2015 22nd Iranian Conference on Biomedical Engineering (ICBME 2015)

Tehran, Iran 25-27 November 2015



IEEE Catalog Number: CFP1518K-POD ISBN: 978-1-4673-9352-2

Copyright © 2015 by the Institute of Electrical and Electronic 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 publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP1518K-POD

 ISBN (Print-On-Demand):
 978-1-4673-9352-2

 ISBN (Online):
 978-1-4673-9351-5

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



2015 22nd Iranian Conference on Biomedical Engineering (ICBME)

Poster-Bioelectrics 1

 A Neural Network System for Diagnosis and Assessment of Tremor in Parkinson Disease Patients

Omid Bazgir (University of Tabriz, Iran), Javad Frounchi (University of Tabriz, Iran), Seyed Amir Habibi (Iran University of Medical Science, Iran), Lorenzo Palma (Università Politecnica delle Marche, Italy), Paola Pierleoni (Università Politecnica delle Marche, Italy) 1

• Analysis of Inter-hemispheric and Intra-hemispheric Differences of the Correlation Dimension in the Emotional States Based on EEG Signals

Sepide Hatamikia, hatamikia (Science and Research Branch, Islamic Azad University, Tehran, Iran), Ali Motie Nasrabadi (Shahed University, Iran), Nasrin Shourie (Islamic Azad University, Central Tehran Branch, Iran) 6

 Power Complexity Feature-based Seizure Prediction Using DNN and Firefly-BPNN Optimization Algorithm

Morteza Behnam (Najafabad Branch, Islamic Azad University, Iran), Hossein Pourghassem (Islamic Azad University Najafabad Branch (IAUN), Iran) 10

• Evidential Multi-Band Common Spatial Pattern in Brain Computer Interface

Mariam Rostami (Amirkabir University of Technology, Iran), Mh Moradi (Amirkabir University of Tech, Iran) 16

• EEG Signal Classification Based on Sparse Representation in Brain Computer Interface Applications

Rasool Ameri (University of Shahrood, Iran), Ali Pouyan (University of Shahrood, Iran), Vahid Abolghasemi (University of Shahrood, Iran) 21

• Discrimination of Mental Tasks Based on EEMD and Information Theoretic Pattern Selection

Somayeh Noshadi (Ferdowsi University of Mashhad, Iran), Abbas Ebrahimi moghadam (Ferdowsi University of Mashhad, Iran), Morteza Khademi (Ferdowsi University of Mashhad, Iran) 25

- Developing a Fuzzy Theta Alpha Neurofeedback for Treatment of Pre-Sleep Disorders
 - Elnaz Vafaei (University of Islamic Azad, Iran), Mohammad Saleh Khajeh Hosseini (University of Islamic Azad, Iran), Seyed Mohammad Masoud Shushtarian (University of Islamic Azad, Iran) 30
- Facial Age Estimation Using Artificial Neural Network and Robust Feature Extraction

Nasim Borzue (Qazvin azad University, Iran), Karim Faez (Amirkabir University of Technology, Iran) 34

Biomaterials

 Tumor-Derived Exosomes-Based Cancer Early Detection: A Molecular Dynamics Simulation

Atiyeh Hosseini (Amirkabir University of Technology, Iran), Lida Ghazanfari (Amirkabir University of Technology, Iran), Mohammad Mahdi Hasani-Sadrabadi (Georgia Institute of Technology, USA) 38

Biomechanics

- Effect of Red Blood Cells on Mass Transfer in the Brain Capillary
 - Mina Alafzadeh (Isfahan University of Thechnology, Iran), Ebrahim Shirani (Foolad Institute of Technology, Iran), Effat Yahaghi (Imam Khomeini International University, Iran), Nasser Fatouraee (Amirkabir University of Technology, Iran) 42
- Field-Programmable Cell Array Pin-Constrained Digital Microfluidic Biochip
 - Alireza Abdoli (Shahid Beheshti University, G. C., Iran), Ali Jahanian (Shahid Beheshti University, G. C., Iran) 48
- Numerical Modeling of Ureagenesis in a Microfluidic Channel Mimicking a Liver Lobule
 - Fatemeh Sharifi (Sharif University of Technology, Iran), Bahar Firoozabadi (Sharif University of Technology, Iran), Mohammad Said Saidi (Department of Mechanical Engineering, Sharif University of Technology, Iran), Keikhosrow Firoozbakhsh (Sharif University of Technology, Iran) 54
- A Centrifugal Microfluidic Platform for Determination of Blood Hematocrit Level

Esmail Pishbin (Iran University of Science and Technology, Iran), Mehdi Navidbakhsh (Iran University of Science and Technology, Iran), Manouchehr Eghbal (Iranian Research Organization for Science and Technology, Iran) 60

• Selection and Simulation of a Proper Microfluidic for Hepatocyte Culture

Farzam Nejadnasrollah (Sharif University of Technology, Iran), Bahar Firoozabadi (Sharif University of Technology, Iran) 65

Biological system modeling

• Dynamical Modeling of Respiratory Sound an Aproach for Pulmunary Patients Classification

Sobhan Goudarzi (Amirkabir University of Technology & Tehran Polytechnic, Iran), Mh Moradi (Amirkabir University of Tech, Iran) 70

 Analysis of Impaired LTP in Schizophrenia Using an Extended Mathematical Model of a Tripartite Synapse

Ali Mahdavi (University of Tehran, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran), Mahyar Janahmadi (Shahid Beheshti University of Medical Sciences & Medical School, Iran) 76

• An Information Gain Approach to Infer Gene Regulatory Networks

Mina Jafari (Bahonar University of Kerman, Iran), Behnam Ghavami (Bahonar University of Kerman, Iran), Vahid Sattari Naeini (Bahonar University of Kerman, Iran) 81

Biological signal processing

• Non-linear EEG Analysis in Children with Attention-Deficit/ Hyperactivity Disorder During the Rest Condition

Shiva Khoshnoud (Sahand University of Technology, Iran), Mousa Shamsi (Sahand University of Technology, Iran), Mohammad ali Nazari (Nazaripsycho@yahoo.com, Iran) 87

 Machine Learning-based Signal Processing Using Physiological Signals for Stress Detection

Adnan Ghaderi (University of Tabriz, Iran), Javad Frounchi (University of Tabriz, Iran), Alireza Farnam (Tabriz University of Medical Sciences, Iran) 93

 Attention Level Quantification During a Modified Stroop Color Word Experiment: An fNIRS Based Study

Sahar Jahani (University of Tehran, Iran), Nima Hemmati (University of Tehran, Iran), Ali Rahimpour (University of Tehran, Iran), Seyed Kamaledin Setarehdan (School of ECE, College of Eng., University of Tehran, Tehran-Iran, Iran) 99

Poster-Biomaterials

• In Silico Design of Synthetic Gene Network for Control of Gene Expression

Sahar Mohamadabadi (Shahid Bahonar University of Kerman, Iran), Mojtaba Barkhordari Yazdi (Shahid Bahonar University of Kerman, Iran) 104

• Stress Concentration At the Base of Primary Cilium Due to Application of a Thin Elastic Layer

Amirhossein Abbasszadeh Rad (Faculty of New Sciences and Technologies, University of Tehran, Iran), Bahman Vahidi (Faculty of New Sciences and Technologies, University of Tehran, Iran) 110

• Unsupervised Fuzzy Cognitive Map in Diagnosis of Breast Epithelial Lesions

Abdollah Amirkhani (IUST & IranUniversity of Science and Technology, Iran), Mohammad Reza Mosavi Mirkolaei, M. R. (Iran University of Science and Technology, Iran), Azar Naimi (Isfahan University of Medical Sciences-, Iran) 115

Biomechanics

• Prevention of Chemotherapy-Induced Alopecia by Scalp Cooling: The Study of Perfusion and Tissue Metabolism

Mohammad Sheikholeslami (University of Yazd, Iran), Mahsa Ghaffari (University of Illinois at Chicago, USA), Ahmadreza Faghih Khorasani (University of Yazd, Iran), Mohamad Zoghi (Farmingdale State College, SUNY, USA) 120

• Numerical Investigation of Role of Synovial Fluid in a Poroelastic Model of Natural Human Knee Joint During Walking

Hossein Bahreinizad (Sahand University of Technology, Iran), Hanieh Niroomand Oscuii (SUT, Iran) 126

Biomedical image processing

Improving Active Shape Models Performance in Low-Contrast Images Using a KNN-based Search Algorithm

Mina Esfandiarkhani (Shahed University, Iran), Mahdi Delavari (Shahed University, Iran), Amir Hossein Foruzan (Shahed University, Iran), Yen-Wei Chen (Ritsumeikan University, Japan) 132

• 3D Segmentation and Volumetric of Growth Plate of Radius Bone for Legal Age Determination in MRI Data Set

Hamed Yousefi (EMG Group, NR Sign Co, Iran), Mansoor Fatehi (Director, Medical Imaging Informatics Research Center, Iran), Reza A. Zoroofi (University of Tehran, Iran) 138

Biological system modeling

• Astrocyte Stimulation as a New Technique to Desynchronize Two Coupled Neurons

Soheila Nazari (University of Amirkabir Technology, Iran), Karim Faez (Amirkabir University of Technology, Iran), Nemat Soltani (Faculty of Medicine Kermanshah University of Medical Sciences, Iran), Mahmood Amiri (University of Tehran, Iran) 144

• Evaluating Unified Spatial and Temporal Muscle Synergy Modules in Different Types of Point to Point Hand Motion in Vertical Planes

Sedigheh Dehghani (University of Tehran, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran) 150

 Hypofunction of NMDA Receptors Due to the Hyperactivation of Dopamine Receptors in the Hippocampal Synapses of Schizophrenia Based on a Mathematical Model

Ali Mahdavi (University of Tehran, Iran), Mina Mirjalili (CIPCE, Human Motor Control and Computational Neuroscience Lab, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran), Mahyar Janahmadi (Shahid Beheshti University of Medical Sciences & Medical School, Iran) 156

• A Computationally Efficient Method for Brain Information-theoretic Based Causality Detection Using Multichannel EEG

Maryam Songhorzadeh (Shahid Chamran University, Iran), Karim Ansari-Asl (Sahid Chamran University, Iran), Alimorad Mahmoudi (Shahid Chamran University of Ahvaz, Iran) 162

• A Hill-based EMG-driven Model to Estimate Elbow Torque During Flexion and Extention

Anahita Qashqai (University of Amirkabir, Iran), Hossein Ehsani (Amirkabir University of Technology, Iran), Mostafa Rostami (Faculty of Biomedical Engineering, Amirkabir University of Technology, Iran) 166

Biological signal processing

 Fuzzy Clustering and Feature Selection Analysis Toward Improved Identification of MUAP in Needle EMG Signal

Hamed Yousefi (EMG Group, NR Sign Co, Iran), Farshad Nabi (University of Tehran, Iran), Shahbaz Askari (Director Manager, NR Sign Inc, Vancouver BC, Canada) 172

• Muscle Artifact Cancellation in ECG Signal Using a Dynamical Model and Particle Filter

Hamed Danandeh (Khaje nasir University of Technology, Iran), Maryam Mohebbi (K. N. Tossi University, Iran) 178

• Automatic Detection of Artefact in Neonatal ECG

Shima Gholinezhadasnefestani (University College Cork, Ireland), Liam Marnane (University College, Cork, Ireland), Gordon Lightbody (University College Cork, Ireland), Andriy Temko (University College Cork & Neonatal Brain Research Group, Ireland), Nathan Stevenson (University College Cork, Ireland), Geraldine Boylan (University College Cork, Ireland) 184

• Classification of ADLs Using Muscle Activation Waveform Versus Thirteen EMG Features

Payman Azaripasand (Amirkabir University of Technology - Tehran Polytechnic, Iran), Ali Maleki (Semnan University, Iran), Ali Fallah (Amirkabir University of Technology & Amirkabir, Iran) 189

 An Efficient Method for Extracting Respiratory Activity From Single-Lead-ECG Based on Variational Mode Decomposition

Mojtaba Nazari (Babol Noshirvani University of Technology, Iran), Sayed Mahmoud Sakhaei (Babol Noshirvani University of Technology, Iran) 194

Bioinstrumentation/ Telemedicine

• Design and Implementation of a Tele-examination System

Hamideh Manoochehri (University of Tehran, Iran), Maryam Gharaei Jomehei (University of Tehran, Iran), Samad Sheikhaei (University of Tehran, Iran) 199

• Mixed-Integer Linear Programming (MILP) for Optimisation of Medical Equipment Maintenance Schedules

Abdelbaset Abdelrahim Khalaf (Tshwane University of Technology, South Africa), Yskandar Hamam (Tshwane University of Technology, South Africa), Yasser Alayli (University of Versailles, France), Karim Djuoani (FSATI, South Africa) 205

• Detecting Driving Drowsiness Using EEG, EOG and Driving Quality Signals

Seyed Mohammad Reza Noori (Shahed University, Iran), Mohammad Mikaeili (Shahed University, Iran) 210

 Asthma Diagnosis Based on Respiratory Dynamic Using Sparse Representation Based-Classifier

Reza Darooei (Tarbiat Modares University, Iran), Ali Mahloojifar (Tarbiat Modares University, Iran), Mohammad Reza Raoufy (Tarbiat Modares University, Iran) 216

Biomechanics

• Analysis and Design of a Cable-driven Mechanism for a Spherical Surgery Robot

Zahra Rahmati (Sharif University of Technology, Iran), Saeed Behzadipour (Sharif University of Technology, Iran) 221

• Design of a Planar Parallel Robot to Investigate Human Arm Point to Point Reaching Movement

Mahsa Momtahan (University of Tehran, Iran), Hamid Reza Farhang (University of Tehran, Iran), Sedigheh Dehghani (University of Tehran, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran), Hadi Moradi (University of Tehran, Iran), Farshid Najafi (University of Tehran, Iran) 227

• Hand Kinematics Estimation to Control Prosthetic Devices: A Nonlinear Approach for Simultaneous and Proportional Estimation of 15 DoFs

Parviz Ghaderi (University of Isfahan, Iran), Saeed Karimimehr (University of Isfahan, Iran), Mehran Emadi Andani (University of Isfahan, Iran), Hamid Reza Marateb (University of Isfahan, Iran) 233

• Hand Kinematics Estimation Using Non-Invasive Surface Sensors: a Linear System Identification Approach

Saeed Karimimehr (University of Isfahan, Iran), Parviz Ghaderi (University of Isfahan, Iran), Mehran Emadi Andani (University of Isfahan, Iran) 239

Biomedical image processing

• Improving 2D Block Method in Electrical Impedance Tomography

Saeed Zaravi (Isfahan University of Technology, Iran), Rassoul Amirfattahi (Isfahan University of Technology, Iran), Bijan Vosoughi Vahdat (Sharif University of Technology & Bisipl Laboratory: Biological Signal Processing Lab, Iran), Ali Hassanipour (Isfahan University of Technology, Iran) 245

• Optimized Kalman Filter Based on Second Momentum and Triple Rectangular for Cell Tracking on Sequential Microscopic Images

Vahid Khodadadi (Science and Research Branch University of Islamic Azad, Iran), Emad Fatemizadeh (Sharif University of Technology, Iran), Seyed Kamaledin Setarehdan (School of ECE, College of Eng., University of Tehran, Tehran-Iran, Iran) 251

 Retinal Blood Vessel Classification Based on Color and Directional Features in Fundus Images

Golnoush Hamednejad (Najafabad Branch, Islamic Azad University, Iran), Hossein Pourghassem (Islamic Azad University Najafabad Branch (IAUN), Iran) 257

Poster-Bioelectrics 2

• Overlapped Cells Separation Algorithm Based on Morphological System Using Distance Minimums in Microscopic Images

Vahid Khodadadi (Science and Research Branch University of Islamic Azad, Iran), Emad Fatemizadeh (Sharif University of Technology, Iran), Seyed Kamaledin Setarehdan (School of ECE, College of Eng., University of Tehran, Tehran-Iran, Iran) 263

 Automated Mitosis Detection Based on Combination of Effective Textural and Morphological Features From Breast Cancer Histology Slide Images

Fattaneh Pourak pour (Tarbiat Modares University, Iran), Hassan Ghassemian (Tarbiat Modares University, Iran) 269

• Robust Leukocyte Segmentation in Blood Microscopic Images Based on Intuitionistic Fuzzy Divergence

Zeinab Moshavash (Shiraz University of Technology, Iran), Habibollah Danyali (Shiraz University of Technology, Iran), Mohammad Sadegh Helfroush (Shiraz University of Technology, Iran) 275

• Symmetry-based Analysis of Maxillofacial Disorders in Cone Beam Computed Tomography

Meisam Hasani (School of Electrical and Computer Engineering, University of Tehran, Iran), Saeid Shakeri (University of Tehran, Iran), Fatemeh Abdolali (University of Tehran, Iran), Mostafa Jahanifar (Tarbiat Modares University, Iran), Reza A. Zoroofi (University of Tehran, Iran) 281

• Segmentation of Major Temporal Arcade in Angiography Images of Retina Using Generalized Hough Transform and Graph Analysis

Farshad Nabi (University of Tehran, Iran), Hamed Yousefi (EMG Group, NR Sign Co, Iran), Hamid Soltanian-Zadeh (University of Tehran, Iran) 287

Medical Image Fusion Using Discrete Wavelet Transform and Lifting Scheme

Tannaz Akbarpour (University of Sahand, Tabriz, Iran), Mousa Shamsi (Sahand University of Technology, Iran), Sabalan Daneshvar (University of Tabriz, Iran) 293

 Analysis and Evaluation of Somatotopic Mapping and rs-fMRI Parcellation for Healthy Aging and Alzheimer's Disease

Mahsa Alizadeh Shalchy (Faculty of Electrical Engineering K. N. Toosi University of Technology, Iran), Davud Asemani (K. N. Toosi University of Technology, Iran) 299

• Object Contour Detecting Using Pseudo Zernike Moment and Multi-Layer Perceptron

Nasim Borzue (Qazvin azad University, Iran), Karim Faez (Amirkabir University of Technology, Iran) 304

Biomaterials

• The Effect of Bone Scaffold Gradient Architecture Design on Stem Cell Mechanical Modulation: A Computational Study

Amirala Bakhshian Nik (Faculty of New Sciences and Technologies, University of Tehran, Iran), Bahman Vahidi (Faculty of New Sciences and Technologies, University of Tehran, Iran) 309

Biomedical image processing

 Prediction of Glioblastoma Multiforme Response to Bevacizumab Treatment Using Diffusion and Perfusion Imaging

Ehsan Abadi (University of Tehran, Iran), Hamid Soltanian-Zadeh (University of Tehran, Iran), Lisa Scarpace (Henry Ford Health System, USA), Tom Mikkelsen (Henry Ford Health System, USA) 314

• Ultrasound Probe Calibration Using Traceable Frames of "v" Phantom

Samaneh Alimohamadi (Tehran University of Medical Science & Research Center for Science and Technology in Medicine, Iran), Alireza Ahmadian (Tehran University of Medical Sciences & RCSTIM, Iran), Javad Hasani Bidgoli (Tehran University, Iran) 319

Mathematics in Biomedical Engineering

• A Study of Inactivation of TSG and Cancer Therapy: An Evolutionary Game Theory Approach

Heydar Khadem (University of Tehran, Iran), Hamed Kebriaei (University of Tehran, Iran) 325

Artificial Magnetic Nano-Swimmer in Drug Delivery

Alaeddin Malek (Tarbiat Modares University, Iran), Hanif Heidari (Damghan University, Iran), Maryam Vali (Shahid Beheshti Medical University, Iran) 331

Rehabilitation and clinical engineering

• Placebo-Induced Changes in Behavioural Parameters During Gait: A Pilot Study

Mehran Emadi Andani (University of Isfahan, Iran), Ali Mahdavi (University of Tehran, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran), Mirta Fiorio (University of Verona, Italy) 337

• Evaluation of Relationship Between Balance Parameters and Bone Mineral Density

Fatemeh Radaei (Amirkabir University of Technology, Iran), Seyed Yahya Shirazi (AmirKabir University of Technology, Iran), Shahriar Gharibzadeh (Amirkabir University of Technology, Iran), Patricia Khashayar (Tehran University of Medical Sciences, Iran), Majid Ramezani (Tehran University of Medical Sciences, Iran), Nasser Fatouraee (Amirkabir University of Technology, Iran) 341

 Independent Position-Stiffness Control for Elbow Rehabilitation Robot with Cable-Based Series Elastic Actuator

Farhad Parivash (Shahrood University, Iran), Mahdi Bamdad (Shahrood University, Iran) 346

Poster-Biomechanics

• Numerical Analysis of a Centrifugal Microfluidic Platform for PCR Thermocycling

Esmail Pishbin (Iran University of Science and Technology, Iran), Mehdi Navidbakhsh (Iran University of Science and Technology, Iran), Mojtaba Hasani (Iran University of Science & Technology, Iran) 352

• Designing a 12 DoF Lower Extremity Exoskeleton Based on the Gait Kinematics Data

Faezeh Eskandari (Amirkabir University of Technology, Iran), Morteza Nazari Nodoushan (Amirkabir University of Technology, Iran), Ahmadreza Arshi (Amirkabir University of Technology, Iran), Fateme Navvab Motlagh (Amirkabir University of Technology, Iran) 358

• Detection of Lesions in Soft Tissues Based on Nonlinear Constitutive Model

Maryam Mehdizadeh Dastjerdi (Amirkabir University of Technology (AUT), Iran), Ali Fallah (Amirkabir University of Technology & Amirkabir, Iran), Saeid Rashidi (Science and Research Branch, Islamic Azad University, Iran) 363

• Roundhouse Kick's TEAKWONDO Variability in Kinematic Coupling Assessed by Continuous Relative Phase and Vector Coding

Hamid Reza Barnamei (Islamic Azad University of Science and Research Branch, Iran), Mohamad Reza Kharazi (Azad Islamic University of Science and Research Branch, Iran) 369

• Validity of Microsoft Kinect for Measuring Gait Parameters

Mohamad Reza Kharazi (Azad Islamic University of Science and Research Branch, Iran), Amir Hosein Memari (Tehran University, Iran), Amin Shahrokhi (University of Social Welfare and Rehabilitation Sciences, Iran), Seyede Hoda Nabavi (University of Social Welfare and Rehabilitation Sciences (USWR), Iran), Sanaz Khorami (Azad Islamic University of Science and Research Branch, Iran), Amir Hosein Rasooli (Tehran University, Iran), Hamid Reza Barnamei (Islamic Azad University of Science and Research Branch, Iran), Ahmad Reza Jamshidian (Sheikh Bahaei University, Iran), Mehdi Mirbagheri (Tehran University, Iran) 375

 Boundary Estimation of Soft Tissue Tumor by Using Feed Forward Neural Network with Application of Artificial Tactile Sensing

Sarmad Mehrdad (K. N. Toosi University of Technology, Iran), Milad Keshavarz (K. N. Toosi University of Technology, Iran), Afsaneh Mojra (Khajeh Nasir Toosi University of Technology, Iran) 380

• Designing and Modeling of an Index Finger Exoskeleton in Interaction with Post-Stroke Patients' Hand

Bahareh Abdi (University of Tehran, Iran), Fariba Bahrami (University of Tehran & ISBME, Iran), Zahra Fakhari (University of Medical Sciences, Iran), Majid Nili-Ahmadabadi (University of Tehran, Iran) 385

Biological signal proseccing

 Analysis of Backscattered Ultrasound RF Echoes From Adjacent Scan Lines for Surface Roughness Characterization: A Phantom Study

Amoon Jamzad (University of Tehran & Control and Intelligent Processing Center of Excellence, Iran), Faranak Akbarifar (University of Tehran & Control and Intelligent Processing Center of Excellence, Iran), Seyed Kamaledin Setarehdan (School of ECE, College of Eng., University of Tehran, Tehran-Iran, Iran) 389

• Effects of Visual Differences Between Real and HMD-Based Virtual Objects on Brain Activity: An EEG Study

Aydin Rajabzadeh (University of Tehran, Iran), Ehsan Arbabi (Iran, Iran) 394

• Prediction of Intradialytic Hypotension Using PPG Signal Features

Mina Shahabi (Iranian Research Organization for Science and Technology, Iran), Vahid Reza Nafisi (Research Organization for Science and Technology, Iran), Fatemeh Pak (Iranian Research Organization for Science and Technology (IROST), Iran) 399

• Subject Independent BCI Based on LTCCSP Method and GA Wrapper Optimization

Sepide Hatamikia, hatamikia (Science and Research Branch, Islamic Azad University, Tehran, Iran), Ali Motie Nasrabadi (Shahed University, Iran) 405

• Estimation the Reliability of Independent Components in Time and Frequency Domain by RELICA Algorithm

Negin Gholamipour (Amirkabir University of Technology, Iran), Farnaz Ghassemi (Amirkabir University of Technology, Iran) 410