

2017 13th IASTED International Conference on Biomedical Engineering (BioMed 2017)

**Innsbruck, Austria
20-21 February 2017**



IEEE Catalog Number: CFP1741T-POD
ISBN: 978-1-5090-4908-0

**Copyright © 2017, International Association of Science and
Technology for Development
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:	CFP1741T-POD
ISBN (Print-On-Demand):	978-1-5090-4908-0
ISBN (Online):	978-0-88986-990-5

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

TABLE OF CONTENTS

BioMed 2017

MEDICAL IMAGING AND SIGNAL PROCESSING

852-009: Performance Feedback Assists Practice Driven Plasticity <i>Aqsa Shakeel, Hafsa Ahmad, Muhammad Samran Navid, Amnah Mahroo, and Muhammad Nabeel Anwar</i>	1
852-013: Extraction and Visualization of Structural Information Based on FDG-PET Images <i>Tetsuya Tozaki and Michio Senda</i>	5
852-015: A Numerical Analysis of Magneto-Acousto Electrical Tomography with a Simplified Breast Model <i>Reyhan Zengin and Nevzat Güneri Genger</i>	11
852-019: Haralick's Texture Analysis Applied to Colorectal T2-Weighted MRI: A Preliminary Study of Significance for Cancer Evolution <i>Mumtaz H. Soomro, Gaetano Giunta, Andrea Laghi, Damiano Caruso, Maria Ciolina, Cristiano De Marchis, Silvia Conforto, and Maurizio Schmid</i>	16
852-021: Deformable Surface Registration for Breast Tumors Tracking: A Phantom Study <i>Bogdan M. Maris and Paolo Fiorini</i>	20
852-032: Endosytosis Study of Gold Nanoparticles through FRET-FLIM Approach <i>Yinan Zhang, Yu Chen, Jun Yu, and David J.S. Birch</i> ...	26
852-042: Reha@Home - A Vision Based Markerless GAIT Analysis System for Rehabilitation at Home <i>Saravana K. Natarajan, Xingchen Wang, Matthias Spranger, and Axel Gräser</i>	32
852-047: Depth-Sensitive Detection of Absorbing Objects in a Liquid Tissue Phantom from Diffuse Reflectance <i>Axel J. Hagen, Rene Freyer, Dirk Grosenick, and Anett Bailieu</i>	42
852-053: Skin Lesion Classification from Dermoscopic Images Using Deep Learning Techniques <i>Adria Romero-Lopez, Xavier Giro-i-Nieto, Jack Burdick, and Oge Marques</i>	49
852-059: Comparison of Brain Tumor MRI Classification Methods Using Probabilistic Features <i>Lubna Farhi and Adeel Yusuf</i>	55

BIOINFORMATICS, ROBOTICS, REHABILITATION AND ASSISTIVE TECHNOLOGY

852-029: Patient-Specific ECG Classification Based on Recurrent Neural Networks and Clustering Technique <i>Chenshuang Zhang, Guijin Wang, Jingwei Zhao, Pengfei Gao, Jianping Lin, and Huazhong Yang</i>	63
852-033: Microarray Missing Data Imputation Using Regression <i>Tuncay Bayrak and Hasan Ogul</i>	68
852-051: Intelligent PillBox: Automatic and Programmable Assistive Technology Device <i>Juan M. Parra, Wilson F. Valdez, Andrea P. Guevara, Irene P. Cedillo, and Jose Ortíz-Segarra</i>	74
852-007: Low-Intensity Electrical Stimulation and Stem Cells in a Dog with Acute Spinal Cord Injury <i>Eddy Krueger, Lidiane Magri, Agatha Botelho, Fernando Bach, Carmen Rebelatto, Letícia Fracaro, Felipe Fragoso, José Villanova JR, Paulo Brofman, and Lana Popovic-Maneski</i>	82
852-052: Using Autoencoders for Feature Enhancement in Motor Imagery Brain-Computer Interfaces <i>Mahmoud A. Helal, Seif Eldawlatly, and Mohamed Taher</i>	89
852-022: Novice and Expert Haptic Behaviours While Using a Robot Controlled Surgery System <i>Anil Ufuk Batmaz, Mohamed Amine Falek, Lucile Zorn, Florent Nageotte, Philippe Zanne, Michel de Mathelin, and Birgitta Dresp-Langley</i>	94
852-036: Cognitive Task Analysis of Spatial Skills in Hysterectomy with the Da Vinci Surgical System <i>Liel Luko, Avi Parush, and Lior Lowenstein</i>	100
852-005: Is Cell Cycle a Perfect Fault Tolerant Control System? – System Engineering Point of View <i>Andrzej Swierniak, Roman Jaksik, and Jaroslaw Smieja</i>	108

BIOMEDICAL DEVICES, MEASUREMENT AND INSTRUMENTATION - 1

852-001: Comparison of Single Ended and Differential Signalling for Wired Biomedical

Implants Using SPI Communication with Reed Solomon Error Correction Codes <i>Cagil Gümüs, Andreas Bahr, Lait Abu Saleh, Dietmar Schroeder, and Wolfgang Krautschneider</i>	<i>Csenge A. Molnar, Ambrus Zelei, and Tamas Inspurger</i> 176
852-014: Study of a New Amblyopia Diagnostic and Therapeutic Method Along with the System Implementation <i>Yin Tao, Jia Chen, Xiaoli Liu, Zhen Fang, Dalong Zhang, Qinwu Zhou, and Bo Zhang</i> 121	852-049: A New Approach to Classification of Upper Limb and Wrist Movements Using EEG Signals <i>Muhammad Ahsan Gull, Hassan Elahi, Mohsin Marwat, and Saad Waqar</i> 181
852-020: Signal Detection and Discrimination for Medical Devices Using Windowed State Space Filters <i>Reto Andreas Wildhaber, Nour Zalmai, Marcel Jacomet, and Hans-Andrea Loeliger</i> 125	852-050: Examination of Sailors' Balancing Ability with Means of Motion Analysing System <i>Bernadett Kiss, Gergely Nagymáthé, and Rita M. Kiss</i> . 195
852-024: Controlled Permeation of Lidocaine Hydrochloride Using a Smart Drug Delivery System <i>Yassine Talbi, Damien Brulin, Eric Campo, and Jean-Yves Fourniols</i> 134	852-008: Evaluation of the Relationship Between Diabetes and Large Blood Vessel Disease <i>Peihua Chen and Chuandi Pan</i> 200
BIOMECHANICS	852-017: Fatigue Detection Based on Facial Images Processed by Difference Algorithm <i>Jia Chen, Yin Tao, Dalong Zhang, Xiaoli Liu, Zhen Fang, Qinwu Zhou, and Bo Zhang</i> 208
852-023: Mechanical Properties of Individual Trabeculae in a Physiological Environment <i>Martin Frank, Dorothee Marx, Dieter H. Pahr, and Philipp J. Thurner</i> 141	852-040: Cognitive Function Monitoring Platform Based on a Smartphone for Alternative Screening Tool <i>Rattapong Lordthong and Phornphop Naiyanetr</i> 212
852-010: Design and Biomechanical Simulation of Custom Dental Implants <i>Carlos J. Ojeda, Miguel B. Castro, Javier A. Céspedes, Victor E. Chumán, Ernesto A. Arriola, and Andrés Díaz-Lantada</i> 147	BIOMEDICAL DEVICES, MEASUREMENT AND INSTRUMENTATION - 2
852-016: Balancing Strategy Differences in Bilateral Knee Osteoarthritis Patients <i>Gergely Nagymáthé and Rita M. Kiss</i> 154	852-026: Liver-on-a-Chip for Evaluating Hepatic Activation of Clopidogrel in Patients with Coronary Stents <i>Samah A. Atiyat and Shadi M. Karabsheh</i> 218
852-037: Effect of Anatomical Landmark Placement Variation on the Angular Parameters of the Lower Extremities <i>Kristóf Rácz, Gergely Nagymáthé, and Rita M. Kiss</i> 158	852-027: Automated Therapeutic Anticoagulation: A Closed-Loop Approach Using a Modified Measurement Device <i>Jörg Peter, Wilfried Klingert, Martin Spüler, Alfred Königsrainer, Wolfgang Rosenstiel, and Martin Schenk</i> 224
852-043: Influence of Different Types of Wheelchair Cushions for Pressure Ulcers in View of the Experimental Approach <i>Thong He Bui, Didier Pradon, Philippe Lestriez, Karl Debray, Redha Taiar, and Bruno Guillou</i> 164	852-028: Instrumented Spinal Cord Surrogate Using Optical Fiber: Role of the Fiber's Location <i>Yann Facchinello, Eric Wagnac, Bora Ung, Yvan Petit, Prabin Pradhan, Louis-Marie Peyrache, and Jean-Marc Mac-Thiong</i> 229
852-046: A Physical Simulation to Investigate the Effect of Anorectal Angle on Continence <i>William E. Stokes, David G. Jayne, Ali Alazmani, and Peter R. Culmer</i> 168	852-031: Automatic Polyp Detection in Endoscopy Videos: A Survey <i>Bilal Taha, Naoufel Werghi, and Jorge Dias</i> 233
BIOMECHANICS AND EHEALTH	852-038: A Modular Vital Sign Monitoring Based-on USB Communication <i>Jirawat Iamsamang, Natthapon Bijaphala, Pariyakorn Boonperm, Rattapong Lordthong, and Phornphop Naiyanetr</i> 241
852-048: Estimation of Human Reaction Time Delay During Balancing on Balance Board	852-041: The Study of Various Impeller Design for Centrifugal Blood Pump Using Computer Method <i>Praemai Wannawat, Nutchanant Foojinphan, Thananya Khienwad, and Phornphop Naiyanetr</i> 247

- 852-044: In-Ear Pulse Oximetry in High Altitude
Mountaineering
Boudewijn Venema and Steffen Leonhardt 254
- 852-045: Orbital Wall Reconstruction by Selective
Laser Sintered Mould
*Agnese Brunzini, Marco Mandolini, Steve Manieri,
Michele Germani, Alida Mazzoli, Mario Pagnoni,
Giorgio Iannetti, and Alessandra Modugno* 260
- 852-058: Circularly Polarized Implanted Antenna
with Conical Bio-Metallic Ground Plane
Jingjing Li, Ildiko Peter, and Ladislau Matekovits 265
- 852-034: Effect of Tubing Length Pump on Flow
Derived Index During Rotary Blood Pump Support
*Thananya Khienwad, Ronnachit Deepankaew,
Praemai Wannawat, and Phornphop Naiyanetr* 270