical Univ.*); Dal-Bianco, Peter (*Medical Univ. of Vienna*); Ransmayr, Gerhard (*AKh Allgemeines Krankenhaus der Stadt Linz GmbH*); Schmidt, Reinhold (*Graz Medical Univ.*); Jennum, Poul (*Univ. of Copenhagen, Demnar*); Sorensen, Helge B D (*Technical Univ. of Denmark*)

08:15-08:30

SaAT1.2

Elucidating Age-Specific Patterns from Background Electroencephalogram**Pediatric Data Sets via PARAFAC** 3797-3800

Kinney-Lang, Eli* (*Univ. of Edinburgh*); Spyrou, Loukianos (*Univ. of Edinburgh*); Ebied, Ahmed (*Univ. of Edinburgh*); Chin, Richard (*The Univ. of Edinburgh*); Escudero, Javier (*Univ. of Edinburgh*)

08:30-08:45

SaAT1.3

Speech Features for Telemonitoring of Parkinson's Disease Symptoms 3801-3805

Ramezani, Hamideh* (*Koc University*); Khaki, Hossein (*Koc University*); Erzin, Engin (*Koc University*); Akan, Ozgur B. (*Koc University*)

08:45-09:00

SaAT1.4

"You Sound Ill, Take the Day Off": Automatic Recognition of Speech Affected by**Upper Respiratory Tract Infection** 3806-3809

Cummins, Nicholas* (*University of Passau*); Schmitt, Maximilian (*University of Passau*); Amiriparian, Shahin (*University of Passau*); Krajewski, Jarek (*University of Wuppertal*); Schuller, Bjoern (*University of Passau*)

09:00-09:15

SaAT1.5

Linear-Sigmoidal Modelling of Accelerometer Features and Tinetti Score for**Automatic Fall Risk Assessment** 3810-3813

Rivolta, Massimo Walter* (*Università degli studi di Milano*); Sassi, Roberto (*Università degli Studi di Milano*)

09:15-09:30

SaAT1.6

Convolutional Neural Network Architecture and Input Volume Matrix Design for ERP**Classifications in a Tactile P300 – Based Brain – Computer Interface** 3814-3817

Kodama, Takumi* (*University of Tsukuba*); Makino, Shoji (*University of Tsukuba*)

SaAT3: 08:00-09:30

Park Room

Infrared and Thermal Imaging (Oral Session)**Chair:** Czaplík, Michael (*University Hospital RWTH Aachen*)**Co-Chair:** Ruminski, Jacek (*Gdansk University of Technology*)

08:00-08:15

SaAT3.1

Estimation of Respiratory Rate from Thermal Videos of Preterm Infants 3818-3821

Barbosa Pereira, Carina* (*RWTH Aachen University*); Heimann, Konrad (*University Children's Hospital, Dept. of Neonatology, RWTH*); Venema, Boudewijn (*Philips Chair for Medical Information Technology, RWTH Aachen Un*); Blazek, Vladimir (*Philips Chair for Medical Information Technology, RWTH Aachen Un*); Czaplík, Michael (*University Hospital RWTH Aachen*); Leonhardt, Steffen (*RWTH Aachen University*)

08:15-08:30 SaAT3.2
Automated Segmentation of Regions of Interest from Thermal Images of Hands 3822-3826
 Gauci, Jean (*University of Malta*); Falzon, Owen* (*University of Malta*); Camilleri, Kenneth Patrick (*University of Malta*); Formosa, Cynthia (*University of Malta*); Gatt, Alfred (*University of Malta*); Mizzi, Stephen (*University of Malta*); Mizzi, Anabelle (*University of Malta*); Cassar, Kevin (*Mater Dei Hospital*); Sturgeon, Cassandra (*University of Malta*); Chockalingam, Nachiappan (*Staffordshire University*)

08:30-08:45 SaAT3.3
Automatic Analysis of the Aggressive Behavior of Laboratory Animals using Thermal Video Processing ... 3827-3830
 Mazur-Milecka, Magdalena (*Gdańsk Univ. of Technology*); Ruminski, Jacek* (*Gdansk Univ. of Technology*)

08:45-09:00 SaAT3.4
Development of a "Thermal-Associated Pain Index" Score using Infrared-Thermography for Objective Pain Assessment 3831-3834
 Czaplík, Michael* (*University Hospital RWTH Aachen*); Hochhausen, Nadine (*RWTH Aachen University, Section Medical Technology at The Depart*); Dohmeier, Henriette (*RWTH Aachen University, Section Medical Technology at The Depart*); Barbosa Pereira, Carina (*RWTH Aachen University*); Rossaint, Rolf (*RWTH Aachen University, Dept. of Anesthesiology*)

09:00-09:15 SaAT3.5
Comparison of Motion-Based Analysis to Thermal-Based Analysis of Thermal Video in the Extraction of Respiration Patterns 3835-3839
 Bennett, Stephanie Louise* (*Carleton University*); Goubran, Rafik A. (*Carleton University*); Knoefel, Frank-Dietrich (*Bruyere Continuing Care, University of Ottawa, Carleton Universi*)

SaAT5: 08:00-09:30	Lee Room
Integrated Circuits and Systems (Oral Session)	
Chair: Pino, Esteban J (<i>Universidad de Concepcion</i>)	

08:00-08:15 SaAT5.1
A Sub-nj CMOS ECG Classifier for Wireless Smart Sensor 3840-3843
 Chollet, Paul* (*IMT Atlantique Bretagne-Pays de la Loire*); Pallas, Rémi (*Telecom bretagne*); Lahuec, Cyril (*TELECOM Bretagne, France*); Arzel, Matthieu (*TELECOM Bretagne, France*); Seguin, Fabrice (*Institut Mines Telecom Atlantique*)

08:15-08:30 SaAT5.2
A Low Power, Low Noise Programmable Analog Front End (PAFE) for Biopotential Measurements 3844-3847
 Adimulam, Mahesh Kumar* (*Birla Institute of Tech. and Science – Pilani, Hyderabad Ca*); Adimulam, Divya (*EE Dept., Birla Institute of Tech. and Science – Pilani*); K, Tejaswi (*Birla Institute of Tech. and Science – Pilani, Hyderabad Ca*); M B, Srinivas (*EE Dept., Birla Institute of Tech. and Science – Pilani*)

08:30-08:45 SaAT5.3
Improving Efficiency of DC/DC Booster Converters used in Electrical Stimulators 3848-3851
 Aqueveque, Pablo* (*University of Concepcion*); Saavedra, Francisco (*University of Concepcion*); Pino, Esteban J (*Universidad de Concepcion*)

08:45-09:00 SaAT5.4
Wireless Wearable User Interface Cursor-Controller (UIC-C) 3852-3855
 Marjanovic, Nicholas* (*University of Illinois at Chicago*); Kerr, Kevin (*University of Illinois-Chicago*); Aranda, Ricardo (*University of Illinois at Chicago*); Hickey, Richard (*University of Illinois at Chicago*); Esmailbeigi, Hananeh (*University of Illinois at Chicago (UIC)*)

SaAT7: 08:00-09:30	Herrick Room
Neurorehabilitation I (Oral Session)	

08:00-08:15 SaAT7.1
Feasibility of using the RAPAEEL Smart Glove in Upper Limb Physical Therapy for Patients after Stroke: A Randomized Controlled Trial 3856-3859
 Jung, Hee-Tae* (*Daegu University*); Kim, Hwan (*Daegu University*); Jeong Jugyeong, Jeong Jugyeong (*Heeyeon Hospital*); Jeon, Bomín (*회 연 병 원 Occupational Therapy*); Ryu, Taekyeong (*Heeyeon Hospital*); Kim, Yangsoo (*Heeyeon Hospital*)

08:15-08:30	SaAT7.2
Assessment of Elbow Spasticity with Surface Electromyography and Mechanomyography based on Support Vector Machine	3860-3863
Wang, Hui (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Wang, Lei (<i>Shenzhen Institutes of Advanced Technology Chinese Academy of Sc</i>); Xiang, Yun (<i>The Sixth People's Hospital of Shenzhen City, Rehabilitation Ins</i>); Zhao, Ning (<i>Rehabilitation Unit, Nanshan District People's Hos</i>); Li, Xiangxin (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sc</i>); Chen, Shixiong (<i>Shenzhen Institutes of Advanced Technology</i>); Lin, Chuang (<i>University Medical Center Goettingen, Georg-August University</i>); Li, Guanglin* (<i>Shenzhen Institutes of Advanced Technology</i>)	
08:30-08:45	SaAT7.3
Accurate Estimation of Joint Motion Trajectories for Rehabilitation using Kinect	3864-3867
Sinha, Sanjana* (<i>Innovation Labs, Tata Consultancy Services Ltd.</i>); Bhowmick, Brojeshwar (<i>Innovation Labs, Tata Consultancy Services Ltd.</i>); Sinha, Aniruddha (<i>Tata Consultancy Services Ltd.</i>); Das, Abhijit (<i>Institute of NeuroSciences Kolkata</i>)	
08:45-09:00	SaAT7.4
Electrical Neurostimulation of a Mammalian Nerve Fibers: A Probabilistic versus Mechanistic Approach	3868-3871
Sadashivaiah, Vijay* (<i>Johns Hopkins University</i>); Sacré, Pierre (<i>Johns Hopkins University</i>); Guan, Yun (<i>Johns Hopkins University School of Medicine</i>); Anderson, William S. (<i>Johns Hopkins School of Medicine, Dept. of Neurosurgery</i>); Sarma, Sridevi V. (<i>Johns Hopkins University</i>)	
09:00-09:15	SaAT7.5
Quantification Method of Motor Function Recovery of Fingers by using the Device for Home Rehabilitation	3872-3875
Furudate, Yuta* (<i>Future University Hakodate</i>); Yamamoto, Kazuki (<i>Future University Hakodate</i>); Ishida, Yuji (<i>Hokkaido Bunkyo University</i>); Chiba, Kaori (<i>Medical Association Hospital Hakodate</i>); Mikami, Sadayoshi (<i>Future University Hakodate</i>)	

SaAT13: 08:00-09:30	Dunn Room
Bioinformatics – Bioinformatics Databases (Oral Session)	
Chair: Fotiadis, Dimitrios I. (<i>University of Ioannina</i>)	

08:00-08:15	SaAT13.1
Identification of Differentially Expressed Genes through a Meta-Analysis Approach for Oral Cancer Classification	3876-3879
Kourou, Konstantina (<i>Unit of Biological Applications and Technology, University of Io</i>); Papaloukas, Costas (<i>University of Ioannina</i>); Fotiadis, Dimitrios I.* (<i>University of Ioannina</i>)	
08:15-08:30	SaAT13.2
Alignment-Free Sequence Comparison using Joint Frequency and Position Information of K-Words	3880-3883
Han, Gyu-Bum (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Chung, Byung Chang (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Cho, Dong-Ho* (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	
08:30-08:45	SaAT13.3
Privacy-Preserving Chi-Squared Testing for Genome SNP Databases	3884-3889
Sei, Yuichi* (<i>University of Electro-Communications</i>); Ohsuga, Akihiko (<i>University of Electro-Communications</i>)	
08:45-09:00	SaAT13.4
MotifMark: Finding Regulatory Motifs in DNA Sequences	3890-3893
Hassanzadeh, Hamid* (<i>Georgia Institute of Technology</i>); Wang, May D. (<i>Georgia Tech and Emory University</i>)	
09:00-09:15	SaAT13.5
Classification of Various Genomic Sequences based on Distribution of Repeated K-Word	3894-3897
Song, Yong-Joon (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Cho, Dong-Ho* (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	

09:15-09:30 SaAT13.6
Predicting Rapid Progression of Parkinson's Disease at Baseline Patients Evaluation 3898-3901
 Tsiouris, Kostas (*Biomedical Engineering Laboratory, School of Electrical and Comp*); Rigas, Georgios (*Univ. of Ioannina*); Gatsios, Dimitris (*Univ. of Ioannina*); Antonini, Angelo (*IRCCS Fondazione Ospedale San Camillo, Division of Parkinson's Di*); Konitsiotis, Spiros (*Medical School, Univ. of Ioannina*); Koutsouris, Dimitrios (*Biomedical Engineering Laboratory, School of Electrical and Comp*); Fotiadis, Dimitrios I.* (*Univ. of Ioannina*)

SaAT14: 08:00-09:30 Schaldach Room
Imaging-Based Biomarkers (Oral Session)
Chair: Park, Hyunjin (*Sungkyunkwan University*)

08:00-08:15 SaAT14.1
Colorimetric Recognition for Urinalysis Dipsticks based on Quadratic Discriminant Analysis 3902-3905
 Dong, Kai (*Nanjing Univ. of Science & Tech.*); Dong, Tao* (*Univ. College of Southeast Norway - HSN, TekMar*)

08:15-08:30 SaAT14.2
Automatic Detection of Periodontitis using Intra-Oral Images 3906-3909
 Tabatabaei Balaei, Asghar* (*Univ. of Sydney*); de Chazal, Philip (*Univ. of Sydney*); Eberhard, Joerg (*Univ. of Sydney*); Ruiz, Kate (*Univ. of Sydney*); Spahr, Axel (*Univ. of Sydney*); Domnisch, Henrik (*Charite Univ., Berlin*)

08:30-08:45 SaAT14.3
Content-Based Retrieval for Lung Nodule Diagnosis using Learned Distance Metric 3910-3913
 Wei, Guohui (*Northeastern University*); Ma, He* (*Northeastern University*); Qian, Wei (*Northeastern University*); Jiang, Hongyang (*Sino-Dutch Biomedical and Information Engineering School, Northe*); Zhao, Xinzhuo (*Northeastern University*)

08:45-09:00 SaAT14.4
11C-PIB PET Image Analysis for Alzheimer's Diagnosis using Weighted Voting Ensembles 3914-3917
 Wu, Wenjun (*Georgia Institute of Technology*); Venugopalan, Janani (*Georgia Institute of Technology*); Wang, May D.* (*Georgia Tech and Emory University*)

09:00-09:15 SaAT14.5
Touch-Free Reaching Task for Parkinson's Disease Patients: A Motion Sensing Approach 3918-3921
 Salimpour, Yousef* (*Johns Hopkins School of Medicine*); Chien, Jui-Hong (*Johns Hopkins University*); Lee, Sangwon (*Johns Hopkins School of Medicine*); Liu, Chang-Chia (*Johns Hopkins University*); Guadix, Sergio (*Johns Hopkins University, University of Pennsylvania*); Mills, Kelly (*Johns Hopkins University*); Anderson, William S. (*Johns Hopkins School of Medicine, Dept. of Neurosurgery*)

09:15-09:30 SaAT14.6
Imaging Genetics Approach to Predict Progression of Parkinson's Diseases 3922-3925
 Kim, Mansu (*Sungkyunkwan University*); Son, Seong-Jin (*Sungkyunkwan University*); Park, Hyunjin* (*Sungkyunkwan University*)

SaAT16: 08:00-09:30 Rushmer Room
Haptics (Oral Session)

08:00-08:15 SaAT16.1
Development and Control of a Magnetorheological Haptic Device for Robot Assisted Surgery 3926-3929
 Shokrollahi, Elnaz* (*University of Toronto*); Goldenberg, Andrew A. (*University of Toronto*); Drake, James (*University of Toronto, CIGITI, Hospital for Sick Children*); Eastwood, Kyle (*University of Toronto*); Kang, Matthew (*University of Toronto*)

08:15-08:30 SaAT16.2
Haptic fMRI: Reliability and Performance of Electromagnetic Haptic Interfaces for Motion and Force Neuroimaging Experiments 3930-3935
 Menon, Samir* (*Stanford University*); Zhu, Jack (*Stanford University*); Goyal, Deeksha (*Stanford University*); Khatib, Oussama (*Stanford University*)

08:30-08:45 SaAT16.3
Grasper Integrated Tri-Axial Force Sensor System for Robotic Minimally Invasive Surgery 3936-3939
 Dai, Yuan* (*University of California, Los Angeles*); Abiri, Ahmad (*University of California, Los Angeles*); Liu, Siyuan (*University of California Los Angeles*); Paydar, Omeed (*University of California, Los Angeles*); Sohn, Hyunmin (*University of California, Los Angeles*); Dutton, Erik P. (*UCLA*); Grundfest, Warren S. (*UCLA*); Candler, Robert (*University of California, Los Angeles*)

08:45-09:00 SaAT16.4
Three-Axis Force Sensor with Fiber Bragg Grating 3940-3943
 Choi, Hyun Do (*SAIT (Samsung Advanced Institute of Technology)*); Lim, Yo-An (*Samsung Advanced Institute of Technology, Samsung Electronics*); Kim, Jun Hyung* (*Samsung Electronics Co.*)

09:00-09:15 SaAT16.5
Positioning the Endoscope in Laparoscopic Surgery by Foot: Influential Factors on Surgeons' Performance in Virtual Trainer 3944-3948
 Abdi, Elahe* (*EPFL*); Bouri, Mohamed (*EPFL*); Burdet, Etienne (*Imperial Collge of Science, Technology and Medicine*); Himidan, Sharifa (*Hospital of SickKids*); Bleuler, Hannes (*EPFL*)

SaAT17: 08:00-09:30 Einthoven Hall
Connectivity Measurements I (Oral Session)
Chair: Semenova, Oksana (*University College Cork*)
Co-Chair: Anzolin, Alessandra (*Univ. of Rome Sapienza, Neuroelectrical Imaging and BCI Lab IRCCS Fondazione Santa Lucia*)

08:00-08:15 SaAT17.1
Estimation of Coherence using the Median is Robust against EEG Artefacts 3949-3952
 Dukic, Stefan (*Trinity College Dublin*); Iyer, Parameswaran M. (*Trinity College Dublin*); Mohr, Kieran (*Trinity College Dublin*); Hardiman, Orla (*Trinity College Dublin*); Lalor, Edmund (*Trinity College Dublin*); Nasseroleslami, Bahman* (*Trinity College Dublin*)

08:15-08:30 SaAT17.2
Brain Connectivity Networks at the Basis of Human Attention Components: An EEG Study 3953-3956
 Anzolin, Alessandra* (*Univ. of Rome "Sapienza", Neuroelectrical Imaging and BCI Lab IR*); Mattia, Donatella (*Fondazione Santa Lucia IRCCS*); Toppi, Jlenia (*University of Rome "Sapienza"*); Pichiorri, Floriana (*Fondazione Santa Lucia, IRCCS, Rome, Italy*); Riccio, Angela (*Neuroelectrical Imaging and BCI Lab IRCCS Fondazione Santa Lucia*); Astolfi, Laura (*University of Rome Sapienza*)

08:30-08:45 SaAT17.3
Graph Theoretical Analysis of EEG Functional Network during Multi-Workload Flight Simulation Experiment in Virtual Reality Environment 3957-3960
 Zhang, Shengqian (*National University of Singapore*); Zhang, Yuan (*National University of Singapore*); Sun, Yu (*National University of Singapore*); Thakor, Nitish (*Johns Hopkins University*); Bezerianos, Anastasios* (*National University of Singapore*)

08:45-09:00 SaAT17.4
How the Workload Impacts on Cognitive Cooperation: A Pilot Study 3961-3964
 Sciaraffa, Nicolina (*Dept. of Computer, Control and Management Engineering, Univ*); Borghini, Gianluca (*University of Rome Sapienza*); Arico, Pietro (*Fondazione Santa Lucia*); Di Flumeri, Gianluca* (*University of Rome Sapienza*); Toppi, Jlenia (*University of Rome "Sapienza"*); Colosimo, Alfredo (*University of Rome "Sapienza"*); Bezerianos, Anastasios (*National University of Singapore*); Thakor, Nitish (*Johns Hopkins University*); Babiloni, Fabio (*University of Rome*)

09:00-09:15 SaAT17.5
Community Detection: Comparison among Clustering Algorithms and Application to EEG-Based Brain Networks 3965-3968
 Puxeddu, Maria Grazia (*Sapienza, University of Rome*); Petti, Manuela* (*Univ. of Rome "Sapienza", Neuroelectrical Imaging and BCI Lab IR*); Pichiorri, Floriana (*Fondazione Santa Lucia, IRCCS, Rome, Italy*); Cincotti, Febo (*Sapienza University of Rome*); Mattia, Donatella (*Fondazione Santa Lucia IRCCS*); Astolfi, Laura (*University of Rome Sapienza*)

09:15-09:30 SaAT17.6
Modelling Interactions between Blood Pressure and Brain Activity in Preterm Neonates 3969-3972
 Semenova, Oksana* (*University College Cork*); Lightbody, Gordon (*University College Cork*); O'Toole, John M. (*University College Cork*); Boylan, Geraldine (*University College Cork*); Dempsey, Eugene (*Irish Centre for Fetal and Neonatal Translational Research (INFA)*); Temko, Andriy (*University College Cork*)

SaAT18: 08:00-09:30 Montgomery Hall
Time-Frequency and Time-Scale Analysis – Cardiovascular Signals (Oral Session)

08:00-08:15 SaAT18.1
An Analysis Method for Wearable Electrocardiogram Measurement based on Non-Orthogonal Complex Wavelet Expansion 3973-3976
 Shimauchi, Suehiro* (*NTT Corporation*); Eguchi, Kana (*NTT Corporation*); Takeda, Toki (*NTT Service Evolution Laboratories*); Aoki, Ryosuke (*NTT Corporation*)

08:15-08:30 SaAT18.2
Smooth Bandpass Empirical Mode Decomposition with Rolling Ball Sifting for Extracting Carotid Bruits and Heart Sounds 3977-3980
 Huang, Adam* (*National Central University*); Liu, Min-Yin (*National Central University*); Lee, Chung-Wei (*National Taiwan University Hospital*); Liu, Hon-Man (*National Taiwan University*)

08:30-08:45 SaAT18.3
Automatic Atrial Fibrillation Detection: A Novel Approach using Discrete Wavelet Transform and Heart Rate Variability 3981-3984
 Bruun, Iben Hervold* (*Technical University of Denmark*); Hissabu, Semira M. S. (*Technical University of Denmark*); Poulsen, Erik S. (*Cortrium ApS*); Puthusserypady, Sadasivan (*Technical University of Denmark*)

08:45-09:00 SaAT18.4
Comparison of Frequency-Based Techniques for Assessment of Baroreceptor Sensitivity and Heart Rate Variability 3985-3988
 Ramachandran, Harish (*Macquarie University*); Butlin, Mark (*Macquarie University*); Quinn, Barry (*Macquarie University*); Avolio, Alberto P* (*Macquarie University*); Town, Graham (*Macquarie University*)

09:00-09:15 SaAT18.5
Discrimination of Multiple Stress Levels in Virtual Reality Environments using Heart Rate Variability 3989-3992
 Ham, Jinsil* (*Gwangju Institute of Science and Technology (GIST)*); Cho, Dongrae (*Gwangju Institute of Science and Technology*); Oh, Jooyoung (*Gwangju Institute of Science and Technology*); Lee, Boreom (*Gwangju Institute of Science and Technology (GIST)*)

09:15-09:30 SaAT18.6
Contribution of Body Movements on the Heart Rate Variability during High Intensity Running 3993-3996
 Alikhani, Iman* (*University of Oulu*); Noponen, Kai (*University of Oulu*); Seppänen, Tapio (*University of Oulu*)

SaBT1: 10:50-12:20 Roentgen Hall
Physiological Systems Modeling I (Oral Session)
 Chair: Fanelli, Andrea (*Massachusetts Institute of Technology*)

10:50-11:05 SaBT1.1
Detection of Sympathoadrenal Discharge by Parameterisation of Skin Conductance and ECG Measurement 3997-4000
 Tronstad, Christian* (*Oslo University Hospital*); Elvebakk, Ole (*Oslo University Hospital*); Kalvoy, Haavard (*Rikshospitalet*); Bjørngaas, Marit Ragnhild (*St. Olavs Hospital*); Martinsen, Ørjan G (*University of Oslo*)

11:05-11:20 SaBT1.2
Regression-Based Noninvasive Estimation of Intracranial Pressure 4001-4004
 Fanelli, Andrea (*Massachusetts Institute of Technology*); Vonberg, Frederick William (*Boston Children's Hospital, Harvard University*); Jaishankar, Rohan (*Massachusetts Institute of Technology*); Imaduddin, Syed (*Massachusetts Institute of Technology*); Tasker, Robert (*Boston Children's Hospital*); Heldt, Thomas* (*Massachusetts Institute of Technology*)

11:20-11:35	SaBT1.3
Correction of Tissue Oxygen Saturations using Arterial Oxygen Levels for Cerebrovascular Autoregulation Analysis	4005-4008
Antunes, Andre* (<i>Medtronic</i>); Addison, Paul (<i>Medtronic</i>); Montgomery, Dean (<i>Univ. of Edinburgh</i>); Borg, Ulf (<i>Medtronic</i>)	
11:35-11:50	SaBT1.4
Unsupervised Gait Detection using Biomechanical Restrictions	4009-4013
Hotta, Shinji* (<i>Fujitsu Laboratories Ltd.</i>); Inomata, Akihiro (<i>Fujitsu Japan</i>); Sasamoto, Yuki (<i>Fujitsu Laboratories Ltd.</i>); Washizawa, Shiho (<i>Fujitsu Laboratories Ltd.</i>); Caulfield, Brian (<i>UCD</i>)	
11:50-12:05	SaBT1.5
Model Selection for the Pulse Decomposition Analysis of Fingertip Photoplethysmograms	4014-4017
Tigges, Timo* (<i>Technical University Berlin</i>); Pielmus, Alexandru Gabriel (<i>Technical University Berlin</i>); Klum, Michael (<i>Technical University Berlin</i>); Feldheiser, Arne (<i>Charité Campus Virchow-Klinikum</i>); Hunsicker, Oliver (<i>Charité Campus Virchow-Klinikum</i>); Orglmeister, Reinhold (<i>Technische Universität Berlin</i>)	
12:05-12:20	SaBT1.6
On a Unified Point Process Approach for the Characterization of Bioelectric Discrete Phenomena	4018-4021
Yana, Kazuo* (<i>Hosei University</i>); Mino, Hiroyuki (<i>Kanto Gakuin University</i>)	
SaBT2: 10:50-12:20	Cho Room
Optical Imaging I (Oral Session)	
Chair: Chung, Euiheon (<i>Gwangju Institute of Science and Technology</i>)	
10:50-11:05	SaBT2.1
Hemodynamic Response to Optogenetic Stimulation Varied under Different Stimulus Parameters	4022-4025
Bo, Bin (<i>Shanghai Jiao Tong Univ.</i>); Li, Wanlu (<i>Shanghai Jiao Tong Univ.</i>); Wang, Yongting (<i>Shanghai Jiao Tong Univ.</i>); Li, Yao* (<i>Shanghai Jiao Tong Univ.</i>); Tong, Shanbao (<i>Shanghai Jiao Tong Univ.</i>)	
11:05-11:20	SaBT2.2
Phase-Domain Photoacoustics Eliminating Acoustic Detection Variations	4026-4029
Duan, Tingyang (<i>Shanghai Tech Univ.</i>); Zhang, Ruochong (<i>Nanyang Technological Univ.</i>); Feng, Xiaohua (<i>Nanyang Technological Univ.</i>); Liu, Siyu (<i>Nanyang Technological Univ.</i>); Ding, Ran (<i>Nanyang Technological Univ.</i>); Zheng, Yuanjin (<i>Nanyang Technological Univ.</i>); Gao, Fei* (<i>Shanghai Tech Univ.</i>)	
11:20-11:35	SaBT2.3
An Iterative Weighted Method based on YALL1 for Cone-Beam X-Ray Luminescence Optical Tomography Imaging: A Phantom Experimental Study	4030-4033
Zhao, Lili (<i>Shanghai University</i>); Jiang, Jiehui (<i>Shanghai University</i>); Shu, Yuexia (<i>Shanghai University</i>); Yan, Zhuangzhi (<i>Shanghai University</i>); Liu, Xin* (<i>Shanghai University</i>)	
11:35-11:50	SaBT2.4
A Fast Forward Solver of Fluorescence Diffuse Optical Tomography based on the Lattice Boltzmann Method	4034-4037
Zhang, Wenqing (<i>Shanghai Univ.</i>); Yan, Zhuangzhi* (<i>Shanghai Univ.</i>); Jiang, Jiehui (<i>Shanghai Univ.</i>)	
11:50-12:05	SaBT2.5
A Dual-Modality Optical Coherence Tomography and Selective Plane Illumination Microscopy System for Mouse Embryonic Imaging	4038-4040
Larin, Kirill* (<i>University of Houston</i>)	
12:05-12:20	SaBT2.6
Label-Free Hyperspectral Imaging and Quantification Methods for Surgical Margin Assessment of Tissue Specimens of Cancer Patients	4041-4045
Fei, Baowei* (<i>Emory University and Georgia Institute of Technology</i>)	

SaBT3: 10:50-12:20 Histologic Image Analysis (Oral Session) Chair: Song, Cheol (<i>DGIST</i>)	Park Room
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10:50-11:05		SaBT3.1	
	Multiplexed Immunohistochemistry Image Analysis using Sparse Coding	4046-4049	
	Chang, Young Hwan* (<i>Oregon Health and Science University</i>); Tsujikawa, Takahiro (<i>Oregon Health and Science University</i>); Margolin, Adam (<i>Oregon Health and Science University</i>); Coussens, Lisa M. (<i>Oregon Health and Science University</i>); Gray, Joe (<i>Oregon Health & Science University</i>)		

11:05-11:20		SaBT3.2	
	Histopathological Image Classification with Bilinear Convolutional Neural Networks	4050-4053	
	Chaofeng, Wang (<i>Shanghai University</i>); Shi, Jun* (<i>Shanghai University</i>); Zhang, Qi (<i>Shanghai University</i>); Ying, Shihui (<i>Shanghai University</i>)		

11:20-11:35		SaBT3.3	
	Angiosome based Time Series Analysis of Deep Tissue Perfusion using Diffuse Speckle Contrast Analysis	4054-4057	
	Yeo, Chaebeom (<i>DGIST</i>); Lee, Kijoon (<i>DGIST</i>); Song, Cheol* (<i>DGIST</i>)		

11:35-11:50		SaBT3.4	
	Human Induced Pluripotent Stem Cell Region Recognition in Microscopy Images using Convolutional Neural Networks	4058-4061	
	Chang, Yuan-Hsiang (<i>Chung Yuan Christian University</i>); Abe, Kuniya (<i>Mammalian Genome Dynamics, RIKEN BioResource Center</i>); Yokota, Hideo (<i>RIKEN Center for Advanced Photonics</i>); Lin, Cheng-Yu (<i>Chung Yuan Christian University</i>); Sudo, Kazuhiro (<i>BioResource Center, RIKEN</i>); Nakamura, Yukio (<i>RIKEN BioResource Center</i>); Tsai, Ming-Dar* (<i>Chung-Yuan Christian University</i>)		

11:50-12:05		SaBT3.5	
	Analysis of Mitochondrial Shape Dynamics using Large Deformation Diffeomorphic Metric Curve Matching	4062-4065	
	Yang, Huilin (<i>Carnegie Mellon University</i>); Wang, Jing (<i>Carnegie Mellon University</i>); Tang, Haiyun (<i>Carnegie Mellon University</i>); Ba, Qinle (<i>Carnegie Mellon University</i>); Yang, Ge (<i>Carnegie Mellon University</i>); Tang, Xiaoying* (<i>Sun Yat-sen University-Carnegie Mellon University (SYSU-CMU) Joi</i>)		

12:05-12:20		SaBT3.6	
	Tissue Classification in a Canine Model of Duchenne Muscular Dystrophy using Quantitative MRI Parameters	4066-4069	
	Eresen, Aydin (<i>Texas A&M University</i>); Sharla, Birch (<i>Texas A&M University</i>); McConnell, Stephen (<i>Texas A&M University</i>); Griffin, Jay (<i>Texas A&M University</i>); Kornegay, Joe (<i>Texas A&M University</i>); Ji, Jim Xiuquan* (<i>Texas A&M University</i>)		

SaBT4: 10:50-12:20 Physiological Monitoring I (Oral Session)	Min Room
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10:50-11:05		SaBT4.1	
	Effects of Respiration Depth on Human Body Radar Cross Section using 2.4GHz Continuous Wave Radar	4070-4073	
	Lee, Alexander* (<i>University of Hawaii at Manoa</i>); Gao, Xiaomeng (<i>University of Hawaii at Manoa</i>); Xu, Jia (<i>University of Hawaii at Manoa</i>); Boric-Lubecke, Olga (<i>University of Hawaii Manoa</i>)		

11:05-11:20		SaBT4.2	
	Monitoring Peripheral Edema of Heart Failure Patients at Home: Device, Algorithm, and Clinic Study	4074-4077	
	Yao, Jianchu* (<i>East Carolina University</i>); Weaver, Elizabeth (<i>East Carolina University</i>); Langley, Brandon (<i>East Carolina University</i>); George, Stephanie (<i>East Carolina University</i>); Hardin, Sonya (<i>East Carolina University</i>)		

11:20-11:35		SaBT4.3	
	A Low-Cost Video-Oculography System for Vestibular Function Testing	4078-4081	
	Park, Jihwan (<i>Soonchunhyang University</i>); Kong, Youngsun (<i>Soonchunhyang University</i>); Nam, Yunyoung* (<i>Soonchunhyang University</i>)		

11:35-11:50 SaBT4.4
Modified Automatic R-Peak Detection Algorithm for Patients with Epilepsy using a Portable Electrocardiogram Recorder 4082-4085
 Jeppesen, Jesper* (*Aarhus University*); Beniczky, Sandor (*Danish Epilepsy Centre*); Fuglsang-Frederiksen, Anders (*Dept. of Neurophysiology, Aarhus University Hospital, 8000*); Sidenius, Per (*Dept. of Neurology, Aarhus University Hospital*); Johansen, Peter (*University of Aarhus, Faculty of Science and Technology*)

11:50-12:05 SaBT4.5
Real-Time Estimation of Eye Gaze from In-Ear Electrodes 4086-4089
 Favre-Félix, Antoine* (*Eriksholm Research Centre*); Graversen, Carina (*Eriksholm Research Centre*); Dau, Torsten (*Technical University of Denmark*); Lunner, Thomas (*Eriksholm Research Centre - part of Oticon*)

12:05-12:20 SaBT4.6
PPG Pulse Direction Determination Algorithm for PPG Waveform Inversion by Wrist Rotation 4090-4093
 Choi, Changmok* (*Samsung Electronics Co., Ltd.*); Ko, Byung-Hoon (*Samsung Advanced Institute of Technology*); Lee, Jongwook (*Samsung Electronics*); Yoon, Seung Keun (*Samsung Advanced Institute of Technology*); Kwon, Uikun (*Samsung Electronics*); Kim, Sang Joon (*Samsung Electronics*); Kim, Youn Ho (*Samsung Advanced Institute of Technology*)

SaBT5: 10:50-12:20	Lee Room
Physical Sensors and Sensor Systems I (Oral Session)	
Chair: Moratal, David (<i>Universitat Politècnica de València</i>)	

10:50-11:05 SaBT5.1
NFC-Enabled, Tattoo-Like Stretchable Biosensor Manufactured by “Cut-and-Paste” Method 4094-4097
 Jeong, Hyoyoung (*University of Texas at Austin*); Ha, Taewoo (*The University of Texas at Austin*); Kuang, Irene (*The University of Texas at Austin*); Shen, Linxiao (*University of Texas at Austin*); Dai, Zhaohe (*The University of Texas at Austin*); Sun, Nan (*University of Texas at Austin*); Lu, Nanshu* (*University of Texas at Austin*)

11:05-11:20 SaBT5.2
Impedimetric Investigation of Dual Electrical Properties of Reduced Graphene-Oxide-Based Biosensors in the Detection of Dopamine 4098-4101
 Lin, Shu-Ping* (*National Chung Hsing University*); Ciou, Jhong-Yi (*Graduate Institute of Biomedical Engineering, National Chung Hsi*); Lai, Tung-Yen (*National Nano Device Laboratories*); Lin, Tsung-Wu (*the Dept. of Chemistry, Tung Hai University*)

11:20-11:35 SaBT5.3
Estimating the Lower Leg Muscle Activity from Distal Biosignals Around the Ankles 4102-4105
 Isezaki, Takashi* (*University of Tsukuba*); Watanabe, Tomoki (*NTT Corporation*); Yamada, Tomohiro (*NTT*); Kadone, Hideki (*University of Tsukuba*); Suzuki, Kenji (*University of Tsukuba*)

11:35-11:50 SaBT5.4
Tumor Size and Elasticity Estimation using Smartphone-Based Compression-Induced Scope 4106-4109
 Won, Chang-Hee* (*Temple University*); Goldstein, Jesse (*Temple University*); Oleksyuk, Vira (*Temple University*); Caroline, Dina (*Temple University Hospital*); Pascarella, Suzanne (*Temple University Hospital*)

11:50-12:05 SaBT5.5
Full Factorial Analysis of Variance to Assess Statistical Significance of Laplacian Estimation Accuracy Improvement Due to Novel Variable Inter-Ring Distances Concentric Ring Electrodes 4110-4113
 Makeyev, Oleksandr (*Diné College*); Joe, Cody (*Diné College*); Lee, Colin (*Diné College*); Besio, W. G.* (*University of Rhode Island*)

12:05-12:20 SaBT5.6
RATT: RFID Assisted Tracking Tile – Preliminary Results 4114-4117
 Quiñones, Dario Ruben (*Center for Biomaterials and Tissue Engineering, Universitat Poli*); Cuevas, Aarón (*Center for Biomaterials and Tissue Engineering, Universitat Poli*); Cambra, Javier (*Center for Biomaterials and Tissue Engineering, Universitat Poli*); Canals, Santiago (*Instituto de Neurociencias, Consejo Superior de Investigaciones*); Moratal, David* (*Universitat Politècnica de València*)

SaBT7: 10:50-12:20 Herrick Room
Rehabilitation Robotics and Biomechanics (Oral Session)
Chair: Patton, James and Ryan, Shirley (*U. Illinois at Chicago (UIC) and Ability Lab (formerly RIC)*)

10:50-11:05 SaBT7.1
Analysis of Muscle Activation in Lower Extremity for Static Balance 4118-4122
Chakravarty, Kingshuk (*Tata Consultancy Services Ltd.*); Chatterjee, Debatri (*TCS Innovation Lab*);
Das, Rajat Kumar (*TCS Innovation Lab*); Tripathy, Soumya Ranjan (*TCS Research and Innovation, Tata Consultancy Services Ltd.*); Sinha, Aniruddha* (*Tata Consultancy Services Ltd.*)

11:05-11:20 SaBT7.2
A New Robotic Approach to Characterize Mechanical Impedance and Energetic Passivity of the Human Ankle during Standing 4123-4126
Lee, Hyunglae* (*Arizona State University*); Nalam, Varun (*Arizona State University*)

11:20-11:35 SaBT7.3
Design and Control of a 3-DOF Rehabilitation Robot for Forearm and Wrist 4127-4130
Luo, Lincong (*Institute of Automation, Chinese Academy of Sciences*); Peng, Liang (*Institute of Automation, Chinese Academy of Sciences*); Hou, Zeng-Guang* (*Institute of Automation, Chinese Academy of Sciences*); Wang, Weiqun (*Institute of Automation, Chinese Academy of Sciences*)

11:35-11:50 SaBT7.4
Estimation of Tibialis Anterior Muscle Stiffness during the Swing Phase of Walking with Various Footwear 4131-4134
Uchiyama, Takanori* (*Keio University*); Hori, Yutaka (*Keio University*); Suzuki, Kenta (*Keio University*)

11:50-12:05 SaBT7.5
Design of Anisotropic Pneumatic Artificial Muscles and their Applications to Soft Wearable Devices for Text Neck Symptoms 4135-4138
Kim, Hojoong (*Seoul National Univ.*); Park, Hyuntai (*Seoul National Univ.*); Kim, Jongwoo (*Biorobotics LAB, Seoul National Univ.*); Cho, Kyu-Jin (*Seoul National Univ.*); Park, Yong-Lae* (*Carnegie Mellon Univ.*)

12:05-12:20 SaBT7.6
Impact of Actuator Impedance Characteristics on Motor Control of Assisted Hand Movements 4139-4142
Sandri Heidner, Gustavo (*The Catholic University of America*); Vermillion, Billt (*Catholic University of America*); Lee, Sang Wook* (*Catholic University of America*)

SaBT8: 10:50-12:20 Schwan Room
Brain Functional Imaging I (Oral Session)
Chair: Sun, Junfeng (*Shanghai Jiao Tong University*)

10:50-11:05 SaBT8.1
Decoding Emotional Valence from Electroencephalographic Rhythmic Activity 4143-4146
Celikkanat, Hande* (*University of Helsinki*); Moriya, Hiroki (*ATR Cognitive Mechanisms Laboratories*); Ogawa, Takeshi (*ATR Cognitive Mechanisms Laboratories*); Kauppi, Jukka-Pekka (*University of Jyväskylä*); Kawanabe, Motoaki (*ATR Cognitive Mechanisms Laboratories*); Hyvärinen, Aapo (*University of Helsinki*)

11:05-11:20 SaBT8.2
Self-Regulation of Primary Motor Cortex Activity with Motor Imagery Induces Functional Connectivity Modulation: A Real-Time fMRI Neurofeedback Study 4147-4150
Makary, Meena M.* (*Kyung Hee Univ.*); Eun, Seulgi (*Kyung Hee Univ.*); Park, Kyungmo (*Kyung Hee Univ.*)

11:20-11:35 SaBT8.3
Identifying the Effects of Microsaccades in Tripolar EEG Signals 4151-4154
Bellisle, Rachel* (*University of Rhode Island*); Steele, Preston (*CREmedical Corp., Kingston, RI*); Bartels, Rachel (*CREmedical Corp.*); Ding, Lei (*University of Oklahoma*); Sunderam, Sridhar (*University of Kentucky*); Besio, W. G. (*University of Rhode Island*)

11:35-11:50 SaBT8.4
Decreased Variability of Dynamic Phase Synchronization in Brain Networks during Hand Movement 4155-4158
 Cheng, Lin (*Shanghai Jiao Tong Univ.*); Zhu, Hong (*Shanghai Jiao Tong Univ.*); Zhu, Yang (*Shanghai Second People's Hospital*); He, Naying (*Shanghai Jiao Tong Univ.*); Yang, Yang (*Shanghai Second People's Hospital*); Ling, Huawei (*Shanghai Jiao Tong Univ.*); Tong, Shanbao (*Shanghai Jiao Tong Univ.*); Fu, Yi (*Rui Jin Hospital, Shanghai Jiao Tong Univ. School of Medici*); Sun, Junfeng* (*Shanghai Jiao Tong Univ.*)

11:50-12:05 SaBT8.5
EEG-Based Biometry using Steady State Visual Evoked Potentials 4159-4162
 Falzon, Owen* (*University of Malta*); Zerafa, Rosanne (*University of Malta*); Camilleri, Tracey (*University of Malta*); Camilleri, Kenneth Patrick (*University of Malta*)

12:05-12:20 SaBT8.6
Passive Functional Mapping Guides Electrical Cortical Stimulation for Efficient Determination of Eloquent Cortex in Epilepsy Patients 4163-4166
 Prueckl, Robert* (*g.tec medical engineering GmbH*); Kapeller, Christoph (*g.tec medical engineering GmbH*); Gruenwald, Johannes (*Johannes Kepler University Linz*); Ogawa, Hiroshi (*Asahikawa Medical University*); Kamada, Kyouusuke (*Asahikawa Medical University*); Korostenskaja, Milena (*Florida Hospital for Children, Comprehensive Pediatric Epilepsy*); Swift, James (*g.tec neurotechnologies USA*); Scharinger, Josef (*Dept. of Computational Perception, Johannes Kepler Universi*); Cho, Woosang (*University of Tübingen*); Edlinger, Günter (*g.tec medical engineering GmbH*); Guger, Christoph (*g.tec medical engineering GmbH*)

SaBT9: 10:50-12:20 Plonsey Room
Human Performance I (Oral Session)
Chair: Huang, Yufei (*University of Texas at San Antonio*)

10:50-11:05 SaBT9.1
Prediction of Fatigue-Related Driver Performance from EEG Data by Deep Riemannian Model 4167-4170
 Hajinoroozi, Mehdi* (*The University of Texas at San Antonio*); Zhang, Jianqiu (Michelle) (*University of Texas at San Antonio, Electrical and Computer Engi*); Huang, Yufei (*University of Texas at San Antonio*)

11:05-11:20 SaBT9.2
Assessment of Auditory Impression of the Coolness and Warmness of Automotive HVAC Noise 4171-4174
 Nakagawa, Seiji* (*Chiba University*); Hotehama, Takuya (*National Institute of Advanced Industrial Science and Technology*); Kamiya, Masaru (*Denso Corporation*)

11:20-11:35 SaBT9.3
Virtual Reality Body Motion Induced Navigational Controllers and their Effects on Simulator Sickness and Pathfinding 4175-4178
 Aldaba, Cassandra* (*University of Manitoba*); White, Paul (*University of Manitoba*); Byagowi, Ahmad (*University of Manitoba*); Moussavi, Zahra (*University of Manitoba*)

11:35-11:50 SaBT9.4
Hedonic Editing and Order Effect in Decision-Making with Neurometric Evaluation 4179-4182
 Babiloni, Fabio* (*University of Rome*); Yang, Wenting (*Dept. of Psychology and Behavioral Science, Zhejiang Univer*); Di Flumeri, Gianluca (*University of Rome Sapienza*)

11:50-12:05 SaBT9.5
Bayesian Multi-Subject Factor Analysis to Predict Microsleeps from EEG Power Spectral Features 4183-4186
 Shoorangiz, Reza* (*University of Canterbury*); Weddell, Stephen J. (*University of Canterbury*); Jones, Richard D. (*New Zealand Brain Research Institute*)

12:05-12:20 SaBT9.6
A System for Accelerometer-Based Gesture Classification using Artificial Neural Networks 4187-4190
 Stephenson, Robert (*University of Technology Sydney*); Naik, Ganesh R (*University of Technology Sydney*); Chai, Rifai* (*University of Technology, Sydney*)

SaBT10: 10:50-12:20

Schmitt Room

Health Informatics – Decision Support Methods and Systems I (Oral Session)

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

10:50-11:05

SaBT10.1

Stenosis Detection and Quantification on Cardiac CTA using Panoramic MIP of Coronary Arteries 4191-4194

Chi, Yanling* (*Institute for Infocomm Research*); Huang, Weimin (*Institute for Infocomm Research, Agency for Science Technology a*); Zhou, Jiayin (*Institute for Infocomm Research*); Toe, Kyaw Kyar (*Institute for Infocomm Research, A*STAR*); Zhang, Jun-Mei (*National Heart Center*); Wong, Philip (*National Heart Centre Singapore*); Lim, Soo Teik (*National Heart Centre Singapore*); Tan, Ru San (*National Heart Center*); Zhong, Liang (*National Heart Centre Singapore*)

11:05-11:20

SaBT10.2

Online SVM-Based Personalizing Method for the Drowsiness Detection of Drivers 4195-4198

Choi, Minh* (*Pohang University of Science and Technology (POSTECH)*); Kim, Sang Woo (*Pohang University of Science and Technology (POSTECH), Dept.*)

11:20-11:35

SaBT10.3

Intuitive and Interpretable Visual Communication of a Complex Statistical Model of Disease Progression and Risk 4199-4202

Li, Jieyi (*University of St Andrews*); Arandjelovic, Ognjen* (*University of St Andrews*)

11:35-11:50

SaBT10.4

A Non-Exercise based V02max Prediction using FRIEND Dataset with a Neural Network 4203-4206

Henriques, Jorge* (*University of Coimbra*); de Carvalho, Paulo (*University of Coimbra*); Rocha, Teresa (*Inst Superior de Eng de Coimbra*); Paredes, Simao (*Instituto Politécnico de Coimbra*); Cabiddu, Ramona (*Cardiopulmonary Physiotherapy Laboratory, Federal University of*); Trimer, Renata (*Cardiopulmonary Physiotherapy Laboratory, Federal University of*); Mendes, Renata (*Cardiopulmonary Physical Therapy Laboratory, Dept. of Physi*); Borghi-Silva, Audrey (*Cardiopulmonary Physiotherapy Laboratory, Federal University of*); Lenny, Kaminsky (*Fisher Institute of Health and Well-Being and Clinical Exercise*); Euan, Ashley (*Division of Cardiovascular Medicine, VA Palo Alto Healthcare Sys*); Arena, Ross (*University of Illinois at Chicago*); Myers, Jonathan (*Dept. of Cardiovascular Medicine, Stanford University, Palo*)

11:50-12:05

SaBT10.5

Prediction of Hip Fracture in Post-Menopausal Women using Artificial Neural Network Approach 4207-4210

Ho-Le, Thao P.* (*University of Technology, Sydney, Australia*); Center, Jackie R (*Garvan Institute of Medical Research*); Eisman, John A. (*Garvan Institute of Medical Research*); Nguyen, Tuan V. (*University of Technology, Sydney, Australia*); Nguyen, Hung T. (*University of Technology, Sydney*)

SaBT11: 10:50-12:20

Greatbatch Room

Whole-Body, Organ, and Tissue Computational Models (Oral Session)

Chair: Dokos, Socrates (*University of New South Wales*)

10:50-11:05

SaBT11.1

Evaluation of Ultrasonic Scattering for Different Cortical Bone Porosities and Excitation Frequencies: A Numerical Study 4211-4214

Potsika, Vassiliki (*Unit of Medical Technology and Intelligent Information Systems,*); Grivas, Konstantinos (*Dept. of Mechanical Engineering and Aeronautics, University*); Gortsas, Theodoros (*Dept. of Mechanical Engineering and Aeronautics, University*); Protopappas, Vasilios C. (*University of Patras*); Polyzos, Demosthenes (*University of Patras*); Fotiadis, Dimitrios I.* (*University of Ioannina*)

11:05-11:20

SaBT11.2

A Framework for Simulating Gastric Electrical Propagation in Confocal Microscopy Derived Geometries 4215-4218

Krohn, Berit (*University of Stuttgart*); Sathar, Shameer (*University of Auckland*); Röhrle, Oliver (*University of Stuttgart*); Vanderwinden, Jean-Marie (*Université libre de Bruxelles*); O'Grady, Gregory (*University of Auckland*); Cheng, Leo K* (*The University of Auckland*)

11:20-11:35

SaBT11.3

Anatomical Variations of the Stomach Effects on Electrogastrography 4219-4222

Calder, Stefan* (*Auckland Bioengineering Institute, University of Auckland*); O'Grady, Gregory (*University of Auckland*); Cheng, Leo K (*The University of Auckland*); Du, Peng (*The University of Auckland*)

11:35-11:50 SaBT11.4
Image-Based Fluid Dynamics Analysis of Left Ventricle Outflow Tract Pressure Gradient after Deployment Transcatheter Mitral Valve 4223-4226
 Alharbi, Yousef S* (*University of New South Wales, Biomedical Engineering*); Lovell, Nigel H. (*University of New South Wales*); Otton, James (*Cardiology Dept., Liverpool Hospital, Sydney*); Muller, David (*Cardiology Dept., St Vincent's Hospital, Sydney*); Al Abed, Amr (*University of New South Wales*); Dokos, Socrates (*University of New South Wales*)

11:50-12:05 SaBT11.5
The Visible Human Project Male CAD based Computational Phantom and Its use in Bioelectromagnetic Simulations 4227-4230
 Noetscher, Gregory* (*Worcester Polytechnic Institute*); Htet, Aung Thu (*Worcester Polytechnic Institute*); Maino, Nicholas (*Worcester Polytechnic Institute*); Lacroix, Patrick (*wpi*)

SaBT12: 10:50-12:20 Geddes Room
Diagnostic Devices I (Oral Session)
Chair: Iordachita, Iulian (*Johns Hopkins University*)

10:50-11:05 SaBT12.1
Evaluation of a Laser-Based Sensor for the Diagnosis of Neurological Disorders 4231-4234
 Tenner, Felix* (*Lehrstuhl für Photonische Technologien*); Regensburger, Martin (*Clinic of Neurology, Friedrich-Alexander-Universität Erlangen-Nü*); Schramm, Axel (*Univ. Hospital Erlangen*); Söhle, Mona (*Institute of Photonic Technologies, Friedrich-Alexander-Univ.*); Schwarzkopf, Karen (*Institute of Photonic Technologies, Friedrich-Alexander-Univ.*); Zalevsky, Zeev (*Nano Photonics Center at The Institute of Nanotechnology and Adv*); Schmidt, Michael (*Institute of Photonic Technologies, Friedrich-Alexander-Univ.*)

11:05-11:20 SaBT12.2
A Bioimpedance Sensing System for In-Vivo Cancer Tissue Identification: Design and Preliminary Evaluation 4235-4238
 Carpano Maglioli, Camilla* (*Fondazione Istituto Italiano di Tecnologia*); Caldwell, Darwin G. (*Italian Institute of Technology*); Mattos, Leonardo (*IIT - Istituto Italiano di Tecnologia*)

11:20-11:35 SaBT12.3
Automatic Characterization of User Errors in Spirometry 4239-4242
 Luo, Andrew* (*University of Washington*); Whitmire, Eric (*University of Washington*); Stout, James (*University of Washington*); Martenson, Drew (*Glendale Adventist Medical Center*); Patel, Shwetak (*University of Washington*)

11:35-11:50 SaBT12.4
Robot-Assisted Mirroring Exercise as a Physical Therapy for Hemiparesis Rehabilitation 4243-4246
 Kim, Jihun (*Handong Global University*); Kim, Jaehyo* (*Handong Global University*)

11:50-12:05 SaBT12.5
PhoneQuant: A Smartphone-Based Quantitative Immunoassay Analyser 4247-4250
 Shah, Malay Ilesh* (*Healthcare Technology Innovation Center (HTIC), Indian Institute*); Joseph, Jayaraj (*HTIC, Indian Institute of Technology Madras*); Sanne, Ujwal Sriharsha (*Birla Institute of Technology and Science, Pilani*); Sivaprakasam, Mohanasankar (*Indian Institute of Technology Madras*)

12:05-12:20 SaBT12.6
A New 4-DOF Parallel Robot for MRI-Guided Percutaneous Interventions: Kinematic Analysis 4251-4255
 Kim, Jin Seob (*Johns Hopkins Univ.*); Levi, David (*Johns Hopkins Univ.*); Monfaredi, Reza (*Children's National Health System*); Cleary, Kevin (*Children's National Medical Center*); Iordachita, Iulian* (*Johns Hopkins Univ.*)

SaBT13: 10:50-12:20 Dunn Room
Bioinformatics – Computational Modeling and Simulations in Biology, Physiology and Medicine I (Oral Session)
Chair: Baranoski, Gladimir Valerio Guimaraes (*University of Waterloo*)

10:50-11:05 SaBT13.1
Transient Reduction in Theta Power Caused by Interictal Spikes in Human Temporal Lobe Epilepsy 4256-4259
 Ge, Manling* (*Hebei Univ. of Tech.*); Guo, Jundan (*Hebei Univ. of Tech.*); Xing, Yangyang (*Hebei Univ. of Tech.*); Feng, Zhiguo (*Hebei Univ. of Tech.*); Lu, Weide (*Hebei Univ. of Tech.*); Ma, Xinxin (*Hebei Univ. of Tech.*); Geng, Yuehua (*Hebei Univ. of Tech.*); Zhang, Xin (*Tianjin Polytechnic Univ.*)

11:05-11:20	SaBT13.2
On the Detection of Peripheral Cyanosis in Individuals with Distinct Levels of Cutaneous Pigmentation	4260-4264
Baranoski, Gladimir Valerio Guimaraes* (<i>University of Waterloo</i>); Van Leeuwen, S.R. (<i>University of Waterloo</i>); Chen, Tenn Francis (<i>University of Waterloo</i>)	
11:20-11:35	SaBT13.3
A New Alignment Free Genome Comparison Algorithm based on Statistically Estimated Feature Frequency Profile	4265-4268
Seo, Hyein (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>); Cho, Dong-Ho* (<i>Korea Advanced Institute of Science and Technology (KAIST)</i>)	
11:35-11:50	SaBT13.4
Using Convolutional Neural Networks to Explore the Microbiome	4269-4272
Reiman, Derek (<i>University of Illinois at Chicago</i>); Metwally, Ahmed* (<i>University of Illinois at Chicago</i>); Dai, Yang (<i>University of Illinois at Chicago</i>)	
11:50-12:05	SaBT13.5
Modeling the Effects of Amiodarone on Short QT Syndrome Variant 2 in the Human Ventricles	4273-4276
Luo, Cunjin* (<i>Harbin Institute of Technology, School of Computer Science and T</i>); Wang, Kuanquan (<i>Harbin Institute of Technology</i>); Zhang, Henggui (<i>Harbin Institute of Technology, School of Computer Science and T</i>)	
12:05-12:20	SaBT13.6
Rendering Problem-Oriented CCD for Chronic Diseases	4277-4280
Bae, Sungchul* (<i>Kyungpook National University</i>); Kim, Il Kon (<i>Kyungpook National University</i>); Lee, Do-Youn (<i>Kyungpook National University</i>)	

SaBT14: 10:50-12:20	Schaldach Room
Imaging in Mobile Health (Oral Session)	
Chair: Karlen, Walter (<i>ETH Zurich</i>)	

10:50-11:05	SaBT14.1
Automatic Diagnosis of Melanoma using Linear and Nonlinear Features from Digital Image	4281-4284
Munia, Tamanna Tabassum Khan (<i>University of North Dakota</i>); Alam, Md Nafiul (<i>University of North Dakota</i>); Neubert, Jeremiah (<i>University of North Dakota</i>); Fazel-Rezai, Reza* (<i>University of North Dakota</i>)	
11:05-11:20	SaBT14.2
Improving ROI Detection in Photoplethysmographic Imaging with Thermal Cameras	4285-4288
Scebba, Gaetano* (<i>ETH Zurich</i>); Dragas, Jelena (<i>ETH Zurich</i>); Hu, Suyi (<i>ETH Zürich</i>); Karlen, Walter (<i>ETH Zurich</i>)	
11:20-11:35	SaBT14.3
Smartphone based Automatic Organ Validation in Ultrasound Video	4289-4292
Vaish, Pallavi* (<i>Indian Institute of Technology Hyderabad</i>); Ramkrishna, Bharath (<i>Indian institute of Technology Hyderabad</i>); P, Rajalakshmi (<i>Indian Institute of Technology Hyderabad</i>)	
11:35-11:50	SaBT14.4
Considerations of Handheld Breathing Tracking via a Stabilized Eulerian Video Magnification Approach	4293-4296
Alam, Shafaf (<i>University of Queensland</i>); Singh, Surya P. N.* (<i>The University of Queensland</i>); Abeyratne, Udantha R (<i>University of Queensland</i>)	
11:50-12:05	SaBT14.5
Neurological Activity Monitoring based on Video Inpainting	4297-4300
Schmale, Sebastian* (<i>University of Bremen</i>); Seidel, Pascal (<i>University of Bremen</i>); Thiermann, Steffen (<i>University of Bremen</i>); Paul, Steffen (<i>University of Bremen</i>)	
12:05-12:20	SaBT14.6
A Study of Color Illumination Effect on the SNR of rPPG Signals	4301-4304
Lin, Yu-Chen* (<i>National Taiwan University of Science and Technology</i>); Lin, Yuan-Hsiang (<i>National Taiwan University of Science and Technology</i>)	

SaBT15: 10:50-12:20

Webster Room

Medical Innovation and Translation (Oral Session)

Chair: Sunagawa, Kenji (*Kyushu University*)

10:50-11:05

SaBT15.1

Audible Capnometric Cues with End-Tidal Carbon Dioxide Improve the Quality of Patient Monitoring 4305-4308

Aoki, Toshiki* (*Nihon Kohden Corporation*); Inoue, Masayuki (*Nihon Kohden Corporation*);
Miyasaka, Kiyoyuki (*St. Luke's International University*)

11:05-11:20

SaBT15.2

DeepPredict: A Deep Predictive Intelligence Platform for Patient Monitoring 4309-4312

Chwyl, Brendan* (*Univ. of Waterloo*); Chung, Audrey Gina (*Univ. of Waterloo*); Shafiee, Mohammad Javad
(*Univ. of Waterloo*); Fu, Yongji (*Becton Dickinson Technologies*); Wong, Alexander (*Univ. of Waterloo*)

11:20-11:35

SaBT15.3

Design, Implementation, and Evaluation of a Physiological Closed-Loop Control Device for Medically-Induced Coma 4313-4316

An, Jingzhi* (*MIT*); Purdon, Patrick L (*Massachusetts General Hospital*); Solt, Ken (*Massachusetts General Hospital*); Sims, Nat (*MGH*); Brown, Emery N (*MGH-Harvard Medical School-MIT*);
Westover, Brandon (*Massachusetts General Hospital*)

11:35-11:50

SaBT15.4

A Novel Smart Lighting Clinical Testbed 4317-4320

Gleason, Joseph D. (*The University of New Mexico*); Oishi, Meeko* (*University of New Mexico*);
Simkulet, Michelle (*Rensselaer Polytechnic Institute*); Arunas, Tuzikas (*Rensselaer Polytechnic Institute*);
Brown, Lee (*The University of New Mexico*); Brueck, S. R. J. (*The University of New Mexico*);
Karlicek, Robert F. (*Rensselaer Polytechnic Institute*)

11:50-12:05

SaBT15.5

The Challenge of Magnetic Vagal Nerve Stimulation for Myocardial Infarction – Preliminary Clinical Trial 4321-4324

Nishikawa, Takuya* (*Kyushu University*); Saku, Keita (*Kyushu University*); Todaka, Koji (*Kyushu University*);
Kuwabara, Yukimitsu (*Kyushu University*); Arai, Shinobu (*Nakamura Gakuen University*); Kishi, Takuya (*Kyushu University Graduate School of Medical Sciences*); Ide, Tomomi (*Kyushu University*); Tsutsui, Hiroyuki (*Kyushu University*); Sunagawa, Kenji (*Kyushu University*)

12:05-12:20

SaBT15.6

Design of a Compact Collimator and 3D Imaging System for a Scanning Beam Low-Energy Intraoperative Radiation Therapy System for Pancreatic Cancer 4325-4328

Wears, Brennen (*University of Iowa*); Mohiuddin, Imran (*University of Iowa*); Flynn, Ryan (*University of Iowa*);
Kim, Yusung (*Dept. of Radiation Oncology, The University of Iowa, Iowa C*); Waldron, Timothy (*University of Iowa*); Allen, Bryan (*University of Iowa*); Xia, Junyi* (*University of Iowa*)

SaBT16: 10:50-12:20

Rushmer Room

Surgical Robotics I (Oral Session)

Chair: Wang, Lei (*Shenzhen Institutes of Advanced Technology*)

10:50-11:05

SaBT16.1

Visible Forceps Manipulator with Novel Linkage Bending Mechanism for Neurosurgery 4329-4332

Zhang, Boyu (*Tsinghua University*); Liao, Zhuxiu (*Tsinghua University*); Liao, Hongen* (*Tsinghua University*)

11:05-11:20

SaBT16.2

A Targeted Drug Delivery Platform for Assisting Retinal Surgeons for Treating Age-Related Macular Degeneration (AMD) 4333-4338

Nasser, M. Ali* (*Technische Universitaet Muenchen*); Maier, Mathias (*Klinikum Recht der isaar, Muenchen*);
Lohmann, Chris (*Klinikum Recht der isaar, Muenchen*)

11:20-11:35 SaBT16.3
Needle Release Mechanism Enabling Multiple Insertions with an Ultrasound-Guided Prostate Brachytherapy Robot 4339-4342
Chen, Shuyang (*Johns Hopkins University*); Gonenc, Berk (*Johns Hopkins University*); Li, Meng (*Johns Hopkins University*); Song, Daniel (*Johns Hopkins University*); Burdette, Everette (*Acoustic MedSystems, Inc.*); Iordachita, Iulian (*Johns Hopkins University*); Kazanzides, Peter* (*Johns Hopkins University*)

11:35-11:50 SaBT16.4
A Master-Slave Control System with Workspaces Isomerism for Teleoperation of a Snake Robot 4343-4346
Ren, Lingxue* (*Shenzhen Institutes of Advanced Tech., Chinese Academy of S*); Olatunji Mumini, Omisore (*Shenzhen Institutes of Advanced Tech., Chinese Academy of S*); Shipeng, Han (*Shenzhen Institutes of Advanced Tech., Chinese Academy of S*); Wang, Lei (*Shenzhen Institutes of Advanced Tech.*)

11:50-12:05 SaBT16.5
Statistical Modeling on Motion Trajectories for Robotic Laparoscopic Surgery 4347-4350
Yang, Tao* (*Institute of Infocomm Research*); Huang, Weimin (*Institute for Infocomm Research, Agency for Science Technology a*); Toe, Kyaw Kyar (*Institute for Infocomm Research, A*STAR*)

SaBT17: 10:50-12:20 Einthoven Hall
Connectivity Measurements – Causality (Oral Session)
Chair: Duggento, Andrea (*University of Rome "Tor Vergata"*)

10:50-11:05 SaBT17.1
Estimating Brain Connectivity when Few Data Points are Available: Perspectives and Limitations 4351-4354
Antonacci, Yuri (*Univ. of Rome Sapienza*); Toppi, Jlenia (*Univ. of Rome "Sapienza"*); Anzolin, Alessandra (*Univ. of Rome "Sapienza", Neuroelectrical Imaging and BCI Lab IR*); Caschera, Stefano (*Sapienza Univ. of Rome*); Mattia, Donatella (*Fondazione Santa Lucia IRCCS*); Astolfi, Laura* (*Univ. of Rome Sapienza*)

11:05-11:20 SaBT17.2
Connectome Pattern Alterations with Increment of Mental Fatigue in One-Hour Driving Simulation 4355-4358
Chua, Bing Liang (*National University of Singapore*); Dai, Zhongxiang (*Singapore Institute for Neurotechnology (SINAPSE), Centre for Li*); Bezerianos, Anastasios* (*National University of Singapore*); Thakor, Nitish (*Johns Hopkins University*); Sun, Yu (*National University of Singapore*)

11:20-11:35 SaBT17.3
Transcranial Cerebellar Direct Current Stimulation: Effects on Brain Resting State Oscillatory and Network Activity 4359-4362
Petti, Manuela* (*Univ. of Rome "Sapienza", Neuroelectrical Imaging and BCI Lab IR*); Astolfi, Laura (*University of Rome Sapienza*); Masciullo, Marcella (*Fondazione Santa Lucia, Rome, Italy*); Clausi, Silvia (*Fondazione Santa Lucia, Rome, Italy*); Pichiorri, Floriana (*Fondazione Santa Lucia, IRCCS, Rome, Italy*); Cincotti, Febo (*Sapienza University of Rome*); Mattia, Donatella (*Fondazione Santa Lucia IRCCS*); Molinari, Marco (*Fondazione Santa Lucia, Rome, Italy*)

11:35-11:50 SaBT17.4
Asymmetry of Hemispheric Interdependences in the Early Hours following Unilateral Stroke: An Electrophysiological Study in Rats 4363-4366
Guo, Xiaoli (*Shanghai Jiao Tong University*); Wu, Wenqing (*Shanghai Jiao Tong University*); Tong, Shanbao* (*Shanghai Jiao Tong University*)

11:50-12:05 SaBT17.5
Estimating Directed Brain-Brain and Brain-Heart Connectivity through Globally Conditioned Granger Causality Approaches 4367-4370
Duggento, Andrea* (*University of Rome "Tor Vergata"*); Passamonti, Luca (*University of Cambridge*); Guerrisi, Maria (*University of Rome "Tor Vergata"*); Valenza, Gaetano (*University of Pisa*); Barbieri, Riccardo (*Politecnico di Milano*); Toschi, Nicola (*University of Rome "Tor Vergata", Faculty of Medicine*)

12:05-12:20 SaBT17.6
Simultaneous Estimation of the In-Mean and In-Variance Causal Connectomes of the Human Brain 4371-4374
Duggento, Andrea* (*Univ. of Rome "Tor Vergata"*); Passamonti, Luca (*Univ. of Cambridge*); Guerrisi, Maria (*Univ. of Rome "Tor Vergata"*); Toschi, Nicola (*Univ. of Rome "Tor Vergata", Faculty of Medicine*)

SaBT18: 10:50-12:20

Montgomery Hall

Time-Frequency and Time-Scale Analysis – Neural Signals (Oral Session)

Chair: Wang, Yiwen (*Hong Kong University of Science and Technology*)

10:50-11:05

SaBT18.1

A Marked Point Process Approach for Identifying Neural Correlates of Tics in Tourette Syndrome 4375-4378

Loza, Carlos* (*University of Florida*); Shute, Jonathan (*University of Florida*); Principe, Jose (*University of Florida*); Okun, Michael (*University of Florida*); Gunduz, Aysegul (*University of Florida*)

11:05-11:20

SaBT18.2

Measuring Brain Activation by using Baseline-Normalized Event-Related

Spectral Perturbation in Working Memory Task 4379-4382

Phukhachee, Tustanah* (*King Mongkut's Univ. of Technology Thonburi*); Maneewongvatana, Suthathip (*King Mongkut's Univ. of Technology Thonburi*); Iramina, Keiji (*Kyushu Univ.*); Angsuwatanakul, Thanate (*Kyushu Univ.*); Kaewkamnerdpong, Boonserm (*Biological Engineering Program, Faculty of Engineering, King Mon*)

11:20-11:35

SaBT18.3

Real-Time Analysis on Ensemble SVM Scores to Reduce P300-Speller Intensification Time 4383-4386

Vo, Anh Kha* (*University of Technology Sydney*); Nguyen, Diep N. (*University of Technology Sydney*); Ha, Hoang Kha (*HoChiMinh City University of Technology*); Dutkiewicz, Eryk (*University of Technology Sydney*)

11:35-11:50

SaBT18.4

Evaluation of Logarithmic vs. Linear ADCs for Neural Signal Acquisition and Reconstruction 4387-4390

Pagin, Matteo* (*University of Ulm*); Ortmanns, Maurits (*University of Ulm*)

11:50-12:05

SaBT18.5

Quality Assessment of 3D Visualizations with Vertical Disparity: An ERP Approach 4391-4394

Shahbazi Avarvand, Forooz (*Fraunhofer HHI*); Bosse, Sebastian (*Fraunhofer HHI*); Nolte, Guido (*Dept. of Neurophysiology, UKE, Hamburg*); Wiegand, Thomas (*HHI*); Samek, Wojciech* (*Fraunhofer HHI*)

12:05-12:20

SaBT18.6

Detecting Abrupt Change in Neuronal Tuning via Adaptive Point Process Estimation 4395-4398

Chen, Junjun (*Zhejiang University*); Xu, Kai (*Zhejiang University*); Yang, Zaiyue (*Zhejiang University*); Wang, Yiwen* (*Hong Kong University of Science and Technology*)

SaCT2: 14:20-15:50

Cho Room

Optical Imaging II (Oral Session)

14:20-14:35

SaCT2.1

Statistical Modeling of OCT Images by Asymmetric Normal Laplace Mixture Model 4399-4402

Jorjandi, Sahar (*MUI*); Rabbani, Hossein* (*Isfahan Univ. of Medica Sciences*); Kafieh, Rahele (*Isfahan University of Medical Sciences*); Amini, Zahra (*MUI*)

14:35-14:50

SaCT2.2

Tooth Cracks Detection and Gingival Sulcus Depth Measurement using Optical Coherence Tomography 4403-4406

Kang, Se Ryong (*Seoul National University*); Kim, Jun-Min (*Seoul University*); Yi, WonJin* (*Seoul National Univ Sch of Dentistry*)

14:50-15:05

SaCT2.3

Smart Data Augmentation for Surgical Tool Detection on the Surgical Tray 4407-4410

Alhadj, Hassan* (*Inserm*); Lamard, Mathieu (*Université de Bretagne Occidentale*); Cochener, Béatrice (*CHU Morvan*); Quellec, Gwenole (*Inserm*)

15:05-15:20

SaCT2.4

Pyramid Approach for the Reduction of Parallax-Related Artefacts in

Optical Recordings of Moving Translucent Volumes 4411-4414

Flotho, Philipp* (*Systems Neuroscience and Neurotechnology Unit*); Romero Santiago, Alejandro E. (*Saarland University*); Schwerdtfeger, Karsten (*Saarland University Hospital*); Hülser, Matthias (*Saarland University Hospital*); Haab, Lars (*Saarland University Hospital*); Strauss, Daniel J. (*Saarland University, Medical Faculty*)

15:20-15:35 SaCT2.5
Non-Rigid Registration of Fluorescein Angiography and Optical Coherence Tomography via Scanning Laser Ophthalmoscope Imaging 4415-4418
 Rabbani, Hossein* (*Isfahan Univ. of Medical Sciences*); Mokhtary, Marzieh (*Isfahan University of Medical Sciences*); Ghasemi Kamasi, Zeinab (*West Virginia University*)

15:35-15:50 SaCT2.6
Motion Estimation of Subcellular Structures from Fluorescence Microscopy Images 4419-4422
 Vallmitjana, Alex (*Automatic Control Dept., Universitat Politecnica de Catalunya*); Civera-Tregon, Azahara (*Neurogenetics and Molecular Medicine, Sant Joan de Deu Research*); Hoenicka, Janet (*Instituto de Recerca Hospital Sant Joan de Deu, Barcelona*); Palau, Francesc (*Neurogenetics and Molecular Medicine, Sant Joan de Deu Research*); Benitez, Raul* (*Universitat Politecnica de Catalunya*)

SaCT4: 14:20-15:50	Min Room
Physiological and Behavioral Monitoring (Oral Session)	

14:20-14:35 SaCT4.1
A Wearable Textile for Respiratory Monitoring: Feasibility Assessment and Analysis of Sensors Position on System Response 4423-4426
 Lo Presti, Daniela* (*Campus Bio-Medico di Roma University*); Massaroni, Carlo (*Università Campus Bio-Medico di Roma*); Saccomandi, Paola (*University Campus Bio-Medico of Rome*); Caponero, Michele Arturo (*ENEA - Centro Ricerche Frascati*); Formica, Domenico (*Campus Bio-Medico University*); Schena, Emiliano (*University of Rome Campus Bio-Medico*)

14:35-14:50 SaCT4.2
Electromagnetic Disturbances Rejection with Single Skin Contact in the Context of ECG Measurements with Cooperative Sensors 4427-4430
 Rapin, Michael* (*Swiss Center for Electronics and Microtechnology, CSEM*); Ferrario, Damien (*CSEM*); Haenni, Etienne (*CSEM*); Wacker, Josias (*CSEM*); Falhi, Abdessamad (*CSEM*); Meier, Christophe (*CSEM SA*); Porchet, Jacques-André (*CSEM SA*); Chételat, Olivier (*CSEM*)

14:50-15:05 SaCT4.3
A Pressure-Sensitive Palatograph for Speech Analysis 4431-4434
 Baldoli, Ilaria (*Scuola Superiore Sant'Anna, The BioRobotics Institute*); Maselli, Martina* (*Scuola Superiore Sant'Anna*); Manti, Mariangela (*Scuola Superiore Sant'Anna, Pisa, Italy*); Surace, Elisabetta (*Scuola Superiore Sant'Anna*); Cianchetti, Matteo (*Scuola Superiore Sant'Anna*); Laschi, Cecilia (*Scuola Superiore Sant'Anna*)

15:05-15:20 SaCT4.4
Continuous Bladder Volume Monitoring System for Wearable Applications 4435-4438
 Shin, Seung-chul* (*Yonsei Univ.*); Moon, Junhyung (*Yonsei Univ.*); Kye, Saewon (*Yonsei Univ.*); Lee, Kyoungwoo (*Yonsei Univ.*); Lee, Yong Seung (*Yonsei Univ.*); Kang, Hong-Goo (*Yonsei Univ.*)

15:20-15:35 SaCT4.5
A Wearable 12-Lead ECG Acquisition System with Fabric Electrodes 4439-4442
 Zhang, Haoshi (*Shenzhen Institutes of Advanced Technology*); Tian, Lan (*Shenzhen Institutes of Advanced Technology, Chinese Academy of*); Lu, Huiyang (*School of Data and Computer Science, Sun Yat-sen University*); Zhou, Ming (*School of Control science and Engineering, Shandong University*); Zou, Haiqing (*Shenzhen Yingda Strong Technology Co.*); Fang, Peng* (*Shenzhen Institutes of Advanced Technology, Chinese Academy of S*); Yao, Fuan (*School of Control Science and Engineering, Shandong University*); Li, Guanglin (*Shenzhen Institutes of Advanced Technology*)

SaCT5: 14:20-15:50	Lee Room
Physical Sensors and Sensor Systems II (Oral Session)	

14:20-14:35 SaCT5.1
A Wearable Hand Gesture Recognition Device based on Acoustic Measurements at Wrist 4443-4446
 Siddiqui, Nabeel (*City University of Hong Kong*); Chan, Rosa H. M.* (*City University of Hong Kong*)

14:35-14:50 SaCT5.2
Novel Force-Sensing System for Minimally Invasive Surgical Instruments 4447-4450
Wee, Justin W.* (*Univ. of Toronto, Hospital for Sick Children, CIGITI*); Gerstle, J. Ted (*Univ. of Toronto, Hospital for Sick Children, CIGITI*); Francis, Peter (*Univ. of Toronto*); Drake, James (*Univ. of Toronto, CIGITI, Hospital for Sick Children*); Looi, Thomas (*CIGITI, Hospital for Sick Children*); Brooks, Robert Joseph (*Hostipal for Sick Children, Univ. of Toronto*); Kang, Matthew (*Univ. of Toronto*); Azzie, Georges (*The Hospital for Sick Children*); Masotti, Leigh (*CIGITI, The Hospital for Sick Children*); Villavicencio, Daniel (*EiE*)

14:50-15:05 SaCT5.3
Office Activity Classification using First-Reflection Ultrasonic Echolocation 4451-4454
Griffith, Henry* (*Michigan State University*); Biswas, Subir (*Michigan State University*); Hajaiahajani, Faezeh (*Michigan State University*)

15:05-15:20 SaCT5.4
A Wearable Ultrasonic Sensor Network for Analysis of Bilateral Gait Symmetry 4455-4458
Karalikkadan, Ashhar* (*Nanyang Technological University*); Soh, Cheong Boon (*Nanyang Technological University*); Kong, Keng He (*Tan Tock Seng Hospital*)

15:20-15:35 SaCT5.5
Monitoring Smoking Behaviour using a Wearable Acoustic Sensor 4459-4462
Torres, Iñigo (*Imperial College London*); Imtiaz, Syed Anas (*Imperial College London*); Peng, Mingxu* (*Imperial College London*); Rodriguez-Villegas, Esther (*Imperial College London*)

SaCT8: 14:20-15:50 Schwan Room
Brain Functional Imaging II (Oral Session)

14:20-14:35 SaCT8.1
Propofol-Induced Sedation Diminishes the Strength of Frontal-Parietal-Occipital EEG Network 4463-4466
Rathee, Dheeraj* (*Ulster University*); Cecotti, Hubert (*University of Ulster*); Prasad, Girijesh (*University of Ulster*)

14:35-14:50 SaCT8.2
Single-Trial Detection of Event-Related Fields in MEG from the Presentation of Happy Faces: Results of the Biomag 2016 Data Challenge 4467-4470
Cecotti, Hubert* (*University of Ulster*); Barachant, Alexandre (*Independent Researcher*); King, Jean Remi (*New York University*); Sanchez Bornot, Jose Migueal (*Ulster University*); Prasad, Girijesh (*University of Ulster*)

14:50-15:05 SaCT8.3
Emergence of Metastable Dynamics in Functional Brain Organization via Spontaneous fMRI Signal and Whole-Brain Computational Modeling 4471-4474
Lee, Won Hee* (*Icahn School of Medicine at Mount Sinai*); Frangou, Sophia (*Icahn School of Medicine at Mount Sinai*)

15:05-15:20 SaCT8.4
Why Build an Integrated EEG-NIRS? About the Advantages of Hybrid Bio-Acquisition Hardware 4475-4478
von Lühmann, Alexander* (*Machine Learning Dept. and Neurotechnology, Technische Univ*); Müller, Klaus-Robert (*Berlin Institute of Technology*)

15:35-15:50 SaCT8.6
Sensorimotor Network Parcellation for Pre-Surgical Patients using Low-Pass Filtered fMRI 4479-4482
Han, Hao (*Tsinghua University*); Yan, Yuxiang (*Tsinghua University*); Zhou, WenJing (*Tsinghua University*); Hong, Bo* (*Tsinghua University*)

SaCT9: 14:20-15:50 Plonsey Room
Human Performance II (Oral Session)
Chair: Finley, James (*University of Southern California*)

14:20-14:35 SaCT9.1
An Eye Tracking Index for the Saliency Estimation in Visual Stimuli 4483-4486
Babiloni, Fabio* (*University of Rome*); Cartocci, Giulia (*University of Rome Sapienza*); Modica, Enrica (*University of Rome Sapienza*); Maglione, Anton Giulio (*University of Rome Sapienza*); Di Flumeri, Gianluca (*University of Rome Sapienza*)

14:50-15:05		SaCT9.3
The External Force Associated with Callus Formation under the First Metatarsal Head is Reduced by Wearing Rocker Sole Shoes	4487-4490	
Amemiya, Ayumi* (<i>Chiba University</i>); Okonogi, Rena (<i>Dept. of Nursing Physiology, Graduate School of Nursing, Ch</i>); Yamakawa, Hiroki (<i>Nature's Walk Ltd</i>); Susumu, Kaori (<i>Dept. of Nursing Physiology, Graduate School of Nursing, Ch</i>); Jitsuishi, Tatsuya (<i>Dept. of Nursing Physiology, Graduate School of Nursing, Ch</i>); Sugawara, Hisayoshi (<i>Graduate School of Nursing, Chiba University</i>); L. Tanaka, Yuji (<i>Dept. of Nursing Physiology, Graduate School of Nursing, Ch</i>); Komiyama, Masatoshi (<i>Dept. of Nursing Physiology, Graduate School of Nursing, Ch</i>); Mori, Taketoshi (<i>The University of Tokyo</i>)		
15:05-15:20		SaCT9.4
Manipulating the Fidelity of Lower Extremity Visual Feedback to Identify Obstacle Negotiation Strategies in Immersive Virtual Reality	4491-4494	
Kim, Aram* (<i>University of Southern California</i>); Zhou, Zixuan (<i>University of Southern California</i>); Kretch, Kari (<i>University of Southern California</i>); Finley, James (<i>University of Southern California</i>)		
15:20-15:35		SaCT9.5
Prediction of Microsleeps using Pairwise Joint Entropy and Mutual Information between EEG Channels ...	4495-4498	
Buriro, Abdul Baseer* (<i>University of Canterbury</i>); Jones, Richard D. (<i>New Zealand Brain Research Institute</i>); Weddell, Stephen J. (<i>University of Canterbury</i>)		
15:35-15:50		SaCT9.6
Ankle-Foot Orthosis using Elastomer-Embedded Flexible Joint	4499-4502	
Abe, Isao* (<i>Oita Univ.</i>); Ishiya, Kohei (<i>Oita Univ.</i>); Kikuchi, Takehito (<i>Oita Univ.</i>); Tanida, Sousuke (<i>Bukkyo Univ.</i>); Yasuda, Takashi (<i>Shiga School of Medical Technology</i>); Taiki, Oshimoto, Taiki (<i>Oita Univ.</i>)		
SaCT10: 14:20-15:50		Schmitt Room
Health Informatics – Mobile Health I (Oral Session)		
Chair: Van Gorp, Pieter (<i>Eindhoven University of Technology</i>)		
14:20-14:35		SaCT10.1
A Modified D-Max Method to Estimate Heart Rate at a Ventilatory Threshold during an Incremental Exercise Test	4503-4506	
Jang, Dae-Geun* (<i>Samsung Advanced Institute of Technology</i>); Ko, Byung-Hoon (<i>Samsung Advanced Institute of Technology</i>); Sunoo, Sub (<i>Kyung Hee University</i>); Nam, Sang-Seok (<i>KyungHee Univ.</i>); Park, Hun-Young (<i>Kyunghee University</i>); Bae, Sang Kon (<i>Samsung Advanced Inst of Tech</i>)		
14:35-14:50		SaCT10.2
Unified Health Gamification can Significantly Improve Well-Being in Corporate Environments	4507-4511	
Shahrestani, Arash (<i>Eindhoven University of Technology</i>); Van Gorp, Pieter* (<i>Eindhoven University of Technology</i>); Le Blanc, Pascale (<i>Eindhoven University of Technology</i>); Greidanus, Fabrizio (<i>ZuidZorg</i>); de Groot, Kristel (<i>GGzE</i>); Leermakers, Jelle (<i>Finaps</i>)		
14:50-15:05		SaCT10.3
Automatic Diagnosis of Tuberculosis Disease based on Plasmonic ELISA and Color-Based Image Classification	4512-4515	
AbuHassan, Kamal* (<i>Anglia Ruskin University (Chelmsford Campus)</i>); Bakhori, Noremylia M. (<i>Universiti Putra Malaysia</i>); Kusnin, Norzila (<i>Universiti Putra Malaysia</i>); Azmi, Umi Zulaikha Mohd (<i>Universiti Putra Malaysia</i>); Hoque Tania, Marzia (<i>Anglia Ruskin University</i>); Evans, Benjamin (<i>University of East Anglia</i>); Binti Yusof, Nor Azah (<i>Universiti Putra Malaysia</i>); Hossain, M Alamgir (<i>Anglia Ruskin University</i>)		
15:05-15:20		SaCT10.4
Novel Features from Autocorrelation and Spectrum to Classify Phonocardiogram Quality	4516-4520	
Das, Deepan* (<i>TATA Consultancy Services</i>); Banerjee, Rohan (<i>Tata Consultancy Services Ltd.</i>); Dutta Choudhury, Anirban (<i>Tata Consultancy Services Ltd.</i>); Bhattacharya, Sakyajit (<i>TCS Innovation Labs</i>); Deshpande, Parijat (<i>TCS</i>); Pal, Arpan (<i>Tata Consultancy Services</i>); Mandana, K M (<i>Fortis Hospitals, Kolkata</i>)		
15:20-15:35		SaCT10.5
Detection of Chewing Motion in the Elderly using a Glasses Mounted Accelerometer in a Real-Life Environment	4521-4524	
Mertes, Gert* (<i>KU Leuven</i>); Hallez, Hans (<i>KU Leuven</i>); Vanrumste, Bart (<i>Katholieke Universiteit Leuven</i>); Croonenborghs, Tom (<i>KU Leuven Campus Geel, AdvISe Technology Lab, Belgium</i>)		

Ablation Technologies (Oral Session)**Chair:** Prakash, Punit (*Kansas State University*)

14:20-14:35

SaCT12.1

Development of Evaluation Methods for the Approval and Review of Intense Pulsed Light (IPL) 4525-4528Lee, Seung-Youl* (*Ministry of Food and Drug Safety*); Ju, Cho-Long (*Ministry of Food and Drug Safety*); Lee, Tae-Hee (*Ministry of Food and Drug Safety*); Na, Hyeon-su (*Ministry of Food and Drug Safety*); Lee, In-Su (*Ministry of Food and Drug Safety*); Park, Chang Won (*Natl. Inst. of Food and Drug Safety Evaluation, Ministry*)

14:35-14:50

SaCT12.2

Tapered Fiber Optic Applicator for Laser Ablation: Theoretical and Experimental Assessment of Thermal Effects on Ex Vivo Model 4529-4532Saccomandi, Paola* (*University Campus Bio-Medico of Rome*); Di Matteo, Francesco Maria (*University Campus Bio-Medico of Rome*); Schena, Emiliano (*University of Rome Campus Bio-Medico*); Quero, Giuseppe (*IHU-Strasbourg*); Massaroni, Carlo (*Università Campus Bio-Medico di Roma*); Giurazza, Francesco (*Università Campus Bio-Medico di Roma*); Costamagna, Guido (*Unit of Digestive Endoscopy, Università Cattolica del Sacro Cuor*); Silvestri, Sergio (*Università Campus Bio-Medico di Roma*)

14:50-15:05

SaCT12.3

Effects of Nd:YAG Laser for the Controlled and Localized Treatment of Early Gastrointestinal Tumors: Preliminary in Vivo Study 4533-4536Saccomandi, Paola* (*University Campus Bio-Medico of Rome*); Quero, Giuseppe (*IHU-Strasbourg*); Costamagna, Guido (*Unit of Digestive Endoscopy, Università Cattolica del Sacro Cuor*); Diana, Michele (*IRCAD: Research Institute against Cancer of Digestive System, St*); Marescaux, Jacques (*IRCAD*)

15:05-15:20

SaCT12.4

Surface Modifications of Human Tooth using Nd: YAG Laser for Dental Applications 4537-4540Mohamad Suhaimi, Fatanah* (*Advanced Medical and Dental Institute, University Sains Malaysia*); Zainol Alam, Nurzarifha (*University Sains Malaysia*); Mat Ariffin, Suriani (*University Sains Malaysia*); Abd Razak, Nurul Atiqah (*Advanced Medical and Dental Institute, University Sains Malaysia*); Abdul Razab, Mohammad Khairul Azhar (*University Malaysia Kelantan*)

15:20-15:35

SaCT12.5

A Novel Sensor for Measuring Temperature Profile during the Thermoablation 4541-4544Bujnowski, Adam (*Gdansk University of Technology*); Wtorek, Jerzy* (*Gdansk University of Technology*)

15:35-15:50

SaCT12.6

Preliminary Study on Low Intensity Focused Ultrasound System for Neuromodulation 4545-4548Lee, Ju Hyung (*Yonsei Univ.*); Hong, Hyun Ki (*Catholic Kwandong Univ. International St. Mary's Hospital*); Song, Byeong-Wook (*EIT/LOFUS R&D Center, Institute for Integrative Medicine, Cathol*); Jung, Yu jin (*EIT/LOFUS R&D Center, Institute for Integrative Medicine, Colleg*); Na, YoungCheol (*Catholic Kwandong Univ. Internationa St Mary's Hospital*); Kim, Nam Hyun (*Yonsei Univ.*); Kim, Bong-Soo* (*Catholic Kwandong Univ.*)**Sensor Informatics – Physiological Monitoring I** (Oral Session)**Chair:** Baranoski, Gladimir Valerio Guimaraes (*University of Waterloo*)

14:20-14:35

SaCT13.1

Differential Effects of Physical and Psychological Stressors on Electrodermal Activity 4549-4552A S, Anusha* (*IITM*); J., Jose (*HTIC*); Sp, Preejith (*Healthcare Technology Innovation Center - IITMadras*); Joseph, Jayaraj (*HTIC, Indian Institute of Technology Madras*); Sivaprakasam, Mohanasankar (*Indian Institute of Technology Madras*)

14:35-14:50

SaCT13.2

An Autonomous Medical Monitoring System: Validation on Arrhythmia Detection 4553-4556Lemkaddem, Alia* (*CSEM*); Proença, Martin (*Swiss Center for Electronics and Microtechnology (CSEM)*); Delgado-Gonzalo, Ricard (*CSEM*); Renevey, Philippe (*CSEM*); Oei, Ing (*Airbus Defence and Space GmbH*); Montano, Giuseppe (*Airbus Defence and Space Limited*); Martinez-Heras, Jose Antonio (*European Space Operations Centre (ESOC)*); Donati, Alessandro (*European Space Operations Centre (ESOC)*); Bertschi, Mattia (*CSEM*); Lemay, Mathieu (*CSEM*)

14:50-15:05		SaCT13.3
Virtual Proprioception for Eccentric Training		4557-4561
LeMoyne, Robert* (<i>Northern Arizona University</i>); Mastroianni, Timothy (<i>Independent</i>)		
15:05-15:20		SaCT13.4
Motion-Oriented Noisy Physiological Signal Refining using Embedded Sensing Platforms		4562-4565
Park, JaeYeon (<i>Ajou University</i>); Nam, Woojin (<i>Ajou University</i>); Kim, Tae Young (<i>Ajou University School of Medicine</i>); Lee, Sukhoon (<i>Ajou University School of Medicine</i>); Yoon, Dukyong (<i>Ajou University School of Medicine</i>); Ko, JeongGil* (<i>Ajou University</i>)		
15:20-15:35		SaCT13.5
Detection of Generalized Tonic-Clonic Seizures using Short Length Accelerometry Signal		4566-4569
Kusmakar, Shitanshu* (<i>The 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>); Muthuganapathy, Ramanathan (<i>Indian Institute of Technology Madras</i>); Palaniswami, Marimuthu (<i>The University of Melbourne</i>)		
15:35-15:50		SaCT13.6
Three-Wavelength Method for the Optical Differentiation of Methemoglobin and Sulfhemoglobin in Oxygenated Blood		4570-4573
Van Leeuwen, Spencer Richard* (<i>University of Waterloo</i>); Baranoski, Gladimir Valerio Guimaraes (<i>University of Waterloo</i>); Kimmel, Bradley William (<i>University of Waterloo</i>)		
SaCT18: 14:20-15:50		Montgomery Hall
Time-Frequency and Time-Scale Analysis – Acoustic Signals (Oral Session)		
Chair: Datta, Shreyasi (<i>Tata Consultancy Services</i>)		
14:20-14:35		SaCT18.1
Feature Extraction Techniques for Low-Power Ambulatory Wheeze Detection Wearables		4574-4577
Acharya, Jyotibdha* (<i>Nanyang Technological University</i>); Basu, Arindam (<i>Nanyang Technological University</i>); Ser, Wee (<i>Nanyang Technological University</i>)		
14:35-14:50		SaCT18.2
Cough Sound Analysis for Diagnosing Croup in Pediatric Patients using Biologically Inspired Features		4578-4581
Sharan, Roneel V* (<i>University of Queensland</i>); Abeyratne, Udantha R (<i>University of Queensland</i>); Swarnkar, Vinayak (<i>University of Queensland</i>)		
14:50-15:05		SaCT18.3
A Robust Dataset-Agnostic Heart Disease Classifier from Phonocardiogram		4582-4585
Banerjee, Rohan (<i>Tata Consultancy Services Ltd.</i>); Dutta Choudhury, Anirban* (<i>Tata Consultancy Services Ltd.</i>); Deshpande, Parijat (<i>TCS</i>); Bhattacharya, Sakyajit (<i>TCS Innovation Labs</i>); Pal, Arpan (<i>Tata Consultancy Services</i>); Mandana, K M (<i>Fortis Hospitals, Kolkata</i>)		
15:05-15:20		SaCT18.4
Identification of Chronic Heart Failure using Linear and Nonlinear Analysis of Heart Sound		4586-4589
Zheng, Yineng (<i>Chongqing University</i>); Guo, Xingming* (<i>Chongqing University</i>)		
15:20-15:35		SaCT18.5
Evaluating the use of Neural Networks and Acoustic Measurements to Identify Laryngeal Pathologies .		4590-4593
Sodré, Bruno (<i>UTFPR</i>); Rosa, Marcelo* (<i>Universidade Tecnológica Federal do Paraná</i>); Dassie-Leite, Ana Paula (<i>Universidade Estadual do Centro-Oeste - UNICENTRO</i>)		
15:35-15:50		SaCT18.6
Automated Lung Sound Analysis for Detecting Pulmonary Abnormalities		4594-4598
Datta, Shreyasi* (<i>Tata Consultancy Svcs</i>); Dutta Choudhury, Anirban (<i>Tata Consultancy Svcs Ltd.</i>); Deshpande, Parijat (<i>TCS</i>); Bhattacharya, Sakyajit (<i>TCS Innovation Labs</i>); Pal, Arpan (<i>Tata Consultancy Svcs</i>)		