

The logo consists of the characters 'i', '4', 'i', and 'D' in a stylized, outlined font. The first 'i' has a circle above it, the '4' is a simple outline, the second 'i' has a solid blue heart above it, and the 'D' is a simple outline.

i4iD

The text '7th' is written in a large, white, sans-serif font, positioned on the left side of a dark blue horizontal bar.

7th

International Conference  
Information Technology in Biomedicine

**Kamień Śląski  
Poland**

**JUNE  
17-19. 2019**

Conference organizers:



**Silesian University  
of Technology**

Faculty of Biomedical Engineering  
Department of Informatics and  
Medical Devices

SAS Institute Polska



Monday, June 17th, 2019	
08:00	Registration
09:00	<b>Opening</b>
<i>Moderator: prof. Ewa Piętka</i>	
09:15	Invited lecture: <b>prof. Jens Haueisen</b> <i>Dry Electrodes for Electroencephalography</i>
10:15	Invited lecture: <b>prof. Elizabeth A. Krupinski</b> <i>What is the Role of Artificial Intelligence in Medical Imaging</i>
11:15	<b>Coffee break</b>
<b>Special Session: Analytics in Action on SAS Platform</b> <i>Chair: prof. Dominik Spinczyk</i>	
11:45	De-Identification of Electronic Health Records Data <i>Piotr Borowik, Piotr Brylicki, Mariusz Dzieciatko, Waldemar Jędo, Łukasz Leszewski, Piotr Zajęc</i>
12:00	Correcting Polish Bigrams and Diacritical Marks <i>Mariusz Dzieciatko, Dominik Spinczyk, Piotr Borowik</i>
12:15	Initial Motivation as a Factor Predicting the Progress of Learning Mathematics for the Blind <i>Michał Maćkowski, Katarzyna Rojewska, Mariusz Dzieciatko, Dominik Spinczyk</i>
13:00	<b>Lunch</b>
<b>Special Session: Quantitative Data Analysis in Medical Diagnosis</b> <i>Chair: prof. Michał Strzelecki, prof. Piotr Szczypiński</i>	
<b>Medical Tools and Interfaces</b> <i>Chair: prof. Artur Przelaskowski</i>	
14:15	Functional Thermal Imaging of Skin Tissue Using the Discrete Thermal Time Constants Spectrum <i>Maria Strąkowska, Robert Strąkowski, Michał Strzelecki</i>
14:15	Classification System for Multi-Class Biomedical Data That Allows Different Data Fusion Strategies <i>Sebastian Studer, Krzysztof Łakomic, Alicja Pluciennik, Wojciech Benz, Krzysztof Fajarewicz</i>
14:30	Contextual Classification of Tumor Growth Patterns in Digital Histology Slides <i>Zaneta Swiderska-Chadaj, Zhaoxuan Ma, Nathan Ing, Tomasz Markiewicz, Malgorzata Lorent, Szczepan Cierniak, Ann E. Walts, Beatrice S. Knudsen, Arkadiusz Gertych</i>
14:30	Preliminary Study of Computer Aided Diagnosis Methodology for Modeling and Visualization the Respiratory Deformations of the Breast Surface <i>Aleksandra Juraszczyk, Mateusz Bas, Dominik Spinczyk</i>
14:45	Functional Kidney Analysis Based on Textured DCE-MRI Images <i>Marcin Kociołek, Michał Strzelecki, Artur Klepaczko</i>
14:45	Software Tool for Tracking of Voxel Phantom's Anatomical Features <i>Maros Smondrk, Branko Babusiak, Mariana Benova</i>
15:00	<b>Coffee break</b>
<b>Special Session: Quantitative Data Analysis in Medical Diagnosis</b> <i>Chair: prof. Michał Strzelecki, prof. Piotr Szczypiński</i>	
15:30	Incorporating Patient Photographs in the Radiology Image Acquisition & Interpretation Process <i>Elizabeth A. Krupinski</i>
15:45	Iterative Statistical Reconstruction Algorithm Based on C-C Data Model with the Direct Use of Projections Performed in Spiral Cone-beam CT Scanners <i>Robert Cierniak, Piotr Pluta</i>
16:00	Deformable Mesh for Regularization of Three-Dimensional Image Registration <i>Piotr M. Szczypiński, Artur Klepaczko</i>
16:15	Application of HR MAS NMR Spectroscopy in Metabolic Profiling of Thyroid Lesions <i>Agnieszka Skorupa, Mateusz Cizek, Łukasz Boguszewicz, Maria Sokół</i>
18:00	<b>Concert</b>
19:00	<b>Gala dinner</b>

Tuesday, June 18th, 2019			
Moderator: <i>prof. Piotr Augustyniak</i>			
09:00	Invited lecture: <i>prof. Andrzej Napieralski</i> ARUZ - Revolution or Evolution in Supercomputing?		
<b>Special Session: Medical Data Science</b> <i>Chair: prof. Andrzej Napieralski, dr. Przemysław Łagodziński</i>		<b>Special Session: Biocybernetics in Physiotherapy</b> <i>Chair: prof. Andrzej W. Mitas</i>	
09:45	Electromyography Based Translator of the Polish Sign Language <i>Noemi Kowalewska, Przemysław Łagodziński, Marcin Grzegorzek</i>	09:45	Relationship Between Body Sway and Body Building in Girls and Boys in Developmental Age <i>Anna Lipowicz, Tomasz Szurmik, Monika N. Bugdol, Katarzyna Graja, Piotr Kurzeja, Andrzej W. Mitas</i>
10:00	Electrooculography Application in Vision Therapy Using Smart Glasses <i>Maja Trzepacz, Przemysław Łagodziński, Marcin Grzegorzek</i>	10:00	RAS in the Aspect of Symmetrization of Lower Limb Loads <i>Patrycja Romaniszyn, Damian Kania, Katarzyna Nowakowska, Marta Sobkowiak, Bruce Turner, Andrzej Myśliwiec, Robert Michnik, Andrzej Mitas</i>
10:15	Assessment of Muscle Fatigue, Strength and Muscle Activation During Exercises with the Usage of Robot Luna EMG, Among Patients with <i>Krystyna Stańczyk, Anna Pościwata, Anna Rokseła, Michał Mikulski</i>	10:15	Subjective and Objective Assessment of Developmental Dysfunction in Children Aged 0-3 Years - Comparative Study <i>Mariola Ciuraj, Katarzyna Kieszczyńska, Iwona Doroniewicz, Anna Lipowicz</i>
10:30	Information Models of Dynamics in Healthcare <i>Vaclav Repa</i>	10:30	Intra- and Intergroup Measurement Errors in Anthropometric Studies Carried out on Face Images <i>Katarzyna Graja, Anna Lipowicz, Monika N. Bugdol, Andrzej W. Mitas</i>
10:45	A Preliminary Evaluation of Transferring the Approach Avoidance Task into Virtual Reality <i>Tanja Joan Eiler, Armin Grünewald, Alla Machulska, Tim Klucken, Katharina Jahn, Björn Niehaves, Carl Friedrich Gethmann, Rainer Brück</i>	10:45	Comparative Analysis of Selected Stabilographic Parameters among Polish and Slovak Children in Aspect of Factors Indirectly Affecting the Body Posture <i>Tomasz Szurmik, Piotr Kurzeja, Jarosław Prusak, Zuzanna Hudakova, Bartłomiej Gąsienica-Walczak, Karol Bibrowicz, Andrzej Mitas</i>
11:00	Coffee break		
<b>Image Analysis</b> <i>Chair: dr. Arkadiusz Gertych</i>		<b>Special Session: Biocybernetics in Physiotherapy</b> <i>Chair: prof. Andrzej W. Mitas</i>	
11:30	Descriptive Seons: Measure of Brain Tissue Impairment <i>Artur Przelaskowski, Ewa Sobieszczyk, Izabela Domitrz</i>	11:30	The Impact of Physical Activity on the Change of Pulse Wave Parameters <i>Anna Mańka, Robert Michnik, Andrzej W. Mitas</i>
11:45	An Automatic Method of Chronic Wounds Segmentation in Multimodal Images <i>Joanna Czajkowska, Marta Biesok, Jan Juszczyk, Agata Wijata, Bartłomiej Pyciński, Michał Kręćchwost, Ewa Piętka</i>	11:45	Evaluation of Selected Parameters Related to Maintaining the Body Balance in the Aspect of Physical Activity in Young Adults <i>Piotr Kurzeja, Jarosław Prusak, Tomasz Szurmik, Jan Potoniec, Zuzanna Hudakova, Bartłomiej Gąsienica-Walczak, Karol Bibrowicz, Andrzej W. Mitas</i>
12:00	Infrared and Visible Image Fusion Objective Evaluation Method <i>Daniel Ledwoń, Jan Juszczyk, Ewa Piętka</i>	12:00	Classification of Girls' Sexual Maturity Using Factor Analysis and Analysis of Moderated Mediation <i>Monika N. Bugdol, Marta Marszałek, Marcin D. Bugdol</i>
12:15	Wavelet Imaging Features for Classification of First-Episode Schizophrenia <i>Katerina Marsalova, Daniel Schwarz</i>	12:15	Rhythmic Auditory Stimulation. A Biocybernetics Dimension of Music Entrainment <i>Bruce Turner, Andrzej W. Mitas</i>
12:30	Dynamic Occlusion Surface Estimation from 4D Multimodal Data <i>Agnieszka A. Tomaka, Leszek Luchowski, Dariusz Pojda, Michał Tarnawski</i>	12:30	Assessment of Loads Exerted on the Lumbar Segment of the Vertebral Column in Everyday-Life Activities - Application of Methods of Mathematical Modelling <i>Hanna Zadoń, Robert Michnik, Katarzyna Nowakowska, Andrzej Myśliwiec</i>
13:00	Lunch		
14:00	Poster session <i>Chair: dr. Joanna Czajkowska, dr. Jan Juszczyk</i>		
1	Simulator for Modelling Confocal Microscope Distortions <i>Katarzyna Sprawka, Piotr M. Szczypiński</i>	2	Weakly Supervised Cervical Histopathology Image Classification Using Multilayer Hidden Conditional Random Fields <i>Chen Li, Hao Chen, Dan Xue, Zhijie Hu, Le Zhang, Liangzi He, Ning Xu, Shouliang Qi, He Ma, Hongzan Sun</i>
3	A Survey for Breast Histopathology Image Analysis Using Classical and Deep Neural Networks <i>Chen Li, Dan Xue, Zhijie Hu, Hao Chen, Yudong Yao, Yong Zhang, Mo Li, Qian Wang, Ning Xu</i>	4	Evaluation of Methods for Volume Estimation of Chronic Wounds <i>Jan Juszczyk, Agata Wijata, Joanna Czajkowska, Marta Biesok, Bartłomiej Pyciński, Ewa Piętka</i>
5	Evaluation of Dental Implant Stability Using Radiovisiographic Characterization and Texture Analysis - Preliminary Study <i>Marta Borowska, Janusz Szarmach</i>	6	Patella - Atlas Based Segmentation <i>Piotr Zarychta</i>
7	Evaluation of Specific Absorption Rate in SAM Head Phantom with Cochlear Implant with and without Hand Model near PIFA Antenna <i>Jana Mydlova, Mariana Benova, Zuzana Psenakova, Maros Smondrk</i>	8	Evaluation of the Usefulness of Images Transmitted by the Internet Communicator for the Diagnosis of Surgical Changes <i>Dariusz Dzieliński, Paweł Mikos, Krzysztof Dzieliński, Witold Lukas, Józef Dzieliński</i>
9	Digitized Records with Automatic Evaluation for Natural Family Planning and Hormonal Treatment <i>Zuzana Judakova, Ivana Galova, Michal Gala, Ladislav Janousek</i>	10	Cervical Histopathology Image Classification Using Ensembled Transfer Learning <i>Chen Li, Dan Xue, Fanjie Kong, Zhijie Hu, Hao Chen, Yudong Yao, Hongzan Sun, Le Zhang, Jinpeng Zhang, Tao Jiang, Jianying Yuan, Ning Xu</i>
15:00	Social event		
19:00	Dinner		

Wednesday, June 19th, 2019	
Moderator: <b>prof. Paweł Badura</b>	
08:30	Invited lecture: <b>prof. Sebastian Schnieder</b> <i>Affective Computing: Concepts, Sensors, Applications</i>
09:15	Invited lecture: <b>prof. Michał Strzelecki</b> <i>Biomedical Image Texture Analysis - a Tool for Supporting Medical Diagnostics</i>
<b>Special Session: Special Session: Data Mining Tools and Methods in Medical Applications</b> <b>Chair: prof. Adam Wojciechowski, dr. Bartłomiej Stasiak</b>	
<b>Biomechanics and Biomaterials</b> <b>Chair: prof. Marek Gzik</b>	
10:00	Convolutional Neural Networks in Speech Emotion Recognition - Time-Domain and Spectrogram-Based Approach <i>Bartłomiej Stasiak, Sławomir Opałka, Dominik Szajerman, Adam Wojciechowski</i>
10:00	The Evaluation of Gait Strategy on a Treadmill Using a New IGS Index Based on Frequency Analysis of COP Course <i>Piotr Wodarski, Jacek Jurkojć, Andrzej Bieniek, Miłosz Chrzan, Robert Michnik, Zygmunt Łukaszczyk, Marek Gzik</i>
10:15	EEG Classification and Feature Interpretation with Deep Learning <i>Thomas Jochmann, Simon Heinke, Elisabeth Jochmann, Jens Hauelsen</i>
10:15	The Analysis of the Influence of Virtual Reality on Parameters of Gait on a Treadmill According to Adjusted and Non-Adjusted Pace of the Visual Scenery <i>Piotr Wodarski, Jacek Jurkojć, Andrzej Bieniek, Miłosz Chrzan, Robert Michnik, Jacek Polechoński, Marek Gzik</i>
10:30	Convolutional Neural Networks for Computer Aided Diagnosis of Interdental and Rustling Stomatitis <i>Andre Woloshuk, Michał Kręcichwost, Zuzanna Miodońska, Dominika Korona, Paweł Badura</i>
10:30	Evaluation of Muscle Activity of the Lower Limb During Isometric Rotation Based on Measurements Using a Dynamometric and Dynamographic Platform <i>Miłosz Chrzan, Robert Michnik, Andrzej Bieniek, Piotr Wodarski, Andrzej Myśliwiec</i>
10:45	Barley Defects Identification by Convolutional Neural Networks <i>Michał Kozłowski, Piotr M. Szczypiński</i>
10:45	Adhesion of Poly(lactide-glycolide) Coating (PLGA) on the Ti6Al7Nb Alloy Substrate <i>Janusz Szewczenko, Wojciech Kajzer, Anita Kajzer, Marcin Basiaga, Marcin Kaczmarek, Roman Major, Wojciech Simka, Joanna Jaworska, Katarzyna Jelonek, Paulina Karpeta-Jarząbek, Janusz Kasperczyk</i>
11:00	Wavelet Convolution Neural Network for Classification of Spiculated Findings in Mammograms <i>Magdalena Jasionowska, Aleksandra Gacek</i>
11:15	<b>Coffee break</b>
<b>Signal Processing and Analysis</b> <b>Chair: prof. Robert Cierniak</b>	
11:45	Pointwise Estimation of Noise in a Multilead ECG Record <i>Piotr Augustyniak</i>
12:00	Heart Rate Variability Analysis on Reference Heart Beats and Detected Heart Beats of Smartphone Seismocardiograms <i>Szymon Sieciński, Paweł S. Kostka, Ewaryst J. Tkacz, Natalia Piaseczna, Marta Wadas</i>
12:15	The New Approach for ECG Signal Quality Index Estimation on the Base of Robust Statistic <i>Tomasz Pander, Tomasz Przybyła</i>
12:30	8-Lead Bioelectrical Signals Data Acquisition Unit <i>Tadeas Bednar, Branko Babusiak, Milan Smetana</i>
12:45	Smart Sheet Design for Electrocardiogram Measurement <i>Branko Babusiak, Stefan Borik, Maros Smondrk, Ladislav Janousek</i>
13:15	<b>Lunch &amp; closing</b>