Contents

Invited Paper

How to Cross the Border from R to D? The Example of Conception of New Medical Devices ......................................................... 3
  Lionel Pazart

Biomedical Electronics and Devices

Low Power Programmable Gain Analog to Digital Converter for Integrated Neural Implant Front End ......................................................... 17
  Amir Zjajo, Carlo Galuzzi, and Rene van Leuken

Integrated Chip Power Receiver for Wireless Bio-implantable Devices. . . . . 33
  Vijith Vijayakumaran Nair and Jun Rim Choi

Research on a Novel Three-Channel Self-pressurized Wrist Pulse Acquisition System ................................................................. 49
  Zhou Kan-heng, Qian Peng, Xia Chun-ming, and Wang Yi-qin

A Wearable Device for High-Frequency EEG Signal Recording .................. 60
  Lorenzo Bisoni, Enzo Mastinu, and Massimo Barbaro

Indirect Blood Pressure Evaluation by Means of Genetic Programming ....... 75
  Giovanna Sannino, Ivanoe De Falco, and Giuseppe De Pietro

Non-invasive Wireless Bio Sensing ..................................................... 93
  Artur Arsenio, João Andrade, and Andreia Duarte

Bioimaging

Crutchfield Information Metric: A Valid Tool for Quality Control of Multiparametric MRI Data? ....................................................... 113
  Jens Kleesiek, Armin Biller, Andreas J. Bartsch, and Kai Ueltzhöffer

Medical Image Retrieval for Alzheimer’s Disease Using Structural MRI Measures ................................................................. 126
  Katarina Trojcanec, Ivan Kitanovski, Ivica Dimitrovski, and Suzana Loshkovska
An Iterative Mesh Optimization Method for 3D Meristem Reconstruction at Cell Level ........................................... 142
Guillaume Cerutti and Christophe Godin

Bioinformatics Models, Methods and Algorithms

Latent Forests to Model Genetical Data for the Purpose of Multilocus Genome-Wide Association Studies. Which Clustering Should Be Chosen? . . . 169
Duc-Thanh Phan, Philippe Leray, and Christine Sinoquet

Crosstalk Network Biomarkers of a Pathogen-Host Interaction Difference Network from Innate to Adaptive Immunity ......................................... 190
Chia-Chou Wu and Bor-Sen Chen

Template Scoring Methods for Protein Torsion Angle Prediction. .......... 206
Zafer Aydin, David Baker, and William Stafford Noble

Evaluating the Robustness of Correlation Network Analysis in the Aging Mouse Hypothalamus ......................................................... 224
Kathryn M. Cooper, Stephen Bonasera, and Hesham Ali

Machine Reading for Extraction of Bacteria and Habitat Taxonomies ...... 239
Parisa Kordjamshidi, Wouter Massa, Thomas Provoost, and Marie-Francine Moens

Validation Study of a Wave Equation Model of Soft Tissue for a New Virtual Reality Laparoscopy Training System ................................. 256
Sneha Patel and Jackrit Suthakorn

Bio-inspired Systems and Signal Processing

Exploring the Relationship Between Characteristics of Ventilation Performance and Response of Newborns During Resuscitation .............. 275
Huyen Vu, Trygve Eftestøl, Kjersti Engan, Joar Eilevstjønn, Ladislaus Blacy Yarrot, Jørgen E. Linde, and Hege Ersdal

A Novel Application of Universal Background Models for Periocular Recognition ................................................................. 291
João C. Monteiro and Jaime S. Cardoso

Fusion and Comparison of IMU and EMG Signals for Wearable Gesture Recognition ................................................................. 308
Marcus Georgi, Christoph Amma, and Tanja Schultz
Integrating User-Centred Design in the Development of a Silent Speech Interface Based on Permanent Magnetic Articulography

Lam A. Cheah, James M. Gilbert, Jose A. Gonzalez, Jie Bai, Stephen R. Ell, Michael J. Fagan, Roger K. Moore, Phil D. Green, and Sergey I. Rychenko

Health Informatics

Who Is 1011011111...1110110010? Automated Cryptanalysis of Bloom Filter Encryptions of Databases with Several Personal Identifiers

Martin Kroll and Simone Steinmetzer

Patient Feedback Design for Stroke Rehabilitation Technology

Daniel Tetteroo, Lilha Willems, and Panos Markopoulos

A Method and Tool for Strategic Hospital Planning

Dominique Brodbeck, Markus Degen, Andreas Walter, Serge Reichlin, and Christoph Napierala

Automatic Analysis of Lung Function Based on Smartphone Recordings

João F. Teixeira, Luís F. Teixeira, João Fonseca, and Tiago Jacinto

Towards a Safer and More Optimal Treatment of the Supracondylar Humerus Fracture

Mohamed Oussama Ben Salem, Olfa Mosbahi, Mohamed Khalgui, and Georg Frey

Real-Time Fuzzy Monitoring of Sitting Posture: Development of a New Prototype and a New Posture Classification Algorithm to Detect Postural Transitions


TogetherActive - Key Concepts and Usability Study

Lamia Elloumi, Bert-Jan van Beijnum, and Hermie Hermens

Analysis of Eye Movements with Eyetrace

Thomas C. Kübler, Katrin Sippel, Wolfgang Fuhl, Guilherme Schievelbein, Johanna Aufreiter, Raphael Rosenberg, Wolfgang Rosenstiel, and Enkelejda Kasneci

Author Index

Contents