

**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**

**Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

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

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Program in Chronological Order

(Copyrighted Papers)

* Author Name – Corresponding Author • * Following Paper Title – Paper not Available

Wednesday, 12 July 2017

WeAT4: 08:00-09:30 Min Room
Novel Sensing Methods I (Oral Session)
Chair: Chon, Ki (*University of Connecticut*)
Co-Chair: Posada-Quintero, Hugo Fernando (*University of Connecticut*)

08:00-08:15 WeAT4.1
Wearable Health Monitoring using Capacitive Voltage-Mode Human Body Communication 1-4
Maity, Shovan* (*Purdue University*); Das, Debayan (*Purdue University*); Sen, Shreyas (*Purdue University*)

08:15-08:30 WeAT4.2
A Self-Powered Glucose Biosensor based on Pyrroloquinoline Quinone Glucose Dehydrogenase and Bilirubin Oxidase Operating under Physiological Conditions 5-8
Kulkarni, Tanmay (*University of Maryland Baltimore County*); Slaughter, Gymama* (*University of Maryland Baltimore County*)

08:30-08:45 WeAT4.3
Detection of Needle to Nerve Contact based on Electric Bioimpedance and Machine Learning Methods 9-12
Kalvøy, Håvard* (*Rikshospitalet, Oslo University Hospital, Oslo, Norway*); Tronstad, Christian (*Oslo University Hospital*); Ullensvang, Kyrre (*Division of Emergencies and Critical Care, Dept. of Anaesth*); Steinfeldt, Torsten (*Philipps University of Marburg, Marburg an der Lahn, Hesse, Germ*); Sauter, Axel R. (*Dept. of Research and Development, Division of Emergencies*)

08:45-09:00 WeAT4.4
Testing the Need for Carbon in Salt/Adhesive Electrodes for Surface Electromyography Measurements: Preliminary Results 13-16
Posada-Quintero, Hugo Fernando* (*University of Connecticut*); Rood, Ryan (*University of Connecticut*); Ye, Xiang (*University of Connecticut*); Pias, Matthew (*University of Connecticut*); Burnham, Ken (*FLEXcon Company, Inc.*); Pennace, John (*FLEXcon Company, Inc.*); Chon, Ki (*University of Connecticut*)

09:00-09:15 WeAT4.5
A Rapid Quantitative Determination Method of Luteinizing Hormone with Gold Immunochromatographic Strip 17-20
Liu, Juntao (*Institute of Electronics, Chinese Academy of Sciences*); Kong, Zhuang (*tate Key Laboratory of Transducer Technology, Institute of Elect*); Wang, Yang (*Fan Yan The State Key Laboratory of Transducer Technology*); Fan, Yan (*The State Key Laboratory of Transducer Technology, Institute of*); Luo, Jinping (*Institute of Electronics, Chinese Academy of Sciences*); Xu, Shengwei (*Institute of Electronics, Chinese Academy of Science*); Jin, Hongyan (*Obstetrics and Gynecology Dept., First Hospital Peking Univ*); Cai, Xinxia* (*Institute of Electronics, Chinese Academy of Sciences*)

09:15-09:30 WeAT4.6
Integration of Piezo-Capacitive and Piezo-Electric Nanoweb based Pressure Sensors for Imaging of Static and Dynamic Pressure Distribution 21-24
Jeong, You Jeong (*Kyung Hee University*); Oh, Tong In* (*Kyunghee University*); Woo, Eung Je (*Kyung Hee University*); Kim, Kap Jin (*Kyung Hee University*)

WeAT7: 08:00-09:30	Herrick Room
Novel Approaches to BME Education (Oral Session)	
Chair: Kant Kumar, Dinesh (<i>MIT University</i>)	
Co-Chair: Esterer, Benjamin (<i>University of Applied Sciences Upper Austria</i>)	

08:00-08:15 WeAT7.1
Problem based Learning for Engineering 25-29
 Radcliffe, Pj* (*MIT University*); Kant Kumar, Dinesh (*MIT University*)

08:15-08:30 WeAT7.2
A Course in Prosthetics for the Developing World: Merging Education, Research, and Industry to Teach Biomedical Design for Social Impact 30-33
 Ranger, Bryan* (*Massachusetts Institute of Tech.*); Mantzavinou, Aikaterini (*Massachusetts Institute of Tech.*)

08:30-08:45 WeAT7.3
The Role of a Creative Joint Assignment” Project in Biomedical Engineering Bachelor Degree Education 34-37
 Jiang, Jiehui* (*Shanghai University*); Zhang, Yuting (*Shanghai University*); Zhou, Mi (*Shanghai University*); Zheng, Xiaosong (*Shanghai University*); Yan, Zhuangzhi (*Shanghai University*)

08:45-09:00 WeAT7.4
Design and Development of an Intelligent Nursing Bed a Pilot Project of “Joint Assignment” 38-41
 Jiang, Jiehui* (*Shanghai University*); Liu, TingWei (*Shanghai University*); Zhang, Yuting (*Shanghai University*); Song, Wolf (*Delft University of Technology*); Zhou, Mi (*Shanghai University*); Zheng, Xiaosong (*Shanghai University*); Yan, Zhuangzhi (*Shanghai University*)

09:00-09:15 WeAT7.5
A Hybrid, Low-Cost Tissue-Like Epidural Needle Insertion Simulator 42-45
 Esterer, Benjamin* (*University of Applied Sciences Upper Austria*); Gabauer, Stefan (*Research Group for Surgical Simulators Linz, Upper Austria Univ.*); Pichler, Robert (*Johannes Kepler University Linz*); Wirthl, Daniela (*Johannes Kepler University Linz*); Drack, Michael (*Johannes Kepler University Linz*); Hollensteiner, Marianne (*Upper Austria University of Applied Sciences*); Kettlgruber, Gerald (*Johannes Kepler University Linz*); Kaltenbrunner, Martin (*Johannes Kepler University Linz*); Bauer, Siegfried (*Johannes Kepler University*); Fuerst, David (*Upper Austria University of Applied Sciences*); Merwa, Robert (*University of Applied Sciences Upper Austria*); Meier, Jens (*Kepler University Linz*); Augat, Peter (*Institute for Biomechanics, BGU Murnau*); Schrempf, Andreas (*Upper Austria University of Applied Sciences*)

09:15-09:30 WeAT7.6
Novel Synthetic Vertebrae Provide Realistic Haptics for Pedicle Screw Placement 46-49
 Hollensteiner, Marianne* (*Upper Austria University of Applied Sciences*); Augat, Peter (*Institute for Biomechanics, BGU Murnau*); Fuerst, David (*Upper Austria University of Applied Sciences*); Esterer, Benjamin (*University of Applied Sciences Upper Austria*); Gabauer, Stefan (*Research Group for Surgical Simulators Linz, Upper Austria Univ.*); Püschel, Klaus (*University of Hamburg*); Schroedl, Falk (*Paracelsus Medical University*); Schrempf, Andreas (*Upper Austria University of Applied Sciences*)

WeAT8: 08:00-09:30	Schwan Room
Neuromuscular Systems I (Oral Session)	

08:00-08:15 WeAT8.1
Characterizing Dynamic Balance during Adaptive Locomotor Learning 50-53
 Park, Sungwoo* (*University of Southern California*); Finley, James (*University of Southern California*)

08:15-08:30 WeAT8.2
Early Prediction of Future Hand Movements using sEMG Data 54-57
 Koch, Philipp* (*University of Luebeck*); Phan, Huy (*University of Lübeck*); Maaß, Marco (*University of Lübeck*); Katzberg, Fabrice (*University of Luebeck*); Mertins, Alfred (*University of Lübeck*)

08:30-08:45 WeAT8.3
Muscle Contractions in Cyclic Movements: Optimization of CIMAP Algorithm 58-61
 Rosati, Samanta (*Politecnico di Torino*); Castagneri, Cristina (*Politecnico di Torino*); Agostini, Valentina* (*Politecnico di Torino*); Knaflitz, Marco (*Politecnico di Torino*); Balestra, Gabriella (*Politecnico di Torino*)

08:45-09:00 WeAT8.4
Simple Space-Domain Features for Low-Resolution EMG Pattern Recognition 62-65
Donovan, Ian (*San Francisco State University*); Puchin, Juris (*San Francisco State University*);
Okada, Kazunori (*San Francisco State University*); Zhang, Xiaorong* (*San Francisco State University*)

09:00-09:15 WeAT8.5
Movement Augmentation to Evaluate Human Control of Locomotor Stability 66-69
Brown, Geoffrey (*Northwestern University*); Wu, Mengnan/Mary (*Northwestern University*); Huang, Felix
(*Rehabilitation Institute of Chicago*); Gordon, Keith* (*Feinberg School of Medicine, Northwestern University*)

09:15-09:30 WeAT8.6
Ankle Intrinsic Stiffness is Modulated by Postural Sway 70-73
Amiri, Pouya* (*Dept. of Biomedical Engineering, McGill*); Kearney, Robert Edward (*McGill Univ.*)

WeAT10: 08:00-09:30 Schmitt Room
Models for Clinical Decision Support (Oral Session)
Chair: Dokos, Socrates (*University of New South Wales*)

08:00-08:15 WeAT10.1
Predicting the Outcome for Patients in a Heart Transplantation Queue using Deep Learning 74-77
Medved, Dennis* (*Lund University*); Nilsson, Johan (*Dept. Clinical Sciences Lund, CardioThoracic Surgery, Lund Univ.*); Nugues, Pierre (*Lund University*)

08:15-08:30 WeAT10.2
Staged Inference using Conditional Deep Learning for Energy Efficient Real-Time Smart Diagnosis 78-81
Parsa, Maryam (*Purdue Univ.*); Panda, Priyadarshini (*Purdue Univ.*); Sen, Shreyas (*Purdue Univ.*);
Roy, Kaushik* (*Purdue Univ.*)

08:30-08:45 WeAT10.3
Classifying Osteosarcoma Patients using Machine Learning Approaches 82-85
Li, Zhi* (*University of Michigan*); Soroushmehr, S.M.Reza (*University of Michigan, Ann Arbor*); Hua, Yingqi
(*Shanghai Bone Tumor Institute, Shanghai General Hospital, Shanghai*); Mao, Min (*Shanghai Bone Tumor Institute, Shanghai General Hospital, Shanghai*); Qiu, Yunping (*Albert Einstein College of Medicine*);
Najarian, Kayvan (*University of Michigan - Ann Arbor*)

08:45-09:00 WeAT10.4
Development of a Three Dimensional, Multiscale Agent-Based Model of Ductal Carcinoma in Situ 86-89
Butner, Joseph (*University of New Mexico*); Cristini, Vittorio (*University of New Mexico*); Wang, Zhihui*
(*University of Texas Health Science Center at Houston McGovern Me*)

09:00-09:15 WeAT10.5
Elucidating the Biophysical Processes Responsible for the Chromatic Attributes of Peripheral Cyanosis 90-95
Baranoski, Gladimir Valerio Guimaraes* (*University of Waterloo*); Van Leeuwen, Spencer Richard (*University of Waterloo*); Chen, Tenn Francis (*University of Waterloo*)

09:15-09:30 WeAT10.6
SMARTool: A Tool for Clinical Decision Support for the Management of Patients with Coronary Artery Disease based on Modeling of Atherosclerotic Plaque Process 96-99
Sakellarios, Antonis (*Unit of Medical Technology and Application Systems, Dept of Mate*); Rigas, Georgios
(*University of Ioannina*); Kigka, Vassiliki (*University of Ioannina*); Siogkas, Panagiotis (*FORTH-IMBB*);
Tsimpou, Panagiota (*Unit of Medical Technology and Intelligent Information Systems,*); Karanasiou, Georgia
(*University of Ioannina, Dept. of Materials Science, Unit of*); Exarchos, Themis P. (*Unit of Medical Tech & Intelligent Info*); Andrikos, Ioannis (*University of Ioannina*); Tachos, Nikolaos (*Unit of Medical Technology and Intelligent Information Systems,*); Pelosi, Gualtiero (*Institute of Clinical Physiology, National Research Council, 561*); Parodi, Oberdan (*CNR Clinical Physiology Institute - Milan*); Fotiadis, Dimitrios I.* (*University of Ioannina*)

08:00-08:15	Coronary Artery Disease Detection using Photoplethysmography 100-103 Paradkar, Neeraj* (<i>International Institute of Information Technology</i>); Roy Chowdhury, Shubhajit (<i>Indian Institute of Technology Mandi</i>)	WeAT11.1
-------------	--	----------

08:15-08:30	Computationally Efficient Algorithm for Photoplethysmography-Based Atrial Fibrillation Detection using Smartphones 104-108 Schäck, Tim* (<i>Technische Universität Darmstadt</i>); Safi Harb, Yosef (<i>Happitech</i>); Muma, Michael (<i>Technische Universität Darmstadt</i>); de Jong, Jonas S. S. G. (<i>OLVG Hospital</i>); Zoubir, Abdelhak M. (<i>Signal Processing Group, Institute of Telecommunications, Techni</i>)	WeAT11.2
-------------	--	----------

08:30-08:45	A Novel Method for Accurate Estimation of HRV from Smartwatch PPG Signals 109-112 Bhowmik, Tanmoy* (<i>Samsung Research Institute</i>); Dey, Jishnu (<i>Samsung R&D Institute India, Bangalore</i>); Tiwari, Vijay Narayan (<i>Samsung Research India, Bangalore</i>)	WeAT11.3
-------------	--	----------

08:45-09:00	Cardiac Arrhythmia Detection using Photoplethysmography 113-116 Paradkar, Neeraj* (<i>International Institute of Information Technology</i>); Roy Chowdhury, Shubhajit (<i>Indian Institute of Technology Mandi</i>)	WeAT11.4
-------------	--	----------

09:00-09:15	Photoplethysmography Beat Detection and Pulse Morphology Quality Assessment for Signal Reliability Estimation 117-120 Papini, Gabriele* (<i>Eindhoven University of Technology</i>); Fonseca, Pedro (<i>Philips Research and Eindhoven University of Technology</i>); Aubert, Xavier (<i>Philips Research Laboratories Europe</i>); Overeem, Sebastiaan (<i>Kempenhaeghe Foundation, Sleep Medicine Centre</i>); Bergmans, Johannes Wilhelmus Maria (<i>Eindhoven University of Technology</i>); Vullings, Rik (<i>Eindhoven University of Technology</i>)	WeAT11.5
-------------	--	----------

09:15-09:30	Enhanced Detection of Sleep Apnoea using Heart-Rate, Respiration Effort and Oxygen Saturation Derived from a Photoplethysmography Sensor 121-124 Jayawardhana, Madhuka* (<i>University of Sydney</i>); de Chazal, Philip (<i>University of Sydney</i>)	WeAT11.6
-------------	--	----------

08:00-08:15	An Elderly Fall Detection using a Wrist-Worn Accelerometer and Barometer 125-130 Jatesiktat, Prayook* (<i>NTU</i>); Ang, Wei Tech (<i>Nanyang Technological University</i>)	WeAT12.1
-------------	---	----------

08:15-08:30	Using Measurements from Wearable Sensors for Automatic Scoring of Parkinson's Disease Motor States: Results from 7 Patients 131-134 Thomas, Ilias (<i>Dalarna Univ.</i>); Bergquist, Filip (<i>Gothenburg Univ.</i>); Constantinescu, Radu (<i>Gothenburg Univ.</i>); Nyholm, Dag (<i>Uppsala Univ.</i>); Senek, Marina (<i>Uppsala Univ.</i>); Memedi, Mevludin* (<i>Dalarna Univ.</i>)	WeAT12.2
-------------	---	----------

08:30-08:45	Artifact Detection in Accelerometer Signals Acquired from the Carotid 135-138 Muehlsteff, Jens (<i>Philips</i>); Santos de Oliveira e Silva, Bernardo Jose' (<i>Univ. of Coimbra</i>); Couceiro, Ricardo* (<i>Univ. of Coimbra</i>); Henriques, Jorge (<i>Univ. of Coimbra</i>); de Carvalho, Paulo (<i>Univ. of Coimbra</i>)	WeAT12.3
-------------	---	----------

08:45-09:00 WeAT12.4
Development of a Wearable Plantar Force Measurement Device for Gait Analysis in Remote Conditions 139-142
Hamid, Rawnak (*Biomedical Integrated Circuits and Sensors Laboratory, Electric*); Yuce, Mehmet* (*Monash University*); Redouté, Jean-Michel (*Monash University*); McMillan, Lachlan (*Dept. of Medicine, School of Clinical Sciences at Monash He*); Scott, David (*Dept. of Medicine, School of Clinical Sciences at Monash He*); Wijesundara, Suharshani (*Dept. of Electrical and Computer Systems Engineering, Monash*); Ebeling, Peter R (*Dept. of Medicine, School of Clinical Sciences at Monash He*)

09:00-09:15 WeAT12.5
Weakly-Supervised Learning for Parkinson's Disease Tremor Detection 143-147
Zhang, Ada* (*Carnegie Mellon University*); Cebulla, Alexander (*ETH Zurich*); Panev, Stanislav (*Carnegie Mellon University*); Hodgins, Jessica (*Carnegie Mellon University*); Torre, Fernando de la (*Carnegie Mellon University*)

09:15-09:30 WeAT12.6
Real-Time Gait Analysis with Accelerometer-Based Smart Shoes 148-148
Delgado-Gonzalo, Ricard* (*CSEM*); Hubbard, Jeremy (*ICON Health & Fitness*); Renevey, Philippe (*CSEM*); Lemkaddem, Alia (*CSEM*); Vellinga, Quinn (*iFit*); Ashby, Darren (*ICON Health & Fitness Inc.*); Jared, Willardson (*ICON Health & Fitness Inc.*); Bertschi, Mattia (*CSEM*)

WeAT15: 08:00-09:30 Webster Room
Modeling and Estimation of the Respiratory System for Clinical Applications (Invited Session)
Chair: Chbat, Nicolas W. (*Center of Excellence in Critical Care Innovation*)
Co-Chair: Heldt, Thomas (*Massachusetts Institute of Technology*)

08:15-08:30 WeAT15.2
End-Inspiratory Occlusion in the Presence of Intrinsic PEEP 149-152
Albanese, Antonio* (*Philips Research North America*); Vicario, Francesco (*Philips Research North America*); Buizza, Roberto (*Philips Research North America*)

08:30-08:45 WeAT15.3
Two-Parameter Leak Estimation in Non-Invasive Ventilation 153-156
Vicario, Francesco* (*Philips Research North America*); Alkhaury, Samiya (*MIT*); Buizza, Roberto (*Philips Research North America*); Truschel, William (*Philips Respironics*)

WeAT16: 08:00-09:30 Rushmer Room
Bioimpedance in Biomedical Applications and Research: Concepts (Minisymposium)
Chair: Bertemes-filho, Pedro (*The State University of Santa Catarina*)

08:45-09:00 WeAT16.4
Electrical Properties of Phantoms for Mimicking Breast Tissue 157-160
Grando Sirtoli, Vinicius (*Universidade do Estado de Santa Catarina*); Morcelles, Kaue Felipe (*Universidade do Estado de Santa Catarina*); Bertemes-filho, Pedro* (*The State University of Santa Catarina*)

WeBT2: 14:20-15:50 Cho Room
Frontiers in Perinatal and Pediatric Imaging (Invited Session)
Chair: Linguraru, Marius George (*Children's National Health System*)

15:35-15:50 WeBT2.6
Central Sulcus Development in Early Childhood 161-164
Gajawelli, Niharika* (*USC*); Deoni, Sean (*Univ. of Colorado*); Dirks, Holly (*Brown Univ.*); Dean, Douglas (*Univ. of Wisconsin-Madison*); O'Muirheartaigh, Jonathan (*Brown Univ.*); Wang, Yalin (*Arizona State Univ.*); Nelson, Marvin (*Univ. of Southern California and Keck School of Medicine, c*); Coulon, Olivier (*Aix-Marseille Univ.*); Lepore, Natasha (*Univ. of Southern California / Children's Hospital Los Ange*)

15:35-15:50 WeBT2.7
Design of Patient-Specific Concentric Tube Robots using Path Planning from 3D Ultrasound 165-168
Morimoto, Tania* (*Stanford University*); Cerrolaza, Juan J. (*Imperial College London*); Hsieh, Michael (*Stanford University*); Cleary, Kevin (*Children's National Medical Center*); Okamura, Allison (*Stanford University*); Linguraru, Marius George (*Children's National Health System*)

15:35-15:50 WeBT2.8
Cranial Ultrasound-Based Prediction of Post Hemorrhagic Hydrocephalus Outcome in Premature Neonates with Intraventricular Hemorrhage 169-172
 Roshanitabrizi, Pooneh* (*Children's National Health System*); Obeid, Rawad (*Children's National Health System*); Mansoor, Awais (*Children's National Health System*); Ensel, Scott (*Children's National Medical Center*); Cerrolaza, Juan J. (*Imperial College London*); Penn, Anna (*Children's National Medical Center*); Linguraru, Marius George (*Children's National Health System*)

WeBT4: 14:20-15:50 Min Room
Novel Sensing Methods II (Oral Session)
Chair: Dong, Tao (*University College of Southeast Norway*)

14:20-14:35 WeBT4.1
A Low Power Flash-FPGA based Brain Implant Micro-System of PID Control 173-176
 Xia, Lijuan* (*Electrical Engineering College*); Fattah, Nabeel (*Newcastle University*); Soltan, Ahmed (*Newcastle University, School of Electrical, Electronic and Compu*); Jackson, Andrew (*Newcastle University*); Chester, Eric Graeme (*Newcastle University*); Degenaar, Patrick (*Newcastle University*)

14:35-14:50 WeBT4.2
Smart Mat System with Pressure Sensor Array for Unobtrusive Sleep Monitoring 177-180
 Li, Wei* (*Fudan Univ.*); Sun, Chenglu (*Fudan Univ.*); Yuan, Wei (*Printable Electronics Research Centre, Suzhou Institute of Nanot*); Gu, Weibing (*Printable Electronics Research Centre, Suzhou Institute of Nanot*); Cui, Zheng (*Printable Electronics Research Centre, Suzhou Institute of Nanot*); Chen, Wei (*Fudan Univ.*)

14:50-15:05 WeBT4.3
Design of a Microfluidic Paper-Based Device for Analysis of Biomarkers from Urine Samples on Diapers 181-184
 Couto, Adriana (*University of Minho*); Dong, Tao* (*University College of Southeast Norway*)

15:05-15:20 WeBT4.4
Stability of Colorimetric Results in the Detection of Urine Biomarkers using a Paper-Based Analytical Device 185-188
 Bertão, Ana (*Høgskolen i Sørøst-Norge avd Vestfold*); Dong, Tao* (*University College of Southeast Norway*)

15:20-15:35 WeBT4.5
Injection Moulded Microneedle Sensor for Real-Time Wireless pH Monitoring 189-192
 Mirza, Khalid* (*Imperial College London*); Zuliani, Claudio (*Imperial College London*); Hou, Benjamin (*Imperial College London*); Ng, Fu Siong (*Imperial College London*); Peters, Nicholas (*Imperial College London*); Toumazou, Christofer (*Imperial College London*)

15:35-15:50 WeBT4.6
Carbon Nanospikes for Biosensing Applications 193-196
 Shanta, Aysha Siddique* (*The University of Tennessee*); Mamun, Khandaker (*University of Tennessee*); Hensley, Dale (*oak ridge National laboratory*); Lavrik, Nickolay (*oak ridge National laboratory*); Islam, Syed Kamrul (*University of Tennessee*); McFarlane, Nicole (*University of Tennessee*)

WeBT8: 14:20-15:50 Schwan Room
Motor Neuroprostheses (Oral Session)
Chair: Youn, Inchan (*Korea Institute of Science and Technology*)

14:20-14:35 WeBT8.1
Multiscale Decoding for Reliable Brain-Machine Interface Performance Over Time 197-200
 Hsieh, Han-Lin* (*University of Southern California*); Wong, Yan Tat (*New York University*); Pesaran, Bijan (*New York University*); Shanechi, Maryam (*University of Southern California*)

14:35-14:50 WeBT8.2
An Unsupervised Learning Algorithm for Multiscale Neural Activity 201-204
 Abbaspourazad, Hamidreza* (*Univ. of Southern California*); Shanechi, Maryam (*Univ. of Southern California*)

14:50-15:05 WeBT8.3
Electromyographic Bridge—A Multi-Movement Volitional Control Method for Functional Electrical Stimulation: Prototype System Design and Experimental Validation 205-208
 Zhou, Yuxuan (*School of Basic Medical Science, Nanjing Medical University*); Wang, Haipeng (*Southeast University, Institute of RF- & OE-ICs*); Cao, Xiaopeng (*Southeast University*); Bi, Zhengyang (*Southeast University, State Key Lab of Bioelectronics*); Gao, Yujie (*Southeast University*); Chen, XiaoBin (*Southeast University*); Lü, Xiaoying* (*Southeast University*); Wang, Zhigong (*Southeast University*)

15:05-15:20 WeBT8.4
Low-Intensity Focused Ultrasound Stimulator using Focal Depth Controller for Improved Targeting in Neuromuscular Rehabilitation 209-212
 Oh, Sungjin (*Korea Institute of Science and Technology*); Kim, DongHwee (*Korea Institute of Science and Technology*); Youn, Inchan* (*Korea Institute of Science and Technology*)

15:20-15:35 WeBT8.5
Towards a Wearable Hand Exoskeleton with Embedded Synergies 213-216
 Burns, Martin (*Stevens Institute of Technology*); Van Orden, Katie (*Stevens Institute of Technology*); Patel, Vrajeshri (*Stevens Institute of Technology*); Vinjamuri, Ramana* (*Stevens Institute of Technology*)

WeBT9: 14:20-15:50	Plonsey Room
Neural Interfaces I (Oral Session)	
Chair: Kim, Keehoon (<i>Korea Institute of Science and Technology</i>)	

14:20-14:35 WeBT9.1
An Integrated Multichannel Neural Recording Analog Front-End ASIC with Area-Efficient Driven Right Leg Circuit 217-220
 Tang, Tao* (*NTU*); Goh, Wang Ling (*Nanyang Tech. Univ.*); Yao, Lei (*Institute of Microelectronics, Singapore*); Cheong, Jia Hao (*Institute of Microelectronics*); Gao, Yuan (*Institute of Microelectronics, Singapore*)

14:35-14:50 WeBT9.2
Rodent Wearable Ultrasound System for Wireless Neural Recording 221-225
 Piech, David* (*University of California - Berkeley*); Kay, Joshua (*University of California - Berkeley*); Boser, Bernhard (*UC Berkeley*); Maharbiz, Michel (*University of California, Berkeley*)

14:50-15:05 WeBT9.3
A Handheld Device for Magnetically Inserting a Neural Interface into a Peripheral Nervous System 226-229
 Yim, Sehyuk (*Korea Institute of Science and Tech.*); Hwang, Donghyun (*Korea Institute of Science and Tech.*); Ihn, Yong Seok (*Korea Institute of Science and Tech.*); Jeong, Jinwoo (*Sungkyunkwan University*); Oh, Sang-Rok (*Korea Institute of Science and Tech.*); Kim, Keehoon* (*Korea Institute of Science and Tech.*)

15:05-15:20 WeBT9.4
Unidirectional Ephaptic Stimulation between Two Myelinated Axons 230-233
 Capllonch Juan, Miguel* (*University of Essex*); Kolbl, Florian (*University of Bordeaux*); Sepulveda, Francisco (*University of Essex*)

15:20-15:35 WeBT9.5
Novel Integration and Packaging Concepts of Highly Miniaturized Inductively Powered Neural Implants 234-237
 Khalifa, Adam* (*Johns Hopkins University*); Karimi, Yasha (*Stony Brook University*); Stanacevic, Milutin (*Stony Brook University*); Etienne-Cummings, Ralph (*Johns Hopkins University*)

15:35-15:50 WeBT9.6
Design of Contact Zone Topography for Implantable High-Channel Electrical Connectors 238-241
 Koch, Julia* (*Univ. of Freiburg*); Schuettler, Martin (*Univ. of Freiburg*); Stieglitz, Thomas (*Univ. of Freiburg*)

WeBT10: 14:20-15:50	Schmitt Room
Voice Frequency Analysis: Expectation for the Convenient but Powerful Diagnostic Tool for Neuropsychiatric Disorders (Invited Session)	
Chair: Morimoto, Yuji (<i>National Defense Medical College</i>)	
Co-Chair: Tokuno, Shinichi (<i>The University of Tokyo</i>)	

15:20-15:35	WeBT10.5
Difference in Voice Analysis Result by Pre and Post Processing of Telephone Line	242-245
Hagiwara, Naoki* (<i>PST Inc.</i>); Omiya, Yasuhiro (<i>PST Inc.</i>); Shinohara, Shuji (<i>The Univ. of Tokyo</i>); Nakamura, Mitsuteru (<i>The Univ. of Tokyo</i>); Higuchi, Masakazu (<i>The Univ. of Tokyo</i>); Mitsuyoshi, Shunji (<i>Dept. of Verbal Analysis of Pathophysiology Graduate School of M</i>); Tokuno, Shinichi (<i>The Univ. of Tokyo</i>)	

WeBT11: 14:20-15:50	Greatbatch Room
Pulse Transit Time/Arterial Stiffness (Oral Session)	
Chair: Avolio, Alberto P (<i>Macquarie University</i>)	
Co-Chair: Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	

14:20-14:35	WeBT11.1
Reproducibility of Photoplethysmography-Based Local Pulse Transit Time Measurement	246-249
Beckmann, Nils* (<i>University of Duisburg-Essen</i>); Viga, Reinhard (<i>University of Duisburg-Essen</i>); Dogangün, Aysegül (<i>University of Duisburg-Essen</i>); Grabmaier, Anton (<i>University of Duisburg-Essen</i>)	

14:35-14:50	WeBT11.2
Pulse Arrival Time (PAT) Measurement based on Arm ECG and Finger PPG Signals – Comparison of PPG Feature Detection Methods for PAT Calculation	250-253
Rajala, Satu* (<i>Nokia Technologies</i>); Ahmaniemi, Teemu (<i>Nokia Technologies</i>); Lindholm, Harri (<i>Nokia Technologies</i>); Taipalus, Tapio (<i>Nokia Technologies</i>)	

14:50-15:05	WeBT11.3
Pulse Arrival Time Measurement with Coffee Provocation	254-257
Ahmaniemi, Teemu* (<i>Nokia Technologies</i>); Rajala, Satu (<i>Nokia Technologies</i>); Lindholm, Harri (<i>Nokia Technologies</i>); Taipalus, Tapio (<i>Nokia Technologies</i>)	

15:05-15:20	WeBT11.4
Increased Arterial Stiffness does not Respond to Renal Denervation in an Animal Model of Secondary Hypertension	258-261
Yao, Yimin (<i>Dept. of BioMedical Sciences, Faculty of Medicine and Health</i>); Hildreth, Cara (<i>Dept. of BioMedical Sciences, Faculty of Medicine and Health</i>); Li, Sheran (<i>Dept. of BioMedical Sciences, Faculty of Medicine and Health</i>); Boyd, Rochelle (<i>Dept. of BioMedical Sciences, Faculty of Medicine and Health</i>); Kouchaki, Zahra (<i>Macquarie University</i>); Butlin, Mark (<i>Macquarie University</i>); Avolio, Alberto P* (<i>Macquarie University</i>); Pilowksy, Paul M (<i>Heart Research Institute and University of Sydney</i>); Phillips, Jacqueline Kathleen (<i>Faculty of Medicine and Health Sciences, Macquarie University</i>)	

15:20-15:35	WeBT11.5
Brachial Artery Stiffness Estimation using ARTSENS	262-265
V, Raj Kiran* (<i>IIT Madras</i>); PM, Nabeel (<i>Indian Institute of Technology Madras</i>); Joseph, Jayaraj (<i>HTIC, Indian Institute of Technology Madras</i>); Shah, Malay Ilesh (<i>Healthcare Technology Innovation Center (HTIC), Indian Institute</i>); Sivaprakasam, Mohanasankar (<i>Indian Institute of Technology Madras</i>)	

15:35-15:50	WeBT11.6
Modeling Young and Adult Patients with Cirrhosis through a Three Element Windkessel (WK3e)	266-269
Cymberknop, Leandro Javier (<i>Universidad Tecnológica Nacional</i>); Farro, Ignacio (<i>School of Medicine, Republic University</i>); Arbeitman, Claudia (<i>Engineering and Exact and Natural Sciences Faculty, Favaloro Uni</i>); Cardelino, Juan (<i>Faculty of Engineering, Republic University</i>); Armentano, Ricardo Luis* (<i>Republic University</i>)	

WeBT12: 14:20-15:50 Geddes Room

Ambulatory Diagnostic and Therapeutic Systems (Oral Session)

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

14:20-14:35 WeBT12.1
SVM Classifier on Chip for Melanoma Detection 270-274

Affi, Shereen (*Auckland University of Technology*); GholamHosseini, Hamid* (*Auckland University of Technology*); Sinha, Roopak (*Auckland University of Technology*)

14:35-14:50 WeBT12.2
Developing Interactive and Simple Electromyogram PONG Game for Foot Dorsiflexion and Plantarflexion Rehabilitation Exercise 275-278

Hee, Cheok Lek (*Monash University Malaysia*); Chong, Tune Hau (*Monash University Malaysia*); Gouwanda, Darwin* (*Monash University Malaysia*); Gopalai, Alpha Agape (*Curtin University Sarawak Campus*); Low, Cheng Yee (*Universiti Teknologi MARA*); Hanapiah, Fazah Akhtar (*Universiti Teknologi Mara*)

14:50-15:05 WeBT12.3
Automatic Detection and Labeling of Self-Stimulatory Behavioral Patterns in Children with Autism Spectrum Disorder 279-282

Min, Cheol-Hong* (*University of St. Thomas*)

15:05-15:20 WeBT12.4
Design of Focal Brain Cooling System for Suppressing Epileptic Seizures 283-286

Hata, Kei (*Kyoto University*); Fujiwara, Koichi* (*Kyoto University*); Kano, Manabu (*Kyoto University*); Inoue, Takao (*Yamaguchi University*); Nomura, Sadahiro (*Yamaguchi University*); Imoto, Hirochika (*Yamaguchi University*); Suzuki, Michiyasu (*Yamaguchi University*)

15:20-15:35 WeBT12.5
Smartphone App to Investigate the Relationship between Social Connectivity and Mental Health 287-290

Boonstra, Tjeerd W. (*University of New South Wales*); Werner-Seidler, Aliza (*University of New South Wales*); O'Dea, Bridianne (*University of New South Wales*); Larsen, Mark Erik* (*University of New South Wales*); Christensen, Helen (*University of New South Wales*)

WeBT13: 14:20-15:50 Dunn Room

Drug Delivery Routes, Release and Formulation (Oral Session)

14:20-14:35 WeBT13.1
Spatial Targeting of Tumor-Associated Macrophage and Tumor Cells with a Designer Nanocarrier for Cancer Chemo-Immunotherapy 291-291

Wang, Jun* (*South China University of Technology*)

14:35-14:50 WeBT13.2
Needle-Free Small-Volume Liquid Injection System Powered by a Rotary Actuator 292-295

Zhang, Aoyu* (*Peking University*); Hogan, N. Catherine (*Massachusetts Institute of Technology*); Hunter, Ian (*Massachusetts Institute of Technology*)

14:50-15:05 WeBT13.3
High Speed X-Ray Analysis of Liquid Delivery during Jet Injection 296-299

Mckeage, James William* (*Auckland Bioengineering Institute*); Brennan, Kieran (*The University of Auckland*); Park, Geehoon (*Massachusetts Institute of Technology*); Hogan, N. Catherine (*Massachusetts Institute of Technology*); Hunter, Ian (*Massachusetts Institute of Technology*); Ruddy, Bryan (*University of Auckland*); Nielsen, Poul (*The University of Auckland*); Taberner, Andrew (*The University of Auckland*)

15:05-15:20 WeBT13.4
Nonlithographic Fabrication of Inflatable and Deflatable Polydimethylsiloxane (PDMS) Micro-Channels for a Magnetically Actuated Drug Delivery System 300-303

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
Liu, John* (*Massachusetts Institute of Technology*); Hogan, N. Catherine (*Massachusetts Institute of Technology*); Hunter, Ian (*Massachusetts Institute of Technology*)

15:35-15:50 WeBT13.6
Nanoparticle-Based Delivery of an Anti-Proliferative Metal Chelator to Tumor Cells 309-312
Kang, You Jung (*Pennsylvania State University*); Kuo, Chung-Fan (*University of Houston*);
Majd, Sheereen* (*University of Houston*)

WeBT14: 14:20-15:50 Schaldach Room
Deformable Models for Image Analysis (Oral Session)
Chair: Gonzalez Ballester, Miguel Angel (*Universitat Pompeu Fabra*)

14:20-14:35 WeBT14.1
Rodent Brain Extraction using B-Spline based Deformable Model 313-316
Huang, Weimin* (*Institute for Infocomm Research, Agency for Science Technology a*); Ling, Chen (*NTU*);
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
Individual Muscle Segmentation in MR Images: A 3D Propagation through 2D Non-Linear Registration Approaches 317-320
Ogier, Augustin* (*Aix Marseille Univ, CNRS, Marseille, France*); Sdika, Michaël (*Creatis*); Fouré, Alexandre (*Aix Marseille Univ, CNRS, CRMBM, Marseille, France*); Le Troter, Arnaud (*Aix Marseille Univ, CNRS, CRMBM, Marseille, France*); Bendahan, David (*Aix Marseille Univ, CNRS, CRMBM, Marseille, France*)

14:50-15:05 WeBT14.3
A Novel Non-Rigid Registration Algorithm for ZebraFish Larval Images 321-324
Ghosal, Sayan (*Jadavpur University*); Banerjee, Soumava (*Jadavpur University*); Tiso, Natascia (*University of Padova*); Grisan, Enrico* (*University of Padova*); Chowdhury, Ananda (*Jadavpur University*)

15:05-15:20 WeBT14.4
Parallel Implementation of a Nonrigid Image Registration Algorithm for Lung Tumor Boundary Tracking in Quasi Real-Time MRI 325-328
Tahmasebi, Nazanin* (*University of Alberta*); Boulanger, Pierre (*University of Alberta*); Punithakumar, Kumaradevan (*University of Alberta*)

15:20-15:35 WeBT14.5
Characterization of Single Cell Dynamic Morphology by Local Deformation Pattern Modeling 329-332
Li, Heng (*Beijing Institute of Technology*); Liu, Zhiwen* (*Beijing Institute of Technology*); Pang, Fengqian (*Beijing Institute of Technology*); Shi, Yonggang (*Beijing Institute of Technology*)

15:35-15:50 WeBT14.6
A Statistical Shape Model of the Skull Developed from a South African Population 333-336
Lugadilu, Brian Ingasia (*University of Capetown*); Richards, Craig (*University of Capetown*);
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
Investigating the Effect of Cardiac Oscillations and Dead-space Gas Mixing during Apnea using Computer Simulation 337-340
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
Evaluation of Indirect Measures of Neural Inspiratory Time from Invasive and Noninvasive Recordings of Respiratory Activity 341-344
 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
Statistical Analysis of the Age Dependence of the Normal Capnogram 345-348
 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
Imaging of Regional Air Distributions in Porcine Lungs using High Performance Electrical Impedance Tomography System 349-351
 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
Monitoring of Cardiac Output and Lung Ventilation by Electrical Impedance Tomography in a Porcine Model of Acute Lung Injury 352-355
 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
Retinal Imaging I (Oral Session)	

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
Vessel Extraction in Retinal Images using Automatic Thresholding and Gabor Wavelet 365-368
 Ali, Aziah* (*Universiti Kebangsaan Malaysia*); Hussain, Aini (*Universiti Kebangsaan Malaysia*); Wan Zaki, Wan Mimi Diyana (*Universiti Kebangsaan Malaysia*)

15:05-15:20 WeBT16.4
A New Two-Dimensional Matched Filter based on the Modified Chebyshev Type I Function for Retinal Vessels Detection 369-372
 Dharmawan, Dhimas Arief* (*Nanyang Technological Univ.*); Ng, Boon Poh (*Nanyang Technological Univ.*)

15:20-15:35 WeBT16.5
Retinal Biometrics based on Iterative Closest Point Algorithm 373-376
 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*)

15:35-15:50	WeBT16.6
An Experimental Evaluation of the Accuracy of Keypoints-Based Retinal Image Registration	377-381
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)	

16:10-16:12	WeCT1-01.1
Design of sEMG-Detecting Circuit for EMG-Bridge	382-385
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
The Effect of the Preparation Instruction on the Functional Connectivity between Forearm Muscles during Movement's Initiation	386-389
Saidane, Yosra* (<i>SUP'COM</i>); Ben Jebara, Sofia (<i>SUP'COM</i>)	

16:14-16:16	WeCT1-01.3
sEMG Feature Selection and Classification using SVM-RFE	390-393
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
EMG-Based Energy Expenditure Optimization for Active Prosthetic Leg Tuning	394-397
Atri, Roozbeh* (<i>Florida International University</i>); Marquez, Juan S. (<i>Florida International University</i>); Bai, Ou (<i>Florida International University</i>)	

16:18-16:20	WeCT1-01.5
Muscle Fatigue Assessment through Electrodermal Activity Analysis during Isometric Contraction	398-401
Greco, Alberto* (<i>University of Pisa</i>); Guidi, Andrea (<i>University of Pisa</i>); Felici, Federica (<i>Istituto Italiano di Tecnologia</i>); Leo, Andrea (<i>IMT School for Advanced Studies</i>); Ricciardi, Emiliano (<i>University of Pisa</i>); Bianchi, Matteo (<i>University of Pisa</i>); Bicchi, Antonio (<i>University of Pisa</i>); Citi, Luca (<i>University of Essex</i>); Valenza, Gaetano (<i>University of Pisa</i>); Scilingo, Enzo Pasquale (<i>University of Pisa</i>)	

16:20-16:22	WeCT1-01.6
Consistency of Surface Electromyography Assessment at Lower Limb Selected Muscles during Vertical Countermovement	402-405
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>)	

16:22-16:24	WeCT1-01.7
Increasing the Robustness against Force Variation in EMG Motion Classification by Common Spatial Patterns	406-409
Li, Xiangxin (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of Sc</i>); Fang, Peng (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of S</i>); Tian, Lan (<i>Shenzhen Institutes of Advanced Technology, Chinese Academy of</i>); Li, Guanglin* (<i>Shenzhen Institutes of Advanced Technology</i>)	

16:24-16:26	WeCT1-01.8
Capacitively Coupled EMG Detection via Ultra-Low-Power Microcontroller STFT	410-413
Roland, Theresa* (<i>Johannes Kepler University Linz</i>); Baumgartner, Werner (<i>Johannes Kepler University Linz</i>); Amsuess, Sebastian (<i>University Medical Center, Georg August University, Goettingen</i>); Russold, Michael (<i>Otto Bock Healthcare Products GmbH</i>)	

16:10-16:12	WeCT1-02.1
Personalized Features for Attention Detection in Children with Attention Deficit Hyperactivity Disorder	414-417
Fahimi, Fatemeh* (<i>Nanyang Technological University</i>); Guan, Cuntai (<i>Nanyang Technological University</i>); Goh, Wooi Boon (<i>Nanyang Technological University</i>); Ang, Kai Keng (<i>Institute for Infocomm Research</i>); Lim, Choon Guan (<i>Institute of Mental Health</i>); Lee, Tih Shih (<i>Duke-NUS Graduate Medical School</i>)	
16:12-16:14	WeCT1-02.2
Modular Framework for Detection of Inter-Ictal Spikes in iEEG	418-421
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>)	
16:14-16:16	WeCT1-02.3
Bispectral Analysis of Spontaneous EEG Activity from Patients with Moderate Dementia Due to Alzheimer's Disease	422-425
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
A Fully Automated Method for Segmentation and Classification of Local Field Potential Recordings: Preliminary Results	426-429
Díaz-Parra, Antonio (<i>Universitat Politècnica de València</i>); Canals, Santiago (<i>Instituto de Neurociencias, Consejo Superior de Investigaciones</i>); Moratal, David* (<i>Universitat Politècnica de València</i>)	
16:18-16:20	WeCT1-02.5
On the Impact of Spike Segmentation on Motor Unit Identification in Dynamic Surface Electromyograms	430-433
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
Automated Diagnosis of Coronary Artery Disease using Pattern Recognition Approach	434-437
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>)	
16:12-16:14	WeCT1-03.2
Irregular Heartbeat Classification using Kronecker Product Equations	438-441
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>)	
16:14-16:16	WeCT1-03.3
Classification of Respiratory Disturbances in Rett Syndrome Patients using Restricted Boltzmann Machine	442-445
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>)	
16:16-16:18	WeCT1-03.4
ECG Authentication in Post-Exercise Situation	446-449
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
Bivariate Empirical Mode Decomposition for ECG-Based Biometric Identification with Emotional Data	450-453
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
Cancelable ECG Biometrics using GLRT and Performance Improvement using Guided Filter with Irreversible Guide Signal	454-457
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
Similarity based Hierarchical Clustering of Physiological Parameters for the Identification of Health States – A Feasibility Study	458-462
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
Fast Spike Detection in EEG using Eigenvalue Analysis and Clustering of Spatial Amplitude Distribution	467-470
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
Analysis of Electroencephalogram of Patients with Specific Low Back Pain with the Massage Treatment	479-483
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
EEG-Based Emotion Classification using Innovative Features and Combined SVM and HMM Classifier	489-492
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>); Kanagasingam, 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); Jacquel, 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 Microelecctronica de Sevilla / Universidad de Sevil*); 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
Pflugl, 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, Ippel* (<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 Slorete 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
--	-----------------

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
 Umemura, 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
 Elkholly, 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>); Hunecker, 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 (<i>Year</i>); Wang, Chushan (<i>Guangdong Provincial Work-injury Rehab. Hospital</i>); Huang, Kairong (<i>Guangdong Provincial Work-injury Rehab. Hospital</i>); Shi, Zhixi (<i>Guangdong Provincial Work-injury Rehab. Hospital</i>); Wang, Jun (<i>Guangdong Provincial Work-injury Rehab. Hospital</i>); Zhang, Y.* (<i>Univ. of Houston</i>)	
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 (<i>Northumbria University</i>); Seker, Huseyin* (<i>The University of Northumbria at Newcastle</i>)	
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 (<i>The University of Warwick</i>); Das, Anup (<i>University of Warwick</i>); Hardman, Jonathan G. (<i>University of Nottingham</i>); Yehya, Nadir (<i>Children's Hospital of Philadelphia</i>); Bates, Declan Gerard* (<i>University of Warwick</i>)	
16:12-16:14	WeCT15-01.2
Nonparametric Modelling of VO2 Response to Exercise	1525-1528
Ye, Lin* (<i>Univ. of Technology, Sydney (UTS)</i>); Argha, Ahmadrza (<i>Univ. of New South Wales</i>); Celler, Branko George (<i>Univ. of New South Wales</i>); Zhang, Yi (<i>Univ. of Electronic Science and Technology of China</i>); Nguyen, Hung T. (<i>Univ. of Technology, Sydney</i>); Su, Steven Weidong (<i>Univ. of Technology, Sydney</i>)	
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* (<i>IIT Kharagpur</i>); Negi, Shubham (<i>IIT Kharagpur</i>); Chandrika Sreekantan, Anoop (<i>Indian Institute of Space Science and Technology Trivandrum</i>)	
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* (<i>Res Med Ltd., University of Sydney</i>); Khushaba, Rami N. (<i>University of Technology, Sydney (UTS)</i>); Schindhelm, Klaus (<i>University of New South Wales</i>)	
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* (<i>Univ. Politècnica de Catalunya</i>); Giraldo, Beatriz (<i>Univ. Politècnica de Catalunya</i>); Fiz Fernandez, José Antonio (<i>Navarra Hospital</i>); Jané, Raimon (<i>Institute for Bioengineering de Catalunya (IBEC)</i>)	
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 (<i>Institute for Bioengineering of Catalonia (IBEC)</i>); Blanco-Almazán, Dolores (<i>Institute for Bioengineering of Catalonia</i>); Whitney, James (<i>Morgan State University</i>); Mersky, Barry (<i>Audiodontics</i>); Jané, Raimon* (<i>Institute for Bioengineering de Catalunya (IBEC)</i>)	
16:16-16:18	WeCT15-02.4
Characterization of Microphones for Snoring and Breathing Events Analysis in Mhealth	1547-1550
Castillo, Yolanda (<i>Institute for Bioengineering of Catalonia (IBEC)</i>); Cámara, Miguel Ángel (<i>Institute for Bioengineering of Catalonia</i>); Blanco-Almazán, Dolores (<i>Institute for Bioengineering of Catalonia</i>); Jané, Raimon* (<i>Institute for Bioengineering de Catalunya (IBEC)</i>)	

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
--	---------------

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
--	--------------

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		
	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>)	1696-1699
08:30-08:45		ThAT11.3
Measurement of Carotid Blood Pressure and Local Pulse Wave Velocity Changes during Cuff Induced Hyperemia		
	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>)	1700-1703
08:45-09:00		ThAT11.4
Analysis of a GMR-Based Plethysmograph Transducer and Its Utility for Real-Time Blood Pressure Measurement		
	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>)	1704-1707
09:00-09:15		ThAT11.5
Regression Analysis and Transfer Function in Estimating the Parameters of Central Pulse Waves from Brachial Pulse Wave		
	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>)	1708-1711
09:15-09:30		ThAT11.6
Novel Blood Pressure Estimation Method using Single Photoplethysmography Feature		
	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>)	1712-1715
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		
	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>)	1716-1719
08:15-08:30		ThAT13.2
Development and Characterization of a Fully Flexible Stimulation System based on Embedded Liquid Metal Channels		
	David, Romain* (<i>Keio University</i>); Miki, Norihisa (<i>University</i>)	1720-1723
08:30-08:45		ThAT13.3
Using Impedance to Track Fracture Healing Rates in Mice in Vivo: A Pilot Study		
	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>)	1724-1727
08:45-09:00		ThAT13.4
Effect of Temperature Variation on Remote Pressure Readout in Wirelessly Powered Intracranial Pressure Monitoring System		
	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>)	1728-1731

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*); Kanagasingam, 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>)	
<hr/>	
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-Ihl (*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 (*Khalifa University of Science, Technology and Research*)

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 (*University of Kiel*)

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*);
 Ifeachor, 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
--	----------

- | | | |
|---|--|-------------------------|
| 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
---	----------

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

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, Anwesa* (*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 Einthoven 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 Einthoven 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*); Zaghoul, 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>Universite 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
Alsundayih, 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 (<i>Tsinghua University</i>)	

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 (*University of Essex*); Sepulveda, Francisco* (*University of Essex*)

11:05-11:20 FrBT9.2
On Electrophysiological Signal Complexity during Biological Neuronal Network Development and Maturation 3333-3338
 Kapucu, Fikret Emre* (*Tampere University of Technology*); Vornanen, Inkeri (*Tampere University of Technology*); Christophe, Francois (*Tampere University of Technology*); Tanskanen, Jarno M. A. (*Tampere University of Technology*); Johansson, Julia (*Tampere University of Technology*); Mikkonen, Tommi (*Tampere University of Technology*); Hyttinen, Jari (*Tampere University of Technology*)

11:20-11:35 FrBT9.3
Nonmotor Regions Encode Path-Related Information during Movements 3339-3342
 Breault, Macauley S.* (*Johns Hopkins University*); Sacré, Pierre (*Johns Hopkins University*); Johnson, Jacob J. (*Indian Institute of Technology Guwahati*); Kerr, Matthew (*Johns Hopkins University*); Johnson, Matthew (*Cleveland Clinic*); Bulacio, Juan (*Cleveland Clinic*); Gonzalez-Martinez, Jorge (*Cleveland Clinic*); Sarma, Sridevi V. (*Johns Hopkins University*); Gale, John (*Cleveland Clinic*)

11:35-11:50 FrBT9.4
Importance of Vesicle Release Stochasticity in Neuro-Spike Communication 3343-3347
 Ramezani, Hamideh* (*Koc University*); Akan, Ozgur B. (*Koc University*)

11:50-12:05 FrBT9.5
Music-Evoked Emotion Classification using EEG Correlation-Based Information 3348-3351
 Bo, Hongjian (*Harbin Institute of Technology*); Ma, Lin (*Harbin Institute of Technology*); Li, Haifeng* (*Harbin Institute of Technology*)

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 (*Johns Hopkins University*); Sun, Tony (*Los Altos High School*); Zhang, Manning (*Johns Hopkins University*); Gale, John (*Cleveland Clinic*); Montgomery, Erwin (*University of Alabama at Birmingham*); Santaniello, Sabato* (*University of Connecticut*)

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 (*Xi'an Jiaotong University*); Xie, Jun* (*Xi'an Jiaotong University*); Xu, Guanghua (*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*); Han, Xingliang (*Xi'an Jiaotong University*)

11:05-11:20 FrBT10.2
The Obesity Paradox in ICU Patients 3360-3364
 Pan, Janice* (*The University of Texas at Austin*); Shaffer, Robert (*The University of Texas at Austin*); Sinno, Zeina (*The University of Texas at Austin*); Tyler, Marcus (*The University of Texas at Austin*); Ghosh, Joydeep (*Univ. of Texas at Austin*)

11:20-11:35 FrBT10.3
Automated Embolic Signal Detection using Deep Convolutional Neural Network 3365-3368
 Sombune, Praotasna (*Thammasat Univ.*); Phienphanich, Phongphan (*Thammasat Univ.*); Phuechpanpaisal, Sutanya (*Thammasat Univ.*); Muengtaweepongsa, Sombat (*Thammasat Univ.*); Ruamthanthong, Anuchit (*Radiology Dept. Phramongkutklaow Hospital Bangkok*); Tantibundhit, Charturong* (*Thammasat Univ.*)

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>)	
<hr/>	
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>)	
<hr/>	
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
Mulaffer, 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*); Bjørgaas, 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
--	-----------

10:50-11:05	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>)	SaBT3.1	4046-4049
-------------	---	---------	-----------

11:05-11:20	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>)	SaBT3.2	4050-4053
-------------	---	---------	-----------

11:20-11:35	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>)	SaBT3.3	4054-4057
-------------	---	---------	-----------

11:35-11:50	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>)	SaBT3.4	4058-4061
-------------	---	---------	-----------

11:50-12:05	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>)	SaBT3.5	4062-4065
-------------	---	---------	-----------

12:05-12:20	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>)	SaBT3.6	4066-4069
-------------	--	---------	-----------

SaBT4: 10:50-12:20 Physiological Monitoring I (Oral Session)	Min Room
---	----------

10:50-11:05	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>)	SaBT4.1	4070-4073
-------------	---	---------	-----------

11:05-11:20	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>)	SaBT4.2	4074-4077
-------------	--	---------	-----------

11:20-11:35	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>)	SaBT4.3	4078-4081
-------------	--	---------	-----------

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 Rechst der isaar, Muenchen*);
Lohmann, Chris (*Klinikum Rechst 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>)		