

5th Conference on Information Technologies in Biomedicine

Program

| Monday, June 20th, 2016 | | | |
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| 08:00 | Registration | | |
| 09:00 | Opening | | |
| Moderator: <i>prof. Ewa Piętka, PhD, DSc</i> | | | |
| 09:15 | Invited lecture: <i>prof. Rafał Tarnawski, MD, PhD</i> <i>Cyberknife Radiotherapy - Clinical Applications</i> | | |
| Image Processing Chair: <i>prof. Artur Przelaskowski, PhD, DSc</i> | | Signal Processing Chair: <i>prof. Ewaryst Tkacz, PhD, DSc</i> | |
| 10:15 | A Statistical Dominance Algorithm for Edge Detection and Segmentation of Medical Images, <i>vol.1 p.3</i> <i>A. Piórkowski</i> | 10:15 | Preprocessing Methods in Nuclear Magnetic Resonance Spectroscopy, <i>vol.1 p.341</i> <i>M. Staniszewski, A. Skorupa, L. Boguszewicz, M. Sokol, A. Polanski</i> |
| 10:30 | Swarm Intelligence Approach to 3D Medical Image Segmentation, <i>vol.1 p.15</i> <i>M. Galinska, P. Badura</i> | 10:30 | Towards Pulse Wave Velocity Estimation Using Specific ECG and PPG Algorithms, <i>vol.1 p.279</i> <i>S. Borik, B. Babusiak</i> |
| 10:45 | Discrimination of Wheat Grain Varieties Using X-ray Images, <i>vol.1 p.39</i> <i>M. Charytanowicz, J. Niewczas, P. Kulczycki, P. A. Kowalski, S. Łukasik</i> | 10:45 | Averaging of Time-Warped ECG Signals for QT Interval Measurement, <i>vol.1 p.291</i> <i>T. Moroi</i> |
| 11:00 | Coffee break | | |
| 11:30 | Imaging of the Anterior Eye Segment in the Evaluation of Corneal Dynamics, <i>vol.1 p.63</i> <i>M. Jędzierska, R. Koprowski, Z. Wróbel</i> | 11:30 | Localization of Epileptic Foci Using EEG Brain Mapping, <i>vol.1 p.303</i> <i>M. Snajdarova, B. Babusiak</i> |
| 11:45 | Application of Eye Tracking to Support Children's Vision Enhancing Exercises, <i>vol.1 p.75</i> <i>P. Kasprowski, M. Dzierzega, K. Kruk, K. Harezlak, E. Filipek</i> | 11:45 | Real Time Processing of MEG/EEG Data with MNE-CPP <i>L. Esch</i> |
| 12:00 | Biopsy Needle and Tissue Deformations Detection in Elastography Supported Ultrasound, <i>vol.1 p.85</i> <i>J. Czajkowska, J. Juszczyk, B. Pycinski, E. Pietka</i> | 12:00 | The First Experience with the Use of Noise-Assisted Empirical Mode Decomposition Algorithm in the Processing of Multi-Channel Electrogastrography Signals, <i>vol.1 p.311</i> <i>D. Komorowski</i> |
| 12:15 | Modification of the ICP Algorithm for Detection of the Occlusal Area of Dental Arches, <i>vol.1 p.97</i> <i>K. Skabek, A. A. Tomaka</i> | 12:15 | Assessment of Slow Wave Propagation in Different Phases of Food Stimulation in the Multichannel Electrogastrographic Signal (EGG), <i>vol.1 p.325</i> <i>B. T. Mika, E. J. Tkacz</i> |
| 12:30 | Directional Characteristics of Mammographic Spicules in the Complex Wavelet Domain, <i>vol.1 p.25</i> <i>M. Jasionowska, A. Przelaskowski</i> | 12:30 | Computer-Aided Evaluation of Sibilants in Preschool Children Stigmatism Diagnosis, <i>vol.1 p.367</i> <i>Z. Miodońska, M. Kręćchwost, A. Szymańska</i> |
| 13:00 | Lunch | | |
| Image Processing Chair: <i>prof. Robert Cierniak, PhD, DSc</i> | | Special Session: Behavioural Biometrics & Anthropology Chair: <i>prof. Andrzej W. Mitas, PhD, DSc</i> | |
| 14:15 | The Fast Matching Algorithm for Rectified Stereo Images, <i>vol.1 p.107</i> <i>P. Popielski, R. Koprowski, Z. Wróbel</i> | 14:15 | Pre and Post Menarche - Girls' Bodies Parameters Comparison, <i>vol.1 p.399</i> <i>A. M. Lipowicz, A. W. Mitas, M. D. Bugdol, M. N. Bugdol, M. J. Bieńkowska, A. M. Wijata, D. Danel</i> |
| 14:30 | Targeted X-Ray Computed Tomography: Compressed Sensing of Stroke Symptoms, <i>vol.1 p.119</i> <i>A. Przelaskowski</i> | 14:30 | Longitudinal Voice Study (LoVoIS) Methodology and Preliminary Research Results, <i>vol.1 p.389</i> <i>M. D. Bugdol, M. N. Bugdol, A. M. Lipowicz, A. W. Mitas, M. J. Bieńkowska, A. M. Wijata, D. Danel</i> |
| 14:45 | Simple Atlas Selection Strategies for Liver Segmentation in CT Images, <i>vol.1 p.137</i> <i>D. Spinczyk, A. Krasoń</i> | 14:45 | Impact of Music on the Effectiveness of Performing Mathematical-Logical Tasks, <i>vol.1 p.409</i> <i>A. W. Mitas, A. M. Lipowicz, A. M. Wijata, M. J. Bieńkowska</i> |
| 15:00 | Automatic 3D Segmentation of Renal Cysts in CT, <i>vol.1 p.149</i> <i>P. Badura, W. Wiclawek, B. Pycinski</i> | 15:00 | Model of Attenuation of Sound Stimuli in Prenatal Music Therapy, <i>vol.1 p.421</i> <i>M. J. Bieńkowska, A. W. Mitas, A. M. Lipowicz</i> |
| 15:15 | Coffee break | | |
| 15:45 | Multimodal Image Registration for Mandible Motion Tracking, <i>vol.1 p.179</i> <i>A. A. Tomaka, M. Tarnawski, D. Pojda</i> | 15:45 | Acoustic Mask for Air Flow Distribution Analysis in Speech Therapy, <i>vol.1 p.377</i> <i>M. Kręćchwost, Z. Miodońska, J. Trzaskalik, J. Pyttel, D. Spinczyk</i> |
| 16:00 | Breast Ultrasound Tomography: Preliminary <i>in vivo</i> Results, <i>vol.1 p.193</i> <i>K. J. Opiełiński, P. Pruchnicki, M. Józwiak, J. Majewski, T. Gudra, M. Bułkowski, W. Roguski</i> | 16:00 | Comparison of novel multifactorial artifact marking with manual selection of artifact free epochs in sleep EEG of 1-year-old children <i>E.-M. Dölker</i> |
| 16:15 | The Ultrasound Investigation of the Medial Head of Gastrocnemius Muscle, <i>vol.1 p.207</i> <i>E. Świątek-Najwer, U. Czajkowska, L. J. Jankowski</i> | 16:15 | Coughing Record Analysis Using Matlab Signal Processing Toolbox, <i>vol.1 p.445</i> <i>L. Behun, M. Smetana</i> |
| 18:00 | Concert | | |
| 19:00 | Gala dinner | | |

5th Conference on Information Technologies in Biomedicine

Tuesday, June 21st, 2016

Moderator: prof. Stanislav Czudek, MD, PhD

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| 09:00 | Invited lecture: prof. Vladimír Študent, MD, PhD (Urological Clinic, University Hospital Olomouc, Czech Republic) | |
| | <i>Radical Robotic Prostatectomy - Operating Room Live Broadcast</i> | |
| | Image Processing Chair: Dominik Spinczyk, PhD, DSc | Special Session: Ambient Assisted Living Chair: prof. Marcin Grzegorzek, PhD, DSc |
| 10:30 | The Use of Doppler Effect for Tomographic Tissue Imaging with Omnidirectional Acoustic Data Acquisition, vol.1, p.219 <i>T. Świątlik, K. J. Opieliński</i> | 10:30 From Ambient Assisted Living to Active and Assisted Living: A Practical Perspective on Experiences and Approaches, vol.2 p.3 <i>G. Aumayr</i> |
| 10:45 | Analytical Statistical Approach for Fan-Beam Scanners, vol.1 p.231 <i>R. Cierniak</i> | 10:45 Emotion Recognition Based on Physiological Sensor Data Using Codebook Approach, vol.2 p.27 <i>K. Shirahama, M. Grzegorzek</i> |
| 11:00 | Improving Children Diagnostics by Efficient Multi-Label Classification <i>K. Glinka, A. Wosiak, D. Zakrzewska</i> | 11:00 Assistive Integrated Personal Trainer System, vol.2 p.49 <i>J. Furmaniak, R. Kaczorowski, M. Kasprzycki, B. Zgrzeba, Z. Kubiak, E. Łukasik</i> |
| 11:15 | Coffee break | |
| | Modeling and Simulation Chair: prof. Krzysztof Opieliński, PhD, DSc | Special Session: Ambient Assisted Living Chair: prof. Marcin Grzegorzek, PhD, DSc |
| 11:30 | Application of Reverse Engineering in Supporting the Treatment of Pectus Carinatum, vol.2 p.217 <i>M. Antonowicz, A. Kajzer, W. Kajzer</i> | 11:30 Quantitative Validation of Gait and Swing Angles Determination from Inertial Signals, vol.2 p.63 <i>P. Stepien, Z. Miodonska, A. Nawrat-Szołtysik, M. N. Bugdol, M.</i> |
| 11:45 | Breast Deformation Modeling Based on MRI Images, Preliminary Results, vol.2 p.227 <i>M. Danch-Wierzchowska, D. Borys, A. Świerniak</i> | 11:45 Application of Gait Index Assessment to Monitor the Treatment Progress in Patients with Cerebral Palsy, vol.2 p.75 <i>K. Nowakowska, R. Michnik, K. Jochymczyk-Woźniak, J. Jurkojć, M. Mandra, I. Kopyta</i> |
| 12:00 | ToF-Data-Based Modelling of Skin Surface Deformation, vol.2 p.235 <i>J. Juszczak, J. Czajkowska, B. Pycinski, E. Pietka</i> | 12:00 Recognising Gait Patterns of People in Risk of Falling with a Multi-Layer <i>R. Hoffmann, C. Lauterbach, A. Techmer, J. Conradt, A. Steinhage</i> |
| 12:15 | Evaluation of Radiofrequency Field (2.4 GHz) Effects to Multilayer Structure of Human Skin and Pacemaker, vol.2 p.245 <i>Z. Psenakova, M. Smondrk, G. Lo Sciuto, M. Benova</i> | |
| 12:30 | Fluid Flow Analysis Using Finite Element Method, Determining the Effects of the Implantable Mechanical Heart Valves on Aortic Blood Flow, vol.2 p.255 <i>P. Kurtyka, W. Walke, M. Kaczmarek</i> | |
| 13:00 | Lunch | |
| 14:00-15:00 | Poster session | |
| 15:30 | Social event | |
| 19:00 | Dinner | |

5th Conference on Information Technologies in Biomedicine

| Poster session | | | |
|----------------|---|----|--|
| 1 | Face Localization Algorithms as Element of Silhouette Localization Process, vol.1 p.51 <i>M. Marzec, A. Lamża, Z. Wróbel, A. Ciech</i> | 2 | The Importance of the Features of the Posterior Cruciate Ligament in Diagnosis, vol.1 p.165 <i>A. Zarychta-Bargieła, P. Zarychta</i> |
| 3 | 3D Measurement of Geometrical Distortion of Synchrotron-based Perforated Polymer with Matlab Algorithm, vol.1 p.245 <i>M. Walczak</i> | 4 | Building Intelligent Classifiers for Doctor-Independent Parkinson's Disease Treatments, vol.1 p.267 <i>A. Szymański, S. Szlufik, D. M. Kozirowski, P. Habela, A. W. Przybyszewski</i> |
| 5 | Electrical Activity of Uterus as Reliable Information on Contractions During Pregnancy and Labour, vol.1 p.353 <i>K. Horoba, J. Jezewski, T. Kupka, A. Matonia, R. Czabanski, D. Raj</i> | 6 | Arterial Blood Gases Forecast Optimization by Artificial Neural Network Method, vol.1 p.433 <i>W. Wajs, P. Wais, M. Ochab, H. Wojtowicz</i> |
| 7 | Semantics Discovering in Relational Databases by Pattern-Based Mapping to Association-Oriented Metamodel - a Biomedical Case Study, vol.1 p.475 <i>M. Jodłowiec, M. Krótkiewicz</i> | 8 | Patients Assessment in Telegeriatrics Care, vol.2 p.15 <i>J. Derejczyk, J. Kawa, A. Bednorz, J. Lach, A. Hanusiak, K. Antoniak, J. Szymuszal, P. Seiffert</i> |
| 9 | Human Activity Recognition Using Smartphone Sensors, vol.2 p.41 <i>M. D. Bugdol, A. W. Mitas, M. Grzegorzek, R. Meyer, C. Wilhelm</i> | 10 | Building Management System - Artificial Intelligence Elements in Ambient Living Driving and Ant Programming for Energy Saving - Alternative Approach, vol.2 p.109 <i>J. Utracki</i> |
| 11 | Texture Analysis to Trophoblast and Vili Detection in Placenta Histological Images, vol.2 p.183 <i>Z. Swiderska-Chadaj, T. Markiewicz, R. Koktysz, W. Kozłowski</i> | 12 | Apoptosis in Cancer Cells, vol.2 p.207 <i>E. Blahovcová, H. Škovierová, J. Strnádel, D. Mištuna, E. Halašová</i> |
| 13 | Forming an Occlusal Splint to Support the Therapy of Bruxism, vol.2 p.267 <i>L. Luchowski, A. A. Tomaka, K. Skabek, M. Tarnawski, P. Kowalski</i> | 14 | Sensitivity Analysis of Signaling Pathways in the Frequency Domain, vol.2 p.275 <i>M. Kardynska, J. Smieja</i> |
| 15 | Electrochemical Properties of TiO ₂ Oxide Film on 316LVM Stainless Steel for Orthopedic Implants, vol.2 p.375 <i>A. Hyla, W. Walke</i> | 16 | Determination of Loads in the Joints of the Upper Limb During Activities of Daily Living, vol.2 p.99 <i>A. Guzik-Kopyto, R. Michnik, P. Wodarski, I. Chuchnowska</i> |
| 17 | Development of New Testing Method of Mechanical Properties of Porcine Coronary Arteries, vol.2 p.289 <i>B. Gzik-Zroska, K. Jaszko, Wojciech Wolański, Marek Gzik</i> | | |

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5th Conference on Information Technologies in Biomedicine

Wednesday, June 22nd, 2016

Moderator: prof. Ewa Piętka, PhD, DSc

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| 09:00 | Invited lecture: Arkadiusz Gertych, PhD <i>High-Content Analysis of Tissue on Slides</i> | | |
| Medical Information Systems and Database <i>Chair: Paweł Badura, PhD</i> | | Biomaterials <i>Chair: prof. Zygmunt Wróbel, PhD, DSc</i> | |
| 10:00 | Integrated System for Clinical Decision Support in Emergency Stroke Care, vol.1 p.457 <i>A. Przelaskowski, E. Sobieszczuk, R. Józwiak, D. Życka-Malesa, I.</i> | 10:00 | From the Research on Planning of Chemical Syntheses: Computer-Aided Modeling and Prediction of PGI2 Metabolic Reactions, vol.2 p.363 <i>Z. S. Hippe</i> |
| 10:15 | Similarity Search for the Content of Medical Records, vol.1 p.489 <i>D. Spinczyk, M. Dzieciątko</i> | 10:15 | Evaluation of Physicochemical Properties of TiO ₂ Layer on AISI 316LVM Steel Intended for Urology, vol.2 p.385 <i>W. Kajzer, A. Kajzer, M. Grygiel-Pradelok, A. Ziębowicz, B. Ziębowicz</i> |
| 10:30 | Application of Preprocessing Techniques to Imbalanced Clinical Data: An <i>S. Wilk, J. Stefanowski, S. Wojciechowski, K. J. Farion, W. Michalowski</i> | 10:30 | Non-Destructive Evaluation of Biomaterial's Magnetic Field After Plastic <i>M. Smetana, V. Chudacik, K. Capova, M. Oravcova</i> |
| 10:45 | Coffee break | | |
| Bioinformatics <i>Chair: Arkadiusz Gertych, PhD</i> | | Biomechanics <i>Chair: Robert Michnik, PhD, DSc</i> | |
| 11:15 | Application of Adjoint Sensitivity Analysis to Parameter Estimation of Age-structured Model of Cell Cycle, vol.2 p.123 <i>M. Jakubczak, K. Fajarewicz</i> | 11:15 | Risk Factors Influencing Lower Limbs Injuries During IED Blast, vol.2 p.299 <i>M. Gzik, W. Wolański, B. Gzik-Zroska, K. Jozsko, M. Burkacki, S. Suchoi</i> |
| 11:30 | Multidimensional Correlated Mutation Analysis for Protein Contact Map Prediction, vol.2 p.133 <i>K. Kupkova, K. Sedlar, I. Provaznik</i> | 11:30 | Hybrid Method of Human Limb Joints Positioning - Hand Movement Case Study, vol.2 p.307 <i>G. Glonek, A. Wojciechowski</i> |
| 11:45 | Human Fibroblast Growth Factor 2 Hot Spot Analysis by Means of Time <i>A. Tamulewicz, E. Tkacz</i> | 11:45 | A Survey of Selected Machine Learning Methods for the Segmentation of <i>M. Pawlyta, P. Skurowski</i> |
| 12:00 | Structured Bi-Clusters Algorithm for Classification of DNA Microarray Data, vol.2 p.161 <i>P. Foszner, A. Polanski</i> | 12:00 | Evaluation of Automatic Calibration Method for Motion Tracking Using Magnetic and Inertial Sensors, vol.2 p.337 <i>E. Lach</i> |
| 12:15 | Prediction of Newborn Weight Using Questionnaire Data and Machine Learning Approach, vol.2 p.173 <i>J. Pieter, S. Student, K. Sobczyk, K. Fajarewicz</i> | 12:15 | The Influence of Uncertainty in Body Segment Mass on Calculated Joint Moments and Muscle Forces, vol.2 p.349 <i>M. Żuk, C. Pezowicz</i> |
| 12:30 | Machine Learning Can Reliably Distinguish Histological Patterns of <i>N. Ing, S. Salman, Z. Ma, A. Walts, B. Knudsen, A. Gertych</i> | | |
| 13:00 | Lunch & closing | | |