

Ana Fred · Hugo Gamboa (Eds.)

Biomedical Engineering Systems and Technologies

9th International Joint Conference, BIOSTEC 2016
Rome, Italy, February 21–23, 2016
Revised Selected Papers

Contents

Biomedical Electronics and Devices

Arterial Pulse Waveform Monitoring via a Flexible PET-Based Microfluidic Sensor	3
<i>Dan Wang and Zhili Hao</i>	

Towards an Intraoral-Based Silent Speech Restoration System for Post-laryngectomy Voice Replacement	22
<i>Lam A. Cheah, James M. Gilbert, Jose A. Gonzalez, Jie Bai, Stephen R. Ell, Phil D. Green, and Roger K. Moore</i>	

Bioimaging

SynapCountJ: A Validated Tool for Analyzing Synaptic Densities in Neurons	41
<i>Gadea Mata, Germán Cuesto, Jónathan Heras, Miguel Morales, Ana Romero, and Julio Rubio</i>	

4DCT-Derived Ventilation Distribution Reproducibility Over Time	56
<i>Geoffrey G. Zhang, Kujtim Latifi, Vladimir Feygelman, Thomas J. Dilling, and Eduardo G. Moros</i>	

Modelling Strategies for the Advanced Design of Polymeric Orthodontic Aligners	67
<i>Sandro Barone, Alessandro Paoli, Armando Viviano Razionale, and Roberto Savignano</i>	

Bioinformatics Models, Methods and Algorithms

Implicitly Weighted Robust Classification Applied to Brain Activity Research	87
<i>Jan Kalina and Jaroslav Hlinka</i>	

Finding Median and Center Strings for a Probability Distribution on a Set of Strings Under Levenshtein Distance Based on Integer Linear Programming	108
<i>Morihiro Hayashida and Hitoshi Koyano</i>	

Accelerating the Exploitation of (bio)medical Knowledge Using Linked Data	122
<i>Mohammad Shafahi, Hamideh Afsarmanesh, and Hayo Bart</i>	

A Stochastic Framework for Neuronal Morphological Comparison: Application to the Study of <i>imp</i> Knockdown Effects in <i>Drosophila</i> Gamma Neurons	145
<i>A. Razetti, X. Descombes, C. Medioni, and F. Besse</i>	
Sensitivity Analysis of Granularity Levels in Complex Biological Networks	167
<i>Sean West and Hesham Ali</i>	
Bio-inspired Systems and Signal Processing	
Optimal Lead Selection for Evaluation Ventricular Premature Beats Using Machine Learning Approach	191
<i>Pedro David Arini and Drago Torkar</i>	
Detailed Estimation of Cognitive Workload with Reference to a Modern Working Environment	205
<i>Timm Hörmann, Marc Hesse, Peter Christ, Michael Adams, Christian Menßen, and Ulrich Rückert</i>	
Continuous Real-Time Measurement Method for Heart Rate Monitoring Using Face Images	224
<i>Daisuke Uchida, Tatsuya Mori, Masato Sakata, Takuro Oya, Yasuyuki Nakata, Kazuho Maeda, Yoshinori Yaginuma, and Akihiro Inomata</i>	
Algorithm for Temporal Gait Analysis Using Wireless Foot-Mounted Accelerometers	236
<i>Mohamed Boutaayamou, Vincent Denoël, Olivier Brüls, Marie Demonceau, Didier Maquet, Bénédicte Forthomme, Jean-Louis Croisier, Cédric Schwartz, Jacques G. Verly, and Gaëtan Garraux</i>	
Online Simulation of Mechatronic Neural Interface Systems: Two Case-Studies	255
<i>Samuel Bustamante, Juan C. Yepes, Vera Z. Pérez, Julio C. Correa, and Manuel J. Betancur</i>	
Modeling and Clustering of Human Sleep Time Series Using Dynamic Time Warping: Sequential and Distributed Implementations	276
<i>Chiying Wang, Sergio A. Alvarez, Carolina Ruiz, and Majaz Moonis</i>	
Voice Restoration After Laryngectomy Based on Magnetic Sensing of Articulator Movement and Statistical Articulation-to-Speech Conversion	295
<i>Jose A. Gonzalez, Lam A. Cheah, James M. Gilbert, Jie Bai, Stephen R. Ell, Phil D. Green, and Roger K. Moore</i>	

Health Informatics

Connecting Multistakeholder Analysis Across Connected Health Solutions. . . 319
Noel Carroll, Marie Travers, and Ita Richardson

Continuous Postoperative Respiratory Monitoring with Calibrated
 Respiratory Effort Belts: Pilot Study 340
*Tiina M. Seppänen, Olli-Pekka Alho, Merja Vakkala, Seppo Alahuhta,
 and Tapio Seppänen*

Generalizing the Detection of Clinical Guideline Interactions Enhanced
 with LOD 360
*Veruska Zamborlini, Rinke Hoekstra, Marcos da Silveira, Cedric Pruski,
 Annette ten Teije, and Frank van Harmelen*

Online Stress Management for Self- and Group-Reflections
 on Stress Patterns 387
Åsa Smedberg, Hélène Sandmark, and Andrea Manth

Requirements, Design and Pilot Study of a Physical Activity Activation
 System Using Virtual Communities. 405
*Lamia Elloumi, Margot Meijerink, Bert-Jan van Beijnum,
 and Hermie Hermens*

Author Index 427