

Contents

Part I Clinical Engineering Assessment

Spectrofluorimetric Characterization of Serum Pentosidine and Retinol Binding Protein in Healthy Rats and Rats with Streptozotocin-Induced Diabetes	3
D. M. Ciobanu, L. E. Olar, R. Ștefan, G. Roman, and I. Papuc	
Eye Examination for Early Detection of Diabetic Neuropathy-Role of Corneal Confocal Microscopy	9
Georgeta Victoria Inceu, C. L. Vonica, and G. Roman	
Doppler Ultrasonography, a Rapid Evaluation Method of the Major Risk in the Vascular Pathology	17
Elena Gligor, A. I. Roman, V. Ossian, D. Gligor, M. Beudean, and M. Olt	

Part II Medical Devices, Measurements and Instrumentation

A Side-Polished Fluorescent Fiber Sensor for the Detection of Blood in the Saliva	23
P. Farago, Anida-Maria Băbțan, R. Galatus, R. Groza, N. M. Roman, C. N. Feurdean, and A. Ilea	
Analysis of Postural Imbalance Due to Handling Weights During Physical Activities	29
D. Cotoros, C. Druga, I. Serban, and A. Stanciu	
The Use of Thermal Imaging Techniques as a Method of Monitoring the New Born	35
Catalina Luca, C. Corciovă, D. Andrițoi, and R. Ciorap	
Smart Wearable SpO₂ Monitor for Newborns	41
M. Datcu, C. Luca, and C. Corciova	
Applied Measurements and Instrumentation for Improving Diagnostic Devices and Systems in Metropolitan Polluted Environments with Nitric and Carbon Oxides	45
Lavinia Andrei, Doru Băldean, and Adela Ioana Borzan	
Three Way Automated Blood-Sampling Device Mixer for Blood Gas Analysis	51
Manole-Stefan Niculescu	
Techniques for Sorting Components from Dismembered Medical PCBs	59
R. Holonec, L. Grindei, M. Purcar, R. Copindean, and F. Dragan	
Intelligent Medical Distance Assistance Device	65
Robert Fuior, Andrei Gheorghiță, and Călin Corciovă	

The Use of Thermography as a Prediction Element in the Maintenance of Medical Equipment	73
D. Andritoi, C. Luca, C. Corciova, and R. Ciorap	
Method for Body Impedance Measurement	79
R. Copîndean, R. Holonec, F. Dragan, and C. Muresan	
Monitoring of Obstructive Sleep Apnea Using Virtual Instrumentation Techniques	85
R. Holonec, S. Vlad, A. I. Roman, and L. Rápolti	
Application for Detection of Epileptic Seizures	91
R. Holonec, S. Vlad, and L. Rápolti	
Exposure to UHF Electromagnetic Radiation in Urban Areas	97
A. Pastrav, P. Dolea, E. Puschita, C. Codau, T. Palade, and I. Palade	
Monitoring of Cardiovascular Parameters During Rehabilitation After Stroke Event	103
Radu Ciorap, Doru Andritoi, Catalina Luca, and Calin Corciova	
Modelling of Piezoelectric MEMS in Biomedical Applications	109
A. Avram, R. C. Bogdan, A. Bojiță, and M. Purcar	
Comparative Effect of Ethyl Urethane and Cycloheximide in <i>Lepidium sativum</i> L. Seed Germination and Radicle Growth	115
O. Viman, K. Balla, L. Holonec, M. Tămaș, D. L. Dumitrașcu, V. Șandor, and L. Nedelcu	
Numerical Simulation of the Temperature Propagation in Superposed Biological Media, with Applications in Dental Treatment	123
V. Mureșan, N. M. Roman, T. Coloși, M. Abrudean, O. P. Stan, and O. Bunta	
 Part III Biomedical Signal and Image Processing	
Identification of Animal Species from Their Sounds	133
Gavril-Petre Pop	
Evaluating a Method of Offline Detection of P₃ Waves	139
Dorina Ancău, Nicolae-Marius Roman, and Mircea Ancău	
An ECG Morphological Analysis Algorithm for Hybrid Patient Monitoring	145
A. Raza, Paul Farago, M. Cîrlugea, and S. Hintea	
Empirical Mode Decomposition in ECG Signal De-noising	151
Zoltán Germán-Salló, Márta Germán-Salló, and Horațiu-Ștefan Grif	
Emotion Recognition from Speech Signal in Multilingual Experiments	157
Corina Albu, Eugen Lupu, and Radu Arsinte	
Automated Collagen Segmentation from Masson's Trichrome Stained Images—Preliminary Results	163
M. S. Șerbănescu, R. V. Teică, M. Tărăță, D. Georgescu, D. O. Alexandru, N. C. Manea, W. Wolf, R. M. Pleșea, and I. E. Pleșea	
The Role of Convolutional Neural Networks in the Automatic Recognition of the Hepatocellular Carcinoma, Based on Ultrasound Images	169
D. Mitrea, R. Brehar, P. Mitrea, S. Nedevschi, M. Platon(Lupșor), and R. Badea	

An Augmented Reality Platform for Preoperative Surgical Planning	177
S. Teodoro Vite, C. F. Domínguez Velasco, S. Muscatello, M. Á. Padilla Castañeda, and L. T. De Paolis	

Part IV Telemedicine and Health Care Information Systems

Multi-agent Healthcare Information System on Hadoop	185
Gabriel Cristian Dragomir-Loga, A. Lacatus, L. Loga, and L. Dican	

PAC Bayesian Classifier with Finite Mixture Model for Oral Cancer Classification	195
S. K. Prabhakar and H. Rajaguru	

Health Information Exchange for Management of Disaster Victims Using FANET	201
Adrian Crețu, Camelia Avram, Dan Radu, Benoît Parrein, Adina Aștilean, and Claudiu Domuța	

Random Forest and Sequential Model for Anomalies Detection in the Activities of the People with Dementia	207
D. Moldovan, A. Visovan, M. Bologa, C. Pop, V. R. Chifu, I. Anghel, T. Cioara, and I. Salomie	

Sequence Labeling for Extracting Relevant Pieces of Information from Raw Text Medicine Descriptions	215
Radu Razvan Slavescu, Constantin Masca, and Kinga Cristina Slavescu	

Development of Bluetooth Enabled Pediatric Temperature Monitoring Device	221
Ciprian Mugurel Fort, N. M. Roman, and S. Gergely	

Part V Biomechanics, Robotics and Rehabilitation

The Analysis of Bio-Signals and Sensors for Robotic Assisted Rehabilitation	229
Nicoleta Pop, Calin Vaida, Giuseppe Carbone, Florin Craciun, Kinga Major, Cristian Abrudan, Ferenc Puskas, and Doina Pisla	

Experimental Study Regarding the Performance of a Motor-Imagery Brain-Computer Interface Across Different Electrodes Placement	237
A. Ianoși-Andreeva-Dimitrova and Dan S. Mândru	

A New Proposal for Solving Equations of Angular Contact Ball Bearing Using Evolutionary Techniques	241
A. Gheorghita, M. Turnea, M. Ilea, M. Rotariu, G. Constantin, and D. Arotaritei	

Modeling of the Complex Walk Assist Equipment	247
Adrian Abrudean and Dan S. Mândru	

Voice Controlled Wheelchair for People with Disabilities	255
P. Pop-Coman, N. M. Roman, M. Steopan, V. Ispas, S. Bugnar, and M. Olea	

Rehabilitation of Orthopedic and Neuropsychological Complications After Hip Arthroplasty	261
A. M. Culai, P. Mihancea, and I. Onac	

Robotics in Minimally Invasive Procedures: History, Current Trends and Future Challenges	267
C. Vaida, N. Al Hajjar, V. Lazar, F. Graur, A. Burz, R. Elisei, E. Mois, and D. Pisla	

Part VI Health Technology Assessment

The Influence of Socio-Demographic, Psychological and Medical Variables on Patient Satisfaction with Diabetes Care in the Hospital Setting in Romania	277
Anca Constantinescu-Dobra, A. Sabou, and M. C. Coțiu	

Is Internet Marketing a Useful Tool for GPs Communicating with Students? A Focus Group Exploratory Study	283
Anca Constantinescu-Dobra and M. C. Coțiu	

Utility of 3D Reconstructions for Preoperative Planning in Functional Endoscopic Sinus Surgery (FESS)	287
D. Radeanu, Constantin Stan, and A. A. Maniu	

Quantifiable Risk Factors in Medical Equipment Management Program	291
Călin Corciovă, D. Andrițoi, C. Luca, and R. Ciorap	

Oncological Outcome After Robotic Surgery for Rectal Cancer	297
Bogdan Vasile Micu, C. M. Micu, D. Chirila, H. Silaghi, R. A. Iusan, M. S. Muresan, T. R. Pop, C. Ionescu, and N. Constantea	

Prognostic Implications of Sentinel Lymph Node Mapping in Stage I and II Colorectal Cancer Patients	301
Bogdan Vasile Micu, C. M. Micu, D. Chirila, H. Silaghi, D. R. Miclaus, M. S. Muresan, T. R. Pop, N. Constantea, and C. Ionescu	

Metallic Nanoparticles in Otology	305
A. A. Maniu, M. Perde-Schrepler, E. Fischer-Fodor, A. Florea, George Sebastian Chis, and A. I. Roman	

New Era for Technology in Healthcare Powered by GDPR and Blockchain	311
O. P. Stan and L. Miclea	

Part VII Miscellaneous Topics

Temperature Effect on Tribo-Mechanical Properties of Dental Materials	321
C. Birleanu, M. Pustan, V. Merie, and M. S. Pop	

Magnetic Submicron Systems Loaded with Chemotherapeutic Agent (Paclitaxel) for Breast Cancer Therapy	329
V. Balan, S. Malihin, and L. Verestiuc	

Identifying Relevant Research Directions for Graduation Projects in Medical Engineering	335
D. Cotoros, C. Druga, I. Serban, and A. Stanciu	

Improvement of the Fluidized Bed Tribocharging Device for Electrostatic Separation of Plastics from Electronic Medical Waste	341
L. Călin, M. Bilici, and A. Samuilă	

Complex Influence of Intense Electric Fields upon Ozone and Free Radicals from Aqueous Solutions	347
R. E. Suărășan, S. R. Budu, I. Suărășan, Dumitrița Moldovan, and Radu Fechete	
Author Index	351