

## EHB 2019 DETAILED PROGRAM

THURSDAY, 21<sup>st</sup> of November

### CONFERENCE OPENING

**Date & Time:** Thursday, 21st of November, 09:00 – 11:00

**Location:** Emil Palade Auditorium of the Grigore T. Popa University of Medicine and Pharmacy Iasi, Romania

**Chairpersons:** Anca GALACTION, Hariton COSTIN, Dan ZAHARIA

### INVITED PLENARY LECTURES



#### **Prof. Hojjat ADELI**

The Ohio State University, USA

*Transformative Role of Machine Learning  
in Medical Diagnosis in the 21st Century*



#### **Prof. Marius George LINGURARU**

Sheikh Zayed Institute for Pediatric Surgical  
Innovation at Children's National Health  
System in Washington, DC, USA

*AI in Pediatric Medical Imaging: Digital  
Dysmorphology for Diverse Populations  
with Genetic Syndromes*



**Section: MEDICAL DEVICES, INSTRUMENTATION, ROBOTICS (MD I)**

**Date & Time:** Thursday, 21st of November, 11:30 – 13:30

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Martin ROŽÁNEK, Radu CIORAP

No	Authors	Title	ID
1	Lucian Mândrea, Ioan Curta and Marian Costea	The Influence of the Low Frequency Electric Fields on the Human Being	9
2	Cheng Teng, Sut Kam Ho, Kam Weng Tam and Wai Wa Choi	A Microwave Sensor for Elemental Solution Measurements of Wireless Fungus Sensing System	13
3	Antonino S. Fiorillo, Salvatore Andrea Pullano, Maria Giovanna Bianco, Michele Menniti and Costantino Davide Critello.	Cochlear-like PVDF US Sensor	14
4	Iuliana Marin, Nicolae Goga, Andrei Vasilateanu, Alexandru Gradinaru and Vlad Racovita	Smart Solution for the Detection of Preeclampsia	48
5	Eva Cirugeda, Eva Plancha, Victor Hidalgo, Sofía Calero, Jose Joaquín Rieta and Raúl Alcaraz	Predicting Electrical Cardioversion Outcome in Persistent Atrial Fibrillation Through Multiscale Entropy Analysis	125

**Section: DECISION SUPPORT SYSTEMS, ARTIFICIAL INTELLIGENCE, BIOINFORMATICS (DSS-AI I)**

**Date & Time:** Thursday, 21st of November, 11:30 – 13:30

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Gabriel DIMITRIU, Constantin GAINDRIC

No	Authors	Title	ID
1	Linda Greta Dui, Francesca Lunardini and Simona Ferrante	A Tablet-based Application to Study the Speed-Accuracy Tradeoff in Handwriting throughout Lifespan	40
2	Yali Nie, Paolo Sommella, Mattias O’Nils, Consolatina Liguori and Jan Lundgren	Automatic Detection of Melanoma with Yolo Deep Convolutional Neural Networks	56
3	Lidia Bajenaru, Ciprian Dobre, Radu-Ioan Ciobanu and Alexandru Balog	Patient Profile Using Ontologies in an Older Adults Monitoring IoT-Based Platform	79

4	Kristian Miok, Dong Nguyen-Doan, Marko Robnik-Sikonja and Daniela Zaharie	Multiple Imputation for Biomedical Data using Monte Carlo Dropout Autoencoders	88
5	Arsineh Boodaghian Asl and Michel Gokan Khan	Studying The Effect of Online Medical Applications on Patients Healing Time and Doctors Utilization Using Discrete Event Simulation	138
6	Marilena Ianculescu, Adriana Alexandru, Gabriel Neagu and Florin Pop	Microservice-Based Approach to Enforce an IoHT Oriented Architecture	183
7	Gabriel Dimitriu, Vasile Lucian Boiculescu, Mihaela Moscalu and Cristina Gena Dascalu	Global Sensitivity Approach for the Human Immunodeficiency Virus Pathogenesis with Cytotoxic T-Lymphocytes and Infected Cells in Eclipse Phase	227

#### Section: BIOMEDICAL SIGNAL PROCESSING (SP I)

**Date & Time:** Thursday, 21st of November, 11:30 – 13:30

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** José Joaquin RIETA, Cristian ROTARIU

No	Authors	Title	ID
1	Marek Piorecky, Pavlina Rubesova, Eva Cerna, Eva Miletinova, Jana Koprivova and Jitka Buskova	Computer Analysis of Hidden Layers of Sleep EEG: Dreams Correlates	59
2	Alejandro Antonio Torres-Garcia, Luis Alfredo Moctezuma, Sara Asly and Marta Molinas	Discriminating Between Color Exposure and Idle State using EEG Signals for BCI Application	69
3	Giovanni-Paul Portelli, Iulia-Cristina Stanica, Ioan Tiberiu Nanea and Madalina Sorina Ababei	Analysis of the Heart Rate Variability to Determinate the Influence of the Autonomic Nervous System on the Cardiovascular System	70
4	Marek Piorecky, Eva Miletinova, Hana Schaabova, Jakub Šebek and Jitka Buskova	Dream Activity Analysis by the Determined Approach in Low-number Electrode EEG Recordings: Methodology Proposal	80
5	Aikaterini Vraka, Fernando Hornero, Joaquín Osca, Luca Faes, Raúl Alcaraz and José Joaquin Rieta	Assisting Electrophysiological Substrate Quantification in Atrial Fibrillation Ablation	128

<b>6</b>	Aikaterini Vraka, Diego Osorio, Vicente Bertomeu-González, Flavia Ravelli, Raul Alcaraz Martínez and Jose Joaquin Rieta	Detection of Dominant Reentries in Multichannel Electrograms of Atrial Fibrillation	<b>130</b>
<b>7</b>	Antonio Ruiz Moreno, Migel Ángel Arias, María Inmaculada Pachón, Philip Langley, Jose Joaquín Rieta and Raúl Alcaraz	Thorough Assessment of a P-wave Delineation Algorithm Through the Use of Diverse Electrocardiographic Databases	<b>133</b>

### Section: HOSPITAL INFORMATION SYSTEMS (HIS)

**Date & Time:** Thursday, 21st of November, 11:30 – 13:30

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Anca IGNAT, Cristina DASCĂLU

No	Authors	Title	ID
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<b>2</b>	Marius Pop and Gabriel Dragomir	About Cloud Implementation of SMURD+ Medical Software	<b>116</b>
<b>3</b>	Ariana-Anamaria Cordos, Sorana D. Bolboacă and Tudor C. Drugan	How Social Physicians Are? A Generation-split Analysis of the Attitudes Towards the Use of Social Media Among Romanian Physicians	<b>122</b>
<b>4</b>	Alexandru Balog, Lidia Bajenaru, Irina Cristescu and Mihaela Tomescu	Evaluating Influential Factors in WHOQOL-BREF Instrument using the DEMATEL Method	<b>131</b>
<b>5</b>	Ionel-Bujorel Păvăloiu, Andrei Enache, Andrei Vasilățeanu, George Drăgoi, Ion-Alexandru Bratosin, Ana-Maria Neagu, Adriana Ion, Nicolae Goga, Constantin Ionescu-Târgoviște	Start and Development of the Diabetes National Database in Romania	<b>178</b>
<b>6</b>	Cristina Gena Dascalu, Magda Ecaterina Antohe, Georgeta Zegan and Gabriel Dimitriu	Study about the Hospitalization Length at Patients with Oro-Maxillo-Facial Traumas Using GLM Univariate Models	<b>202</b>
<b>7</b>	Iuliana Marin, Bujor Pavaloiu, Constantin-Viorel Marian, Vlad Racovita and Nicolae Goga	Early Detection of Preeclampsia based on a Machine Learning Approach	<b>240</b>

### Section: MEDICAL DEVICES, MEASUREMENTS, INSTRUMENTATION (MD II)

**Date & Time:** Thursday, 21st of November, 15:00 – 17:00

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Dan-Marius DOBREA, Călin CORCIOVĂ

No	Authors	Title	ID
1	Shahin Amiriparian, Sandra Ottl, Maurice Gerczuk, Sergey Pugachevskiy and Björn Schuller	Audio-based Eating Analysis and Tracking Utilising Deep Spectrum Features	30
2	Daniel Calaver, Laura Floroian and Sorin Mihai Grigorescu	Assistive Rehabilitation using a 7-DoF Robotic Arm with Self-Collision and Obstacle Avoidance System	68
3	Manuel Andrés Vélez-Guerrero and Mauro Callejas-Cuervo	Data Acquisition and Control Architecture for Intelligent Robotic Exoskeletons in Rehabilitation	89
4	Nicoleta Pop, Anca Demea, Bogdan Gherman, Doina Pisla and Rodica Holonec	Virtual Instrument used for the Evaluation of Extraocular Motility	90
5	Leos Tejkl, Petr Kudrna, Jakub Rafl and Jan Svoboda	Patient Simulators in Medical Education: New Enhancements	91
6	Petra Peskova, Marek Piorecky, Cestmir Vejmla, Vlastimil Koudelka, Vladimir Krajca and Vaclava Piorecka	3D Barycentric Interpolation Method for Animal Brain-mapping	106
7	Mads G. Eide, Ilona Heldal, Carsten G. Helgesen, Gunvor Birkeland Wilhelmsen, Ruben Watanabe, Atle Birger Geitung, Harald Soleim and Cristina Costescu	Eye-tracking Complementing Manual Vision Screening for Detecting Oculomotor Dysfunction	192

### Section: DECISION SUPPORT SYSTEMS, ARTIFICIAL INTELLIGENCE, BIOINFORMATICS (DSS-AI II)

**Date & Time:** Thursday, 21st of November, 15:00 – 17:00

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Svetlana COJOCARU, Mihail POPESCU

No	Authors	Title	ID
1	Lidia Dobrescu, Serban Obreja, Marius Vochin, Dragos Dobrescu and Stela Halichidis	New Approaches for Quantifying Internet Activity	37
2	Safaa Albastri, Mihail Popescu and James Keller	A Novel Distance for Automated Surgical Skill Evaluation	65
3	Sorin Soviany and Sorin Puscoci	A Case Study of Data Fusion for Biometric Applications	118

<b>4</b>	Ion-Alexandru Bratosin, Ionel-Bujorel Păvăloiu, Andrei Vasilăţeanu, Diana Gavajuc, Nicolae Goga	Angling in Virtual Reality for Pain Relief	<b>142</b>
<b>5</b>	Delia Ioana Dogaru and Ioan Dumitrache	Big Data and Machine Learning Framework in Healthcare	<b>155</b>
<b>6</b>	Tord Hettervik Fröland, Ilona Heldal, Elisabeth Ersvær, Gry Sjøholt and Attila Kövári	wStikk – Web-based Phlebotomy Learning	<b>164</b>
<b>7</b>	Andrea Alarcón-Aldana, Mauro Callejas-Cuervo and Antonio Padilha L. Bo	Platform Architecture for Musculoskeletal Rehabilitation based on Serious Videogames	<b>166</b>
<b>8</b>	Jakub Mrva, Stefan Neupauer, Lukas Hudec, Jakub Sevcech and Peter Kapec	Decision Support in Medical Data Using 3D Decision Tree Visualisation	<b>174</b>

#### Workshop: NEW APPROACHES IN RESPIRATORY CARE (RC)

**Date & Time:** Thursday, 21st of November, 15:00 – 17:00

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** Martin ROŽÁNEK, Petr KUDRNA

<b>No</b>	<b>Authors</b>	<b>Title</b>	<b>ID</b>
<b>1</b>	Radka Malinová, Petr Kudrna, Martin Rožánek and Petra Hospodková	Design of Chest Cuirass for Negative Pressure Ventilation of Neonates	<b>19</b>
<b>2</b>	Petra Hospodkova, Lucie Severova, Petr Kudrna and Kateřina Schejbalová	The Total Cost of Ownership of a Medical Gas Source – A Case Study for the Czech Republic	<b>86</b>
<b>3</b>	Vaclav Ort and Eliska Kabelkova	Better Distribution of Minute Ventilation and Lung Energy Load in Multi-frequency Ventilation in Neonatal Inhomogenous Lungs: Mathematical Simulation	<b>158</b>
<b>4</b>	Martin Rožánek, Petr Kudrna, Jakub Ráfl, Václav Ort, Marek Kordik and Karel Roubík	Evaluation of Electrical Impedance Tomography for a Measurement of Tidal Volume in High-frequency Ventilation of the Pig – Case Study	<b>187</b>
<b>5</b>	Lenka Horakova and Karel Roubik	Performance of Different Pulse Oximeters can Effect the Duration of Field Breathing Experiments	<b>190</b>



**Workshop: ASSISTIVE TECHNOLOGIES FOR PEOPLE WITH DISABILITIES (AT)**

**Date & Time:** Thursday, 21st of November, 15:00 – 17:00

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Radu Gabriel BOZOMITU, Cristian ROTARIU

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1	Petronela Bonteanu, Arcadie Cracan, Radu Gabriel Bozomitu and Gabriel Bonteanu	A Robust Pupil Detection Algorithm Based on a New Adaptive Thresholding Procedure	101
2	Casian Miron, , Alexandru Pasarica, Radu Gabriel Bozomitu, Vasile Manta, Radu Timofte and Radu Ciucu	Efficient Pupil Detection with a Convolutional Neural Network	115
3	Cristian Rotariu, Hariton Costin, Radu Gabriel Bozomitu, Gladiola Petriou Andruseac, Clementina Doina Cojocar and Teofil Ilie Ursache	New Assistive Technology for Communicating with Disabled People based on Gaze Interaction	232
4	Gladiola Petriou-Andruseac, Mihaela Moscalu, Alexandru Pasarica, Cristian Rotariu, Anca Zbranca-Toporas and Dragos Sardaru	EMS-based Analysis of Electrohysterograms for Patients with Preterm Birth Risk	238



## FRIDAY, 22<sup>nd</sup> of November

### POSTER SESSION

#### Section: MEDICAL DEVICES, INSTRUMENTATION, MODELING/SIMULATION (MD)

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairperson:** Călin CORCIOVĂ

No	Authors	Title	ID
1	Lucian Mândrea, Ioan Curta and Marian Velcea	The Favorable Effects of Bio-Chips on the Human Being	8
2	Cristian Braun Barbu	Innovative Method for Visual Acuity and Memory Functions Evaluation and Recovery due to “Serious” Games on Tablet and Smart Phone Gadgets	21
3	Filippo Laganà, Domenico De Carlo, Salvatore Calcagno, Salvatore A Pullano, Davide Critello, Francesco Falcone and Antonino S Fiorillo	Computational Model of Cell Deformation Under Fluid Flow Based Rolling	23
4	Petruta Paraschiva Rusu, Maria Doina Schipor and Radu-Daniel Vatavu	A Lead-in Study on the Well-Being, Visual Functioning, and Desires for AR Technology of People with Low Vision Impairments	41
5	Adrian Aiordăchioae	Eyewear-Based System for Sharing First-Person Video to Remote Viewers	46
6	Alessandro Favalli, Agatino Christian Tavilla, Roberto Robortella and Igor Stefanini	Adaptive Bio-impedance Measurement	61
7	Gian Battista Di Palma, Roberto Robortella, Agatino Christian Tavilla, Alessandro Favalli and Igor Stefanini	Detection in a Non-invasive Way of Glucose in Cells Cultivation	64
8	Ioana Adochiei, Silvia Alexandra Patlagica, Daniel Iulian Voiculescu, Marilena Stanculescu, Oana Mihaela Drosu and Vasiliki Vita	Virtual Reality Assisted Hand Rehabilitation through the use of a Smart Glove	100

<b>9</b>	Vlad Horațiu Sîrbu, Ionel Șerban and Ileana Constanța Roșca	Braille Keyboard for People with Low Vision	<b>109</b>
<b>10</b>	Alexandru Rares Iusan, Nicolae Marius Barlea, Sorin Iulian Cosman and Mihai Paunescu	The Voltage Effect on Electrical Parameters of the Skin - ECG Electrodes Interface -	<b>112</b>
<b>11</b>	Anna Erfányuková, Ondřej Gajdoš, Vojtěch Kamenský and Miroslav Selčan	Use of Various Health Technology Assessment Methods for Economic, Clinical and Safety Assessment	<b>127</b>
<b>12</b>	Oana Andreea Rușanu, Luciana Cristea, Marius Cristian Luculescu and Sorin Constantin Zamfira	Experimental Model of a Robotic Hand Controlled by Using NeuroSky Mindwave Mobile Headset	<b>141</b>
<b>13</b>	Anna Erfányuková, Gleb Donin, Anna Holubová and Jan Muzik	The Impact of Prolonged Use of Continuous Glucose Monitoring Sensors in Patients with Diabetes Mellitus: Accuracy and Financial Burden	<b>160</b>
<b>14</b>	Mihaela Ioana Baritz and Alexandra Maria Lazar	Methodology for Monitoring the Behavior of the Visual System	<b>171</b>
<b>15</b>	Doru Andritoi, Calin Corciova, Radu Ciorap, Robert Fuior and Catalina Luca	The Role of Clinical Bioengineer in Romanian Hospitals	<b>189</b>
<b>16</b>	Petra Hospodkova, Andrea Vodochodská and Petr Kudrna	Comparison of Cost-effectiveness of Phototherapeutic Devices for Neonates	<b>191</b>
<b>17</b>	Wilver Auccahuasi	Technique for the Comparison of Concentration and Meditation Levels in the Performance of Rehabilitation Exercises in Bicycle, Using Virtual Reality Techniques and Brain Computer Interface	<b>196</b>
<b>18</b>	Felix - Constantin Adochiei, Ioana-Raluca Adochiei, Radu Ciucu, Gladiola G. Petroiu Andruseac, Florin Ciprian Argatu and Nicolae Julia	Design and Implementation of a Body Posture Detection System	<b>214</b>
<b>19</b>	Robert Fuior, Doru Andritoi, Catalina Luca and Calin Corciova	Intelligent Portable Monitoring and Assistance Device in Alzheimer	<b>229</b>
<b>20</b>	Calin Corciova, Doru Andritoi, Robert Fuior and Catalina Luca	Health Technology Management for Improving the Life Cycle of Medical Equipment	<b>231</b>

### Section: BIOMEDICAL SIGNAL PROCESSING (SP)

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairperson:** Călin CORCIOVĂ

No	Authors	Title	ID
1	Alvaro Huerta Herraiz, Arturo Martínez Rodrigo, Vicente Bertomeu González, Aurelio Quesada, Jose Joaquin Rieta and Raúl Alcaraz Martínez	Quality Assessment of Single-Lead, Long-Term ECG Recordings Using a Convolutional Neural Network	121
2	Roxana Todorean, Mihai Dimian and Anca Mihaela Lazar	Comparison between Different Classifiers Used in a Motor Imagery BCI	204

### Section: DECISION SUPPORT SYSTEMS & AI (DSSAI)

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Creangă” (B), Traian Hotel

**Chairperson:** Cristian ROTARIU

No	Authors	Title	ID
1	Oscar Tamburis	Covering the Distance Between Process Mining and DES Modelling in the Healthcare Domain	25
2	Adriana Albu, Loredana Stanciu, Mădălina Sofia Pașca and Cristian G. Zimbru	Choosing Between Artificial Neural Networks and Bayesian Inference in Stroke Risk Prediction	29
3	Cristian Zimbru, Nicoleta Andreescu, Adriana Albu, Adela Chirita-Emandi, Antonius Stanciu and Maria Puiu	Performance Evaluation of In Silico Predictors for the Classification of Clinvar Variants	31
4	Mihai Dan Caramihai, Nicoleta Radu, Marinela Bostan, Gabriela Ion, Ana Aurelia Chirvase, Mariana Constantin, Mihaela Doni and Narcisa Babeanu	Fuzzy Predictions Regarding in Vitro Behavior of Cells Line under Cytostatic Treatment	32
5	Cristian Zimbru, Adriana Albu, Nicoleta Andreescu, Adela Chirita-Emandi and Maria Puiu	Determining Splicing Signal Variation in Humans by Analyzing the Regulatory Splicing Motifs	36

6	Irina Deaconescu and Catalin Buiu	Automated Diagnosis of Cervical Lesions Using Deep Learning Models	45
7	George Calin Seritan, Felix Constantin Adochiei, Bogdan-Adrian Enache, Gladiola Petroiu-Andruseac, Cristina-Daniela Enache, Dana Adriana Dascultu, Cristina Adriana Becheanu and Alexandru Ulmeanu	Guidelines for Small Size Samples Biostatistics in Current Medical Practice	148
8	Claudia Zaharia, Raluca Muresan, Radu Moleriu and Daniela Zaharie	Analysis of Association Measures used to Discover Antimicrobial Resistance Patterns	153
9	Paula Alexandra Roibu Crucianu	The Implications of Big Data in Healthcare	200
10	Raluca Costea, Ionela Maniu, Daniel Dumitru Banciu and Bogdan Mihai Neamtu	Cluster Analysis a Profiling Tool in Children with Febrile Seizures	203
11	Mihaela Luca, Adrian Ciobanu and Vasile Drug	Deep Learning and Automatic Polyp Detection in Colonoscopies: a Review of Recent Contributions and Future Outlook	220

### Section: MEDICAL IMAGING AND IMAGE PROCESSING (MIIP)

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Creangă” (B), Traian Hotel

**Chairperson:** Cristian ROTARIU

No	Authors	Title	ID
1	Ioan Păvăloi and Anca Ignat	Iris Occluded Image Classification Using Color and SIFT Features	49
2	Vlad Ghizdovat, Lucian Nita, Paul Herghelegiu, Simona Caraiman, Alina Capitanu, Carmen Mihai, Cati Stolniceanu, Jalloul Wael, Delia Ciobanu, Lidia Ionescu, Irena-Cristina Grierosu and Cipriana Stefanescu	USMED and Surgery Assist: IMAGO MOL Cluster Biomedical Solutions to Improve Patient Imaging Availability and Noninvasive Diagnosis	57
3	Andreia Miclea, Monica Borda, Romulus Terebes and Serban Meza	Hyperspectral Image Enhancement using Diffusion and Shock Filtering Techniques	62

<b>4</b>	Loredana Stanciu and Adriana Albu	Analysis on Emotion Detection and Recognition Methods using Facial Microexpression. A Review	<b>83</b>
<b>5</b>	George-Cosmin Porusniuc, Florin Leon, Radu Timofte and Casian Miron	Convolutional Neural Networks Architectures for Facial Expression Recognition	<b>132</b>
<b>6</b>	Farah Sinada, Saumya Reni, Izzet Kale, Peter Chiodini and Jaya Shrivastava	A Reflective Analysis of Image Processing Operations on Kato-Katz Images for the Pathological Diagnosis of Neglected Tropical Diseases	<b>147</b>
<b>7</b>	Ramona Luca, Silviu Ioan Bejinariu and Florin Rotaru	Tree-Based Classifiers on Human Locomotion Statistical Parameters	<b>150</b>
<b>8</b>	Radu A. Ciora, Bogdan Neamțu, Ciprian Șofariu, Cristina Dospinescu, Andreea Barbu and Daniel Dumitriu Banciu	A Simple Method for 3D Thyroid Reconstruction from 2D Ultrasound Slices	<b>184</b>
<b>9</b>	Wilver Auccahuasi	Detection of Microcalcifications in Digital Mammography Images, Using Deep Learning Techniques, based on Peruvian Casuistry	<b>195</b>

**Workshop: MEDICINE & INFORMATICS (MI)**

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** White Hall (C), Traian Hotel

**Chairperson:** Dan ZAHARIA

<b>No</b>	<b>Authors</b>	<b>Title</b>	<b>ID</b>
<b>1</b>	Silvia Filipciuc, Ramona Gabriela Ursu, Dragos Nemescu, Diana Costin and Luminita Smaranda Iancu	qPCR Detection of Neisseria Gonorrhoeae in Patients with Clinic Pelvic Inflammatory Disease	<b>51</b>
<b>2</b>	Roxana Barbu, Manuela Stefan, Ionut Raducu Popescu, Cristian Oprisa, Bogdan Aurelian Stana and Cristina Maria Gavrilescu	Etiological Diagnosis in Medicinal Intoxications	<b>102</b>
<b>3</b>	Camelia Oana Iatcu, Larisa Cosman, Mihai Dimian and Mihai Covasa	Dietary Patterns in Type-2 Diabetic Patients from Northeastern Romania	<b>105</b>

<b>4</b>	Diana Costin, Andreea Teodor, Irina Anca Popescu, Mihaela Oprea, Manuela Oprisan, Lacramioara Oprica and Andreea Grigorescu	The Dose–Response Curve to X-Rays by Cytokinesis – Block Micronucleus (CMBN) Assay as Biomarker for Medical Dose Estimation in Response to Radiation Emergencies	<b>117</b>
<b>5</b>	Mihaela Simionescu, Raluca Iorgulescu, Carmen Beatrice Pauna and Tiberiu Diaconescu	Micro-elements in the Mineral Waters of Transylvania Region Contributing to Human Health	<b>139</b>
<b>6</b>	Dana Dascultu, Madalina Petran, Simona Stanca, Alexandru Ulmeanu, Cristina Daniela Enache, Coriolan Emil Ulmeanu, Ioana Raluca Adochiei and Ciprian Larco	Epidemiology and Treatment in Metformin Poisoning in Children and Adolescents: a Five-Year Study in a Paediatric Poison Centre	<b>149</b>
<b>7</b>	Cristina Daniela Enache, Simona Gabriela Tudorache, Iolanda Cristina Vivisenco, Madalina Petran, Alexandru Ulmeanu, Emil Coriolan Ulmeanu, Daniel Iulian Voiculescu and Gladiola Petroiu-Andruseac	Predictive Score of the Necessity for Inotropic Vasopressor Support in Children with Acute Poisoning with Cardiotoxic Substances	<b>168</b>
<b>8</b>	Bogdan Mihai Neamtu, Alexandru Farcuta, Beatrice Mihaela Radu, Andrei Dragomir, Ionela Maniu and Daniel Dumitru Banciu	Low Level Laser Modulation of Calcium Channels Leads to Neuronal Extensions Growth	<b>181</b>
<b>9</b>	Daniel Boldureanu, Ioana Roman and Gladiola Andruseac Pietroi	The Analysis of The Doctor – Patient Relationship in the Case of Patients with Diabetes	<b>221</b>
<b>10</b>	Maria Daniela Crăciun, Diana Nicoleta Săvuț, Călina Sinziana Silișteanu and Florin Filip	Physiotherapeutic Management in the Injuries of the Extensor Muscles Tendons of the Hand	<b>233</b>
<b>11</b>	Sinziana Calina Silisteanu, Maria Daniela Craciun and Elisabeta Antonescu	Trial on the Possibility to Assess The Static And Dynamic Balance In The Elderly With Diseases On The Level Of The Supporting Joints	<b>234</b>

**Section: BIOMATERIALS & BIOTECHNOLOGIES (BB)**

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairperson:** Liliana VEREȘTIUC

No	Authors	Title	ID
1	Roberto Robortella, Lucio Barile, Agatino Christian Tavilla, S. Bolis, Alessandro Favalli, G. Vassali and Igor Stefanini	EXODEVICE: Continuous Perfusion Large Scale Exosome Cultivation Bioreactor	60
2	Agatino Christian Tavilla, Daniele Nicolis, Roberto Robortella, Maria Catalina Riano Jaramillo and Igor Stefanini	Fatshake: Device for Producing Globules of Adipose Tissue	66
3	Maria Catalina Riano Jaramillo, Roberto Robortella, Agatino Christian Tavilla and Igor Stefanini	Smart Modular Bioreactor Prototype	67
4	Bulgariu Laura, Lucaci Alina Roxana, Dimbu Radu Stefan and Bulgariu Dumitru	Use of Iron Nanoparticles Functionalized with Alginate for the Adsorption of Pb(II) Ions from Aqueous Media	75
5	Mihaela Roșca, Petronela Cozma, Mariana Minuț, Dana Mihaela Asiminicesei, Camelia Smaranda, Mariana Diaconu and Maria Gavrilescu	Ecological Risk Assessment of Nickel in Soil and the Effects on the Brassica Napus Growth	76
6	Petronela Cozma, Dana-Mihaela Asiminicesei, Raluca-Maria Hlihor, Mihaela Rosca and Maria Gavrilescu	Influence of Cadmium and Lead Ions Toxicity on Lettuce Seeds Germination: a Preliminary Analysis	81
7	Mariana Minuț, Mihaela Rosca, Petronela Cozma, Cezar Catrinescu and Maria Gavrilescu	Ecological and Human Health Risks Generated by Organic UV Filters	82
8	Andrei-Ionuț Simion, Cristina-Gabriela Grigoraș, Lidia Favier and Lucian Gavrilă	Investigation of Kinetics Models and Equilibrium Isotherms for Congo Red Dye Adsorption on Activated Carbon Prepared from Fruits Industry Wastes	92
9	Madalina - Manuela Rindunica Coman, Steluta Gosav, Mirela Praisler and Adelina Ion	QSAR Model based on Molecular Descriptors Built to Predict the CB1 Binding Affinity of JWH Cannabinoids	96

<b>10</b>	Evghenia Savastru, Catalin-Ioan Zamfir, Mariana Diaconu, Dumitru Bulgariu and Laura Bulgariu	Biosorption of Cu(II) Ions from Aqueous Solution on Saccharomyces Cerevisiae Biomass: Isotherm and Kinetics Modelling	<b>145</b>
<b>11</b>	Justina Georgiana Motas and Dumitru Nedelcu	Challenges with Developing Antimicrobial Bio-Materials by Combining Liquid Wood and Silver Nanoparticles	<b>170</b>
<b>12</b>	Mirela-Fernanda Zaltariov, Mihaela Avadanei and Dragos Peptanariu	Structural and Cytotoxic Evaluation of Platinum(IV) Complexes with Biological Active Ligands	<b>185</b>
<b>13</b>	Valentin Massardier, Michel Vincent, Cécile Batailler, Sebastien Lustig, Jean Geringer, Eric Renault, Michel Guichardant and Ana-Maria Trunfio-Sfarghiu	New Bio-tribo-mineralogical Expertise Protocol for Joint Implant Wear Particles. Application: Medical Diagnostic and Articular Implants Optimisation	<b>230</b>
<b>14</b>	Flavius Turbatu, Octavian Aioanei, Vera Balan, Florina Daniela Cojocar, Maria Butnar, Liliana Verestiuc	A Perfusion Protocol for the Porcine Heart Decelularization with Application in Tissue Engineering	<b>236</b>

**Date & Time:** Friday, 22nd of November, 08:00 – 9:45

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairperson:** Liliana VEREȘTIUC

#### Section: BIOMECHANICS (BM)

No	Authors	Title	ID
<b>1</b>	Oana Mihaela Drosu, Marilena Stanculescu, Alexandru Tanasoiu, Daniel Iulian Voiculescu, Gladiola Gabriela Petroiu Andruseac and Stavros Gkanatsios	Robotic Orthosis for Recovery of People With Different Trauma	<b>98</b>
<b>2</b>	Alexandru Ianosi-Andreeva-Dimitrova, Sorin Achis and Dan Silviu Mandru	Monitoring and Feedback System for Spinal Posture Change in Seated Position	<b>186</b>

#### Section: NEW APPROACHES IN RESPIRATORY CARE (RC)

No	Authors	Title	ID
<b>1</b>	Ondřej Gajdoš, Vojtěch Kamenský, Anna Erfányuková and Martin Rožánek	Failure Mode and Effects Analysis Application on a Home Mechanical Ventilation	<b>129</b>



## INVITED PLENARY LECTURES

**Date & Time:** Friday, 22nd of November, 10:00 – 11:15

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Hariton COSTIN, Dan ZAHARIA



**Georgi CHALTIKYAN**

Deggendorf Institute of Technology, Germany

*Digital Health Revolution: Has the Future of  
Medicine Arrived Yet?*



**Andreas VOSS**

Ernst-Abbe-Hochschule (EAH), Jena, Germany

*Assessment of Central-Cardiorespiratory  
Network Pathways*



**Section: MEDICAL DEVICES, MEASUREMENTS, INSTRUMENTATION (MD III)**

**Date & Time:** Friday, 22nd of November, 11:30 – 13:30

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Cristian ROTARIU, Felix ADOCHIEI

No	Authors	Title	ID
1	Lucian Evdochim, Dragos Dobrescu, Lidia Dobrescu and Stela Halichidis	Transmural Pressure Evaluation from Blood Volume Optical Analysis	7
2	Ionescu Marius	Glucometry and Pulse Oximetry - Comparative Noninvasive Methods for Determining Blood Glucose	22
3	Ivan Volosyak and Marco Schmidt	Asynchronous Control of a Spherical Robot by means of SSVEP-based Brain-Computer Interface	110
4	Sunil Kumar T, Elise Sjøiland, Øyvind Stavdahl and Anders Fougner	Pilot Study for Early Meal Onset Detection from Abdominal Sounds	111
5	Radu Arsinte and Eugen Lupu	On the Efficiency of Masking Effect of Hearing Aids for Tinnitus Treatment and Integration in the Hearing Aid Model	126
6	Oana Andreea Rușanu, Luciana Cristea and Marius Cristian Luculescu	Simulation of a BCI System Based on the Control of a Robotic Hand by Using Eye-blinks Strength	143
7	Matthias Lippmann and Adolf Finger	Pseudo Random Correlation Analysis for Determination of the Stiffness of the Annular Ligament	161
8	Volkan Turgul and Izzet Kale	RF/Microwave Non-invasive Blood Glucose Monitoring: An Overview of the Limitations, Challenges & State-of-the-Art	163

**Section: BIOMATERIALS, BIOTECHNOLOGIES, AND ENVIRONMENTAL PROTECTION (BB I)**

**Date & Time:** Friday, 22nd of November, 11:30 – 13:30

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Anca GALACTION, Loredana NIȚĂ

No	Authors	Title	ID
1	Adelina Ion, Steluta Gosav and Mirela Praisler	Screening for NBOME Hallucinogens based on Artificial Neural Networks and Structural Descriptors	18

<b>2</b>	Doina Elena Gavrilă and Victor Stoian	Analysis of Degradation of Polymer Materials Biopropylene (BioPP) and Polyglycolide-Caprolactone (PGLCL) Used in Surgical Sutures	<b>42</b>
<b>3</b>	Ilya Pahomov, Aleksei Zhdanov and Alexey Ulybin	Low-Temperature Plasma Sterilization: Using a Sterilizing Agent Based on Organic Acids (SterAcidAgent®)	<b>54</b>
<b>4</b>	Aleksei Zhdanov, Ilya Pahomov and Alexey Ulybin	Low-Temperature Plasma Sterilization: Bactericidal Evaluation of Sterilization Using a SterAcidAgent	<b>55</b>
<b>5</b>	Camelia Luchian, Andreea Popîrdă, Lucia Cintia Colibaba, Ana Georgiana Popa, Cristina Elena Scutarașu, Liliana Rotaru and Valeriu Cotea	Quantitative Determination of Heavy Metal in Water and Sediment from Lakes in North Moldova, Romania	<b>209</b>
<b>6</b>	Lucia Cintia Colibaba, Cristina Scutarașu, Maria Codreanu, Ioana Călin, Camelia Elena Luchian, Valeriu V. Cotea	Data on Changes in Wine Phenolic Compounds, Biogenic Amines and Amino Acids Composition After Treatment with Carbon-based Materials	<b>210</b>
<b>7</b>	Bianca-Iulia Ciubotaru, Mirela-Fernanda Zaltariov, Liliana Verestiuc, Daniela Filip and Doina Macocinschi	Mucoadhesive Composites Based on Polyurethane/AgNPs for Urinary Catheter Application	<b>225</b>

### Workshop: NEW ADVANCES IN MOTOR-RECOVERY NEUROTECHNOLOGY (MRN)

**Date & Time:** Friday, 22nd of November, 11:30 – 13:30

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** Marian POBORONIUC, Dănuț IRIMIA

No	Authors	Title	ID
<b>1</b>	Iulia-Cristina Stanica, Maria-Iuliana Dascalu, Giovanni-Paul Portelli, Florica Moldoveanu and Alin Moldoveanu	Parkinson's Disease – How Virtual Reality Exercises can Improve the Neurorehabilitation Process	<b>71</b>
<b>2</b>	Danut Constantin Irimia, Alexandru Mitocar, Alina Georgiana Baciu and Marian Silviu Poboroniuc	SSVEP-based Control of a Mobile Robot Platform as a Preamble to Support Paraplegics Mobility	<b>219</b>

**Section: E/M/P-HEALTH, TELEMEDICINE, WEARABLE SYSTEMS (TM)**

**Date & Time:** Friday, 22nd of November, 11:30 – 13:30

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Octavian POSTOLACHE, Sorin PUȘCOCI

No	Authors	Title	ID
1	Paul Tota, Mircea-F. Vaida and Petre-G Pop	Telepresence Robotics Applied to Transport, Monitoring and Assisting People with Disabilities	10
2	George Seritan, Monica Bujanovski, Felix Adochiei, Dan Voiculescu, Florin Ciprian Argatu and Sorin Dan Grigorescu	Alert and Surveillance System for Newborns	94
3	Virginia Sandulescu, Sorin Puscoci, Monica Petre, Sorin Soviany, Alexandru Girlea and Viorel Bota	Design and Development of an Integrated Platform for Management of Homecare Providers	151
4	Michael Alejandro Cabanillas Carbonell and Joselyn Esther Zapata Paulini	Non-invasive Vital Signs Monitoring System with Caution and Emergency Alerts	154
5	Ioan Stefan Sacala, Mihnea Alexandru Moiescu, Ioan Dumitrache, Simona Iuliana Caramihai, Nicolae Constantin, Bogdan Barbulescu, Marius Danciu and Andrei Alexandru Calota	Redundant GSM and Satellite Data Transmission Device with Application in Telemedicine	180
6	Florin Ciprian Argatu, Felix Adochiei, Ioana Adochiei, Radu Ciucu, Vita Vasiliki and George Seritan	A Scalable Real-Time Biomonitoring Platform	198
7	Mariana Jacob Rodrigues, Octavian Postolache and Francisco Cercas	Wireless Sensor Network for Cardiac Activity Monitoring	224
8	Eugenia Papaleo, Giuliana Faiella, Rocco Orofino, Fabio Borrometi and Fabrizio Clemente	TELPASS Project: B2B Teleconsultation for Pediatric Hospices	242

**Workshop: MEDICINE AND INFORMATICS (MI I)**

**Date & Time:** Friday, 22nd of November, 15:00 – 17:00

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Marcel COSTULEANU, Paul-Dan SÎRBU

No	Authors	Title	ID
1	Ioana-Miruna Balmus, Alin Ciobica, Roxana Oana Cojocariu, Lucian Gorgan, Carol Stanciu and Anca Trifan	Correlative Studies on the Biorelevance of Smoking in Gastrointestinal Irritable Bowel Syndrome-like Symptoms	43

2	Ioana-Miruna Balmus, Alin Ciobica, Roxana Oana Cojocariu, Lucian Gorgan, Carol Stanciu and Anca Trifan	The Possible Biorelevance of Alcohol Consumption in some Gastrointestinal IBS-Like Symptoms - Correlative Studies Based on Surveying	44
3	Roxana Cojocariu, Alin Ciobica, Ioana – Miruna Balmus, Lucian Gorgan, Manuela Padurariu, Carol Stanciu and Anca Trifan	Some Mechanical and Computational Aspects on the Correlations that Might Exist between Irritable Bowel Syndrome Versus Sleep Patterns and Disturbances	47
4	Mihaela Pertea, Sergiu Ursu, Petru Ciobanu, Oxana-Madalina Grosu, Razvan Tudor and Paul Dan Sirbu	Ultrasonography of the Median Nerve in the Carpal Tunnel Syndrome Diagnosis	87
5	Andrei Bunea	Antibiotic Elution from Vancomycin Embedded Polymethylmethacrylate Cement Used in Orthopaedic Surgery	113
6	Vlad Ghizdovat, Cipriana Stefanescu, Catalin Borcia, Cati Stolniceanu, Alexandra Saviuc, Irina Butuc, Irena Grierosu, Jalloul Wael and Maricel Agop	A Comparative Simulated Study of Dosimetric Behaviors for Tissue-equivalent Materials	136
7	Deepak Bharadwaj Pemmaraju, Tejaswini Appidi and Aravind Kumar Rengan	Photothermal Therapy Assisted Bioactive Nanoprobes for Effective Cancer Theranostics	146
8	Paul Dan Sirbu, Razvan Tudor, Andrei Scripcaru, Vlad Veringa, Mihnea Theodor Sirbu, Norin Forna and Mihaela Pertea	Locked Intramedullary XS Nail for Ankle Fractures. Design, Biomechanics and Preliminary Results.	176

**Section: BIOMATERIALS, BIOTECHNOLOGIES, AND ENVIRONMENTAL PROTECTION (BB II)**

**Date & Time:** Friday, 22nd of November, 15:00 – 17:00

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Liliana VEREȘTIUC, Michel GUICHARDANT

No	Authors	Title	ID
1	Crenguța Bacaoanu, Veronica Chiriac and Nicoleta Dumitrașcu	Studies on Polymeric Surgical Fibers Wettabilities	17
2	Ioana Marica, Mihaela Aluș, Simona Cîntă and Pînzaru	The Management and Stewardship of Medical Plastic Waste Using Raman Spectroscopy to Sustain Circular Economy	58

<b>3</b>	Eugenia Eftimie Totu, Selim Isildak, Daniel Costinel Petre, Ibrahim Isildak, Corina Marilena Cristache, Ozlem Tavukcuoglu, Roxana Madalina Buga, Ridvan Yildirim and Tiberiu Totu	Bioactive Hybrid Material with Applications in Dental Medicine	<b>182</b>
<b>4</b>	Tiberius Dumitriu, Raluca Petronela Dumitriu and Vasile Ion Manta	Automated Hydrogel Porosity Analysis Based on Scanning Electron Microscopy Image Processing	<b>197</b>
<b>5</b>	Cristina Mihaela Ghiciuc, Loredana Beatrice Ungureanu, Raluca Stefania Stănescu and Raoul Vasile Lupusoru	Nanoparticles in the Therapy of Breast Cancer	<b>201</b>
<b>6</b>	Mirela-Fernanda Zaltariov, Maria Butnaru and Dragos Peptanariu	Cytotoxicity Evaluation of New Ruthenium Complexes	<b>215</b>
<b>7</b>	Ioana A. Duceac, Andrei Lobiuc, Sergiu Coseri, Liliana Verestiuc	Tunable Hydrogels based on Chitosan, Collagen and Poly(Acrylic Acid) for Regenerative Medicine	<b>235</b>

**Section: MEDICAL IMAGING AND IMAGE PROCESSING (MIIP I)**

**Date & Time:** Friday, 22nd of November, 15:00 – 17:00

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** Mircea VAIDA, Ruxandra ȚAPU

<b>No</b>	<b>Authors</b>	<b>Title</b>	<b>ID</b>
<b>1</b>	Gavril Petre Pop and Mircea Florin Vaida	Animal Species Identification Using TESPAS S-Matrices based Features	<b>16</b>
<b>2</b>	Bogdan Mocanu, Ruxandra Tapu and Titus Zaharia	Enhancing the Accesibility of Hearing Impaired to Video Content through Fully Automatic Dynamic Captioning	<b>27</b>
<b>3</b>	Stefania Barburiceanu, Romulus Terebes and Serban Meza	Hyperspectral Image Classification Using the MRELBP Texture Descriptor	<b>63</b>
<b>4</b>	Irina Andra Tache	Temporal Pixel Intensity Processing from Fluoroscopic Angiography	<b>103</b>
<b>5</b>	Muhammad Saqib, Ricardo Bernhardt, Markus Kästner, Natalia Beshchasna, Gianarelio Cuniberti and Jörg Opitz	Application of $\mu$ CT for the Determination of Total Surface Area of Stents	<b>159</b>
<b>6</b>	Lubomír Štěpánek, Pavel Kasal and Jan Měšťák	Evaluation of Facial Attractiveness after Undergoing Rhinoplasty Using Tree-based and Regression Methods	<b>213</b>
<b>7</b>	Raul Malutan and Simina Emerich	Local Line Binary Pattern Vein Extraction from Dorsal Hand Images for Intruder Detection	<b>226</b>

## Workshop: MECHANICAL, AEROSPACE AND BIOMEDICAL ENGINEERING (MABME)

**Date & Time:** Friday, 22nd of November, 15:00 – 17:00

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Ciprian-Marius LARCO, Radu-Călin PAHONIE

No	Authors	Title	ID
1	Jenica-Ileana Corcau, Liviu Dinca, Ioana-Raluca Adochiei and Teodor Lucian Grigorie	Modeling and Simulation of an Aerodrome Electrical Power Source Based on Fuel Cells	73
2	Liviu Dinca, Jenica-Ileana Corcau, Ciprian Marius Larco, Constantin Rotaru and Ioana-Raluca Adochiei	About Aerodynamic Design of a Coanda effect UAV	74
3	Raluca Stefania Trofin, Costin Chiru, Cristian Vizitiu, Adrian Dinculescu, Ruxandra Vizitiu and Alexandru Nistorescu	Detection of Astronauts’ Speech and Language Disorder Signs during Space Missions using Natural Language Processing Techniques	134
4	Alexandru Nistorescu, Adrian Dinculescu, Cristian Vizitiu, Mihaela Marin and Mihai Mandu	Soleus Muscle Assessment During 21 Days Dry Immersion Study using MusTone Device	162
5	Carmen Boglis and Adrian Mihail Stoica	Model Reference Adaptive Control Design for the VEGA Launch Vehicle	241
6	Andra Negru, Ștefan Amado and Cristian Barbu.	Aspects Regarding The Transverse Vibrations Eigenmodes Of A Cantilever Beam Used For Clamping The Electric Motor On Unmanned Aerial Vehicle	243
7	Ciprian Larco	Numerical and Experimental Analysis of a Composite Root end Assembly Configuration	244
8	Radu Calin Pahonie, Razvan Viorel Mihai, Ciprian Marius Larco	Designing a Virtual Instrument for Acquiring Data from a Low Speed Wind Tunnel.	245
9	Radu Calin Pahonie	Effects of Vibration on the Human Body in a Cargo-bay Environment of a Transport Aircraft	246



## SATURDAY, 23<sup>rd</sup> of November

### Section: BIOMEDICAL SIGNAL PROCESSING (SP II)

**Date & Time:** Saturday, 23rd of November, 9:00 – 11:00

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Fabrizio CLEMENTE, GERMÁN-SALLÓ Zoltán

No	Authors	Title	ID
1	Piotr Stawicki, Aya Rezeika, Abdul Saboor and Ivan Volosyak	Investigating Flicker-Free Steady-State Motion Stimuli for VEP-Based BCIs	5
2	Marcelo Grilo Jr, Eliana Santos, Caroline Moraes, Alice Mondejar, Paulo Ascencao, Luciano Araujo, Aline Neves and Francisco Fraga	Limbs Movement and Motor Imagery: an EEG Study	24
3	Alexandra Tautan, Alessandro Rossi, Ruben De Francisco and Bogdan Ionescu	Automatic Sleep Stage Detection using a Single Channel Frontal EEG	39
4	Marcelo Grilo Jr, Laysa Ribeiro, Caroline Moraes, Carlos Melo, Denis Fantinato, Leonardo Sampaio, Aline Neves and Rodrigo Ramos	Artifact Removal in EEG based Emotional Signals through Linear and Nonlinear Methods	52
5	Bogdan Badicu and Andreea Udrea	Cross-subjects Emotions Classification from EEG Signals using a Hierarchical LSTM based Classifier	104
6	German-Sallo Zoltan	HRV Analysis using Complexity Indices	156
7	Jakub Šebek, Hana Schaabova and Vladimír Krajca	Active Learning Approach for EEG Classification Using Neural Networks: A Review	193
8	Radu Matei and Daniela Matei	Multiresolution Spectral Analysis of Epileptic EEG Signals Using Various Wavelet Types	208

### Workshop: MEDICINE AND INFORMATICS (MI II)

**Date & Time:** Saturday, 23rd of November, 9:00 – 11:00

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Ioana ALEXA, Adina Carmen ILIE

No	Authors	Title	ID
1	Gabriela Postolache, Alexandru Trandabat, Olga Plopa, Pedro Silva Girão and Octavian Postolache	Wearable Devices for Studying Microvascular Reactivity – it is Feasible?	78

2	Anca Colibaba, Doina Azoică, Irina Gheorghiu and Mioara Matei	The Hope Project: New Initiatives in the Detection and Prevention of Hereditary Cancers	85
3	Radu Tudor Ciornei, Claudiu Cobuz, Silvia Filipciuc, Elisa Albu, Mihai Covasa	Evaluation of Metabolic Syndrome in Type-2 Diabetes Mellitus and the Role of Gut Microbiota: the MicroDIAB Study	95
4	Adina Carmen Ilie, Hariton Costin, Anca Iuliana Pislaru, Teodora Alexa, Cristian Rotariu, Ioana Alexandra Sandu, Diana Costin and Ioana Dana Alexa	Proposal of Procedure for Heart Rate Variability Monitoring in Oncologic Patients Using a New Technology	123
5	Dan Cristian Moraru, Bogdan Mihnea Ciuntu, Clara Larisa Popa, Costel Dobre, Bogdan Iosip, Angela Tecuceanu, Ionut Atanasoae, Ioana Munteanu, Ioana Diaconu, Radu-Cezar Doru, Ilan Marcovici, Valentin Bejan, Laura Iulia Bozomitu and Camelia Tamas	Negative Pressure Wound Therapy (NPWT) – Performance and Limitations	188
6	Irina-Mihaela Jemnoschi-Hreniuc, Camelia Tamaş, Sorin-Aurelian Paşca, Marius Moraru, Cristina Luca, Gabriel Stătescu, Laura Iulia Bozomitu, Dan Cristian Moraru and Teodor Stamate	Prolonging Nerve Grafts Using Bioengineered Scaffolds Stimulated with EMPF. Muscle-In-Vein Grafts with 'Vein Window' Method	194

### Section: MEDICAL IMAGING AND IMAGE PROCESSING (MIIP II)

**Date & Time:** Saturday, 23rd of November, 9:00 – 11:00

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** Tudor BARBU, Silviu BEJINARIU

No	Authors	Title	ID
1	Tudor Barbu	Inpainting of Medical Images using a Novel Fourth-order PDE-based Interpolation Technique	4
2	Manole-Stefan Niculescu, Adriana Florescu and Sever Pasca	Reagent-free Hemoglobin Portable Analyzer Using Image Processing	50
3	Dorin Moldovan	Transfer Learning Based Method for Two-Step Skin Cancer Images Classification	93
4	Silviu Ioan Bejinariu, Hariton Costin, Florin Rotaru and Ramona Luca	Data Clustering by Nature-inspired Algorithms and Chaotic Maps	119

5	Casian Miron, Alexandru Pasarica, Hariton Costin, Vasile Manta, Radu Timofte and Radu Ciucu	Hand Gesture Recognition based on SVM Classification	135
6	Marius Gavrilescu	Efficient Exploration of 3D Medical Images Using Projected Isocontours	175
7	Felix Adochiei, Radu Ciucu, Ioana-Raluca Adochiei, Florin Ciprian Argatu, Bogdan-Adrian Enache, Casian Miron and George Seritan	Brain Mapping using a Blockchain Approach	206

**Section: BIOMECHANICS (BM)**

**Date & Time:** Saturday, 23rd of November, 9:00 – 11:00

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Florin MUNTEANU, Barbu Cristian BRAUN

No	Authors	Title	ID
1	Diana Cotoros, Corneliu Druga and Anca Stanciu	Syndromes Induced by Human Body Vibrations in Biomechanical and Thermographic Approach	11
2	Walter Baccinelli, Maria Bulgheroni, Veronica Farinelli and Carlo Albino Frigo	Estimating Hand Kinematics in Reaching Tasks Using RFID. A Preliminary Study	12
3	Braun Barbu Cristian	Comparative Analysis of Dynamic External Factors on the Body Behavior	20
4	Ionel Șerban, Vlad Horațiu Sîrbu, Ileana Constanța Roșca and Corneliu Drugă	Experimental Method for Analyzing Human and Robot Balance	108
5	Abdullah Abdullah S Amin, Cristian Gabriel Alionte and Liviu-Marian Ungureanu	Modelling and Simulation of a Hand Orthosis	137

**Section: DECISION SUPPORT SYSTEMS, ARTIFICIAL INTELLIGENCE, BIOINFORMATICS (DSS-AI III)**

**Date & Time:** Saturday, 23rd of November, 11:15 – 13:15

**Location:** Room “Eminescu” (A), Traian Hotel

**Chairpersons:** Dragoș AROTĂRIȚEI, Irina TACHE

No	Authors	Title	ID
1	Alexandra-Georgiana Andrei, Alexandra Tautan and Bogdan Ionescu	Parkinson's Disease Detection from Gait Patterns	38
2	Irina Andra Tache, Monica Drăgoicea, Elena Apostol and Ciprian-Octavian Truică	Text Mining of Medical Records	99

<b>3</b>	Bogdan Aman and Gabriel Ciobanu	How the Formal Description of the Transmembrane Proteins can Reduce the Bio-Medical Experiments	<b>124</b>
<b>4</b>	Alina Cărunta, Mihai Pleșu and Mircea Marin	Antimicrobial Resistance Patterns Detection Using Gene Interaction Networks Analysis	<b>179</b>
<b>5</b>	Todor Ivascu, Kristijan Cincar and Alina Carunta	Extracting Association Rules From Emergency Department Visits Data	<b>217</b>

### Workshop: MEDICINE AND INFORMATICS (MI III)

**Date & Time:** Saturday, 23rd of November, 11:15 – 13:15

**Location:** Room “Creanga” (B), Traian Hotel

**Chairpersons:** Anca PÎSLARU, Elena MANEA

No	Authors	Title	ID
<b>1</b>	Nicoleta Anton, Roxana Elena Ciuntu, Alina Cantemir, Cornelia Maria Glodeanu, Costel Anton and Camelia Margareta Bogdanici	Clinical Study on the Evaluation of Corneal Biomechanical Properties in Patients with Diabetes and Glaucoma	<b>77</b>
<b>2</b>	Anca Iuliana Pislaru, Adina Carmen Ilie, Ioana Sandu and Ioana Dana Alexa	Accurate Methods of Determining Body Composition of Senior Patients	<b>107</b>
<b>3</b>	Andrei Lobiuc, Ionut Pavel, Roxana Todorean, Sebastian Avatamanitei and Mihai Covasa	Metagenomic Insights on the Role of Gut Microbiota in Type-2 Diabetes	<b>120</b>
<b>4</b>	Elena Manea, Daniela Condorovici, Tudor Ciobanu and Anca Munteanu	Brachytherapy Technique from 2D to 3D in Cervical Cancer – Short Overview	<b>199</b>

### Section: MEDICAL DEVICES, MEASUREMENTS, INSTRUMENTATION (MD IV)

**Date & Time:** Saturday, 23rd of November, 11:15 – 13:15

**Location:** White Hall (C), Traian Hotel

**Chairpersons:** Octavian POSTOLACHE, Radu MUNTEANU

No	Authors	Title	ID
<b>1</b>	Wen-Yu Hsu, Lan-Li Xie, Yu-Huei Su, Mei-Ju Su, Li Su, Mei-Chih Chen and Hong-Ting Chan	Establishment of a Music Care System for the Elderly in a Long-term Care Facility	<b>33</b>
<b>2</b>	Dan Iudean, Paul Laze, Radu Munteanu Jr., Mihai Munteanu and Voicu Mercea	Pilot-Study of a Low-Cost Iontophoresis Device	<b>97</b>
<b>3</b>	Catalina Luca, Robert Fuior, Doru Andritoi and Calin Corciova	Development of an Interactive Post-Stroke Rehabilitation Tool Based on Microsoft Kinect	<b>140</b>

4	Martin Barton, Vlastimil Koudelka, Václava Piorecká, Jitka Bušková and Vladimír Krajča	Comparison of Linear and Non-linear Dimension Reduction Techniques for Automatic Apnea Detection	167
5	Mihaela Ioana Baritz and Mirela Gabriela Apostoaie	Development of Equipment for Visual Aid and Motor Rehabilitation Training for Blind Patients	172
6	Monica-Claudia Dobrea, Dan-Marius Dobrea and Ionuț-Cristian Sevrin	A New Wearable System for Head Gesture Recognition Designed to Control an Intelligent Wheelchair	216
7	João Monge, Octavian Postolache, Olga Plopa, Alexandru Trandabat, Oliver Schreiner and Thomas Schreiner	Glucose Detection in Sweat using Biosensors	223

### Workshop: MEDICINE AND INFORMATICS (MI IV) - DENTAL MEDICINE

**Date & Time:** Saturday, 23rd of November, 11:15 – 13:15

**Location:** Room “Caragiale” (D), Traian Hotel

**Chairpersons:** Georgeta ZEGAN, Loredana GOLOVCENCU

No	Authors	Title	ID
1	Daniela Anistoroaei, Georgeta Zegan, Loredana Golovcencu, Eduard Radu Cernei, Alina Sodor-Botezatu and Cătălina Iulia Săveanu	Cone-Beam Computed Tomography - A Useful Tool in Orthodontic Diagnosis	152
2	Georgeta Zegan, Daniela Anistoroaei, Eduard Radu Cernei, Alina Sodor-Botezatu, Gristina Gena Dascalu and Loredana Golovcencu	Panoramic Radiography versus Cone-Beam Computed Tomography in the Therapeutic Decision of the Impacted Teeth	165
3	Loredana Golovcencu, Daniela Anistoroaei, Alina Sodor-Botezatu, Eduard Radu Cernei and Georgeta Zegan	A Comparative Study between Two Imaging Techniques Used for Maxillary Third Molar Prediction of Eruption	173
4	Irina Gradinaru, Cristina Gena Dascalu and Magda Ecaterina Antohe	Comparative Study On Biomechanical Behaviour Of Non-Metallic Biomaterials Used In Removable Protheses	205
5	Maria Bolat, Elena-Raluca Baci, Carina Balcos, Zenaida Surlari, Dan-Nicolae Bosinceanu, Cosmin-Florinel Bida and Dana-Gabriela Budala	Oral Health in a Group of Institutionalized Elderly in Iasi	207
6	Maria Bolat, Elena Raluca Baci, Carina Balcos, Zenaida Surlari, Cosmin Bida and Dana-Gabriela Budala	Multidisciplinary Patient Management Program - A New Approach, Physician / Clinical Manager Perspective	211

## EHB 2019 CONFERENCE CLOSING. AWARD CEREMONY

**Date & Time:** Saturday, 23rd of November, 13:30 – 14:00

**Location:** Room “Eminescu” (A), Traian Hotel

### CHAIRPERSONS EHB 2019

DAY, HOUR	SESSION	CHAIRPERSONS	ROOM
Thursday, 9:00	Plenary Lectures I	Anca Galaction, Hariton Costin, Dan Zaharia	University Aula
Thursday, 11:30	MD I	Radu Ciorap, Martin Rožánek	Eminescu (A)
Thursday, 11:30	DSS-AI I	Constantin Găindric, Gabriel Dimitriu	Creangă (B)
Thursday, 11:30	SP I	Jose Joaquin Rieta, Cristian Rotariu	White Hall (C)
Thursday, 11:30	HIS	Anca Ignat, Cristina Dascălu	Caragiale (D)
Thursday, 15:00	MD II	Dan-Marius Dobrea, Călin Corciovă	Eminescu (A)
Thursday, 15:00	DSS-AI II	Svetlana Cojocaru, Mihail Popescu	Creangă (B)
Thursday, 15:00	WS RC	Martin Rožánek, Petr Kudrna	White Hall (C)
Thursday, 15:00	WS AT	Radu Bozomitu, Cristian Rotariu	Caragiale (D)
Friday, 8:00	Poster Session	Călin Corciovă Cristian Rotariu Dan Zaharia Liliana Vereștiuc	Eminescu (A) Creangă (B) White Hall (C) Caragiale (D)
Friday, 10:00	Plenary lectures II	Hariton Costin, Dan Zaharia	Eminescu (A)
Friday, 11:30	MD III	Cristian Rotariu, Felix Adochiei	Eminescu (A)
Friday, 11:30	BB I	Anca Galaction, Loredana Niță	Creangă (B)
Friday, 11:30	WS MRN	Marian Poboroniuc, Dănuț Irimia	White Hall (C)
Friday, 11:30	TM	Octavian Postolache, Sorin Pușcoci	Caragiale (D)
Friday, 15:00	WS MI I	Marcel Costuleanu, Paul-Dan Sîrbu	Eminescu (A)

Friday, 15:00	BB II	Liliana Vereștiuc, Michel Guichardant	Creangă (B)
Friday, 15:00	MIIP I	Mircea Vaida, Ruxandra Țapu	White Hall (C)
Friday, 15:00	WS MABME	Ciprian-Marius Larco, Radu-Călin Pahonie	Caragiale (D)
Saturday, 9:00	SP II	Fabrizio Clemente, Germán-Salló Zoltán	Eminescu (A)
Saturday, 9:00	WS M II	Ioana Alexa, Adina Carmen Ilie	Creangă (B)
Saturday, 9:00	MIIP II	Tudor Barbu, Silviu Bejinariu	White Hall (C)
Saturday, 9:00	BM	Florin Munteanu, Barbu Cristian Braun	Caragiale (D)
Saturday, 11:15	DSS-AI III	Dragoș Arotăriței, Irina Tache	Eminescu (A)
Saturday, 11:15	WS MI III	Anca Pîslaru, Elena Manea	Creangă (B)
Saturday, 11:15	MD IV	Octavian Postolache, Radu Munteanu	White Hall (C)
Saturday, 11:15	WS MI IV	Georgeta Zegan, Loredana Golovcencu	Caragiale (D)

## SESSIONS

**Biomaterials & Biotechnologies (BB)**

**Biomechanics (BM)**

**Biomedical Signal Processing (SP)**

**Decision Support Systems, Artificial Intelligence, Bioinformatics (DSS-AI)**

**Hospital Information Systems (HIS)**

**Medical devices, Instrumentation, Modeling/Simulation**

**Medical Imaging and Image Processing (MIIP)**

**Telemedicine, e/p/m-health (TM)**

**Workshop: Assistive Technologies (AT)**

**Workshop: Dental Medicine**

**Workshop: Mechanical, Aerospace & Biomedical Engineering (MABME)**

**Workshop: Medicine & Informatics (MI)**

**Workshop: New Advances in Motor-Recovery Neurotechnology (MRN)**

**Workshop: New Approaches in Respiratory Care (RC)**



## **EHB 2019 INTERNATIONAL SCIENTIFIC COMMITTEE**

Viorel Scripcariu – Rector of the UMF Iași, Faculty of Medicine  
Hariton Costin – UMF Iași, Faculty of Medical Bioengineering, Romania  
Dan Zaharia – UMF Iasi, President of the Romanian Society of Medical Bioengineering  
Anca Galaction – UMF Iași, Dean of the Faculty of Medical Bioengineering, Romania  
Liliana Vereștiuc – UMF Iași, Faculty of Medical Bioengineering, Romania, Co-chair  
Alexandru Morega – Politehnica University, Bucharest, Romania  
Metin Akay – University of Houston, USA  
Adrian Barbu – Florida State University, USA  
Jose Bravo – Castilla-La Mancha University, Ciudad Real, Spain  
Ivaylo Christov – Bulgarian Academy of Science, Sofia, Bulgaria  
Fabrizio Clemente – National Research Council, Roma, Italy  
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Maria Manuela Cruz-Cunha – Polytechnic Institute of Cávado and Ave, Portugal  
Danilo De Rossi – University of Pisa, Italy  
Valentin Drăgoi – University of Texas, USA  
Carlo Frigo – Politecnico di Milano, Italy  
Constantin Gaidric – Academy of Sciences of Moldova, Kishinev  
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Ákos Jobbágy – Budapest University of Technology and Economics, Hungary  
Izzet Kale – University of Westminster, United Kingdom  
Petr Kudrna – Czech Technical University in Prague, Czech Republic  
Ratko Magjarević – University of Zagreb, Croatia  
Winfried Mayr – Medical University of Vienna, Austria  
Konstantina Nikita – National Technical University of Athens  
Nicolas Pallikarakis – University of Patras, Greece  
Mihail Popescu – University of Missouri, USA  
Octavian Postolache – Institute of Telecommunications, Lisbon, Portugal  
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Karel Roubik – Czech Technical University in Prague, Czech Republic  
Martin Rožánek – Czech Technical University in Prague, Czech Republic  
Abdel-Badeeh Salem – Ain Shams University, Cairo, Egypt  
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Adrian Stoica – JPL-NASA, USA  
Ion Tiginyanu – Academy of Sciences of Moldova  
Vicente Traver Salcedo – Polytechnic University of Valencia, Spain  
Milan Štork – University of West Bohemia, Plzen, Czech Republic  
Victor Șontea – Technical University of Moldova, Kishinev  
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Andreas Voss – University of Applied Sciences Jena, Germany  
Gheorghe Zaharia – Université Européenne de Bretagne, INSA-Rennes, France  
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Felix Adochiei – Politehnica University, Bucharest, Romania  
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Ioana Dana Alexa – UMF Iași, Faculty of Medicine, Romania  
Gladiola Andruseac – UMF Iași, Faculty of Medical Bioengineering, Romania  
Iulian Antoniac – Politehnica University, Bucharest, Romania  
Florin Argatu - Politehnica University, Bucharest, Romania



Dragoş Arotăriţei – UMF Iaşi, Faculty of Medical Bioengineering, Romania  
Tudor Barbu – Institute of Computer Science of the Romanian Academy Iaşi Branch  
Mihaela Baritz – Transilvania University of Brasov, Romania  
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Radu Ciupa – Technical University of Cluj – Napoca, Romania  
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Mircea Hulea – Gheorghe Asachi Technical University of Iaşi, Romania  
Horia Iovu – Politehnica University, Bucharest, Romania  
Sorin Jinga – Politehnica University, Bucharest, Romania  
Anca Lazăr – UMF Iaşi, Faculty of Medical Bioengineering, Romania  
Diana Lungeanu – University of Medicine and Pharmacy, Timișoara, Romania  
Marcela Mihai – Petru Poni Institute of Macromolecular Chemistry, Iasi, Romania  
Constanța Mocanu – Apollonia University, Iaşi, Romania  
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Florin Munteanu – UMF Iaşi, Faculty of Medical Bioengineering, Romania  
Sever Paşca – Politehnica University, Bucharest, Romania  
Paraschiva Postolache – UMF Iaşi, Faculty of Medicine, Romania  
Calin Popovici – Romanian Space Agency, Romania  
Gabriel-Ioan Prada – Carol Davila University of Medicine and Pharmacy, Bucharest  
Radu-Emil Precup – Polytechnic University of Timisoara, Romania  
Sorin Puşcoci – National Communications Research Institute, Bucharest, Romania  
Gabriel-Lucian Radu – Politehnica University, Bucharest, Romania  
Dan Răfiroiu – Technical University of Cluj – Napoca, Romania  
Cristian Rotariu – UMF Iaşi, Faculty of Medical Bioengineering, Romania  
Florin Rotaru – Institute of Computer Science of the Romanian Academy Iaşi Branch  
George Seritan – Politehnica University, Bucharest, Romania  
Loredana Stanciu – Polytechnic University of Timișoara, Romania  
Lacramioara Stoicu-Tivadar – Polytechnic University of Timișoara, Romania  
Vasile Stoicu-Tivadar – Polytechnic University of Timișoara, Romania  
Mircea-Florin Vaida – Technical University of Cluj – Napoca, Romania  
Constantin Vertan – Politehnica University, Bucharest, Romania  
Cristian Vizitiu – Institute of Space Science, Romania  
Georgeta Zegan – UMF Iaşi, Faculty of Dental Medicine, Romania



## **EHB 2019 ORGANIZING COMMITTEE**

Hariton Costin – UMF Iasi, Romania, General Chair  
Gladiola Andrusac - UMF Iasi, Romania, Organizing Committee Chair  
Cristian Rotariu - UMF Iasi, Romania, Conference Publication Chair  
Anca Galaction - UMF Iasi, Romania Co-chair  
Liliana Vereștiuc - UMF Iasi Romania, Co-chair  
Dan Zaharia - UMF Iasi, Romania, Co-chair  
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