



— ITIB CONFERENCE —

June 22-24, 2026



PROGRAM



Monday, June 22nd, 2026

08:00	REGISTRATION
09:00	OPENING CEREMONY
09:15	KEYNOTE LECTURE From Models to Systems: The Next Frontier of Generative AI Prof. Dr. Ing. Jakub Tomczak <i>Eindhoven University of Technology</i> Moderator: Arkadiusz Gertych
10:15	COFFEE BREAK
10:45	PLENARY SESSION From Models to Systems Moderators: Paweł Badura, Żaneta Świdarska-Chadaj An Integrated Calibration–Uncertainty Framework to Improve Reliability of Deep Learning Models for Seizure Detection in EEG Signals <i>Silvia Seoni*, Filippo Molinari, Margherita Benevieri, Massimo Salvi</i> Merging modeling at intracellular and population levels to improve accuracy of metastasis prediction <i>Artur Wycisłok, Małgorzata Kardyńska*, Jarosław Śmieja</i> A Modular Deep Learning Pipeline for Stromal TILs Scoring in Breast Cancer H&E Slides <i>Shrief Abdelazeez*, Faisal Ahmed, Laia Adalid, Krzysztof Siemion, Carlos Lopez, Marylene Lejeune, Hatem Rashwan, Anna Korzyńska</i> Actinic keratosis staging in multimodal image data <i>Anna Slian*, Katarzyna Korecka, Adriana Polańska, Joanna Czajkowska</i> Application of Multimodal Large Language Models for HER2/CEN17 FISH Signal Detection <i>Tomasz Leś*, Kamil Fryszkowski</i> Automated Quantification of Myeloblasts in Bone Marrow Trephine Biopsies <i>Martyna Przybylska*, Sławomir Pakuło, Mateusz Miller, Małgorzata Sokół, Adrianna Boroń-Wanot, Gabriela Kaczmarek, Adam Krawczyk, Żaneta Swiderska-Chadaj</i> FSCL-BC: Federated Supervised Contrastive Learning for Breast Cancer Diagnosis with High Sensitivity <i>Faisal Ahmed*, David Sánchez, Zouhair Haddi, Josep Domingo-Ferrer</i> Strategies for incorporating alternative splicing variants in thyroid nodule biopsy classification based on expression levels <i>Agata Małgorzata Wilk*, Krzysztof Łakomicz, Małgorzata Oczko-Wojciechowska, Małgorzata Kowalska, Jolanta Krajewska, Barbara Jarzqb, Sebastian Student</i>
13:00	LUNCH
14:00	KEYNOTE LECTURE Simulation of blood flows in deformable vessels Prof. Ryszard Bialecki <i>Silesian University of Technology</i> Moderator: Ewa Piętka

15:00	<p>PLENARY SESSION</p> <p>Advances in Cardiology</p> <p>Moderators: Jan Juszczyk, Ziemowit Ostrowski</p> <p>Detecting Cardiovascular Diseases Using ECG Scans and Explainable Artificial Intelligence <i>Arkadiusz Czerwiński*, Damian Kucharski, Jacek Kawa, Yalin Zheng, Gregory Y. H. Lip, Jakub Nalepa, Agata M. Wijata</i></p> <p>Patient-Specific Continuous Non-Invasive Blood Pressure Waveform in Computed Tomography Derived Fractional Flow Reserve Calculation: Comparison with Population-Based Pressure Models <i>Kryspin Mirota, Joanna Wicher-Żółtaniecka, Mateusz Rzycki, Izabela Popiel-Humeniuk, Andrzej Kosior, Ziemowit Ostrowski*</i></p> <p>Artifact-Aware Classification for Smartphone-Based Heart Auscultation <i>Ryszard Błażej*, Wiktoria Forys, Mateusz Danioł</i></p> <p>Analysis of the Sensitivity of Systolic Time Intervals Derived from the Impedance Cardiogram to an Orthostatic Manoeuvre <i>Milena Natalia Chołuj, Bartosz Tomasz Śmigielski*, Edward Koźluk, Ewa Michalak, Gerard Cybulski</i></p> <p>Adaptive Non-Uniform ECG Sampling with Linear Reconstruction: Achieving High Diagnostic Fidelity at Low Data Rates <i>Pratixita Bhattacharjee*, Piotr Augustyniak</i></p>
16:15	<p>COFFEE BREAK</p>
16:30	<p>PLENARY SESSION</p> <p>Modelling and Imaging</p> <p>Moderators: Dominik Spinczyk, Ryszard Białycki</p> <p>From 2D to 3D: Automated Ultrasound Segmentation and Cross-Sectional Validation in Murine Tumor Models <i>Weronika Smolak-Dyżewska, Jerzy Bazak, Wiktoria Brandys, Aleksandra Bienia, Aleksandra Murzyn, Gniewosz Drwięga, Julia Kozik, Agnieszka Drzał, Przemysław Spurek, Martyna Elas, Martyna Krzykawska-Serda*</i></p> <p>Detection of Selected Cerebral Vessels and Intracranial Aneurysms in Computed Tomography Angiography Image <i>Jakub Gumulski*, Jarosław Żyłkowski, Michał Szatkowski, Dominik Spinczyk</i></p> <p>Three-dimensional oxygen maps of tumors in real time – analysis in the context of active tumor vasculature <i>Gabriela Dziurman, Natalia Radzikowska, Agnieszka Drzał, Aleksandra Murzyn, Piotr Świerzewski, Małgorzata Szczygieł, Bożena Romanowska-Dixon, Martyna Krzykawska-Serda, Martyna Elas*</i></p> <p>Automatic segmentation of selected cerebral vascular structures and their geometric parameters in computed tomography <i>Jakub Gumulski*, Jarosław Żyłkowski, Michał Szatkowski, Dominik Spinczyk</i></p>
18:30	<p>GALA DINNER</p>
<p>Tuesday, June 23rd, 2026</p>	
09:00	<p>KEYNOTE LECTURE</p> <p>Intelligence Integrated: Balancing AI Potential with Clinical Reality Prof. Elizabeth Krupinski <i>Ernest Garcia Endowed Professor & Vice Chair for Research Department of Radiology & Imaging Sciences Emory University</i></p> <p>Moderator: Joanna Czajkowska</p>

10:00	<p style="text-align: center;">PLENARY SESSION</p> <p style="text-align: center;">Texture Analysis in Biomedical Images I</p> <p style="text-align: center;">Moderators: Ewa Pietka, Michał Strzelecki</p> <p style="text-align: center;">Introductory talk: Radiomics in Medical Image Analysis: From Classical Machine Learning to Deep Learning <i>Michał Strzelecki, Adam Piórkowski</i></p> <p style="text-align: center;">White Matter Hyperintensity Segmentation in Brain MRI Images Using Local Histogram Skewness <i>Tomasz Woźniak*, Adam Piórkowski</i></p> <p style="text-align: center;">The Enhancement of Trabecular Bone Structure on X-ray Images using the Statistical Dominance Algorithm <i>Oliwia Grałek*</i></p> <p style="text-align: center;">Clinical experience shapes visual strategies across multiple diagnostic modalities in Dentistry: An Eye-Tracking Study <i>Piotr Kociński*, Kinga Mytnik, Kinga Janczukowicz, Jaromir Przybyło, Elżbieta Pociask</i></p> <p style="text-align: center;">Effect of Contrast-Limited Adaptive Histogram Equalization on the Correlation Between Bone Mineral Density and Histogram-Based Features in Digital Radiography <i>Olga Zegzda*, Adam Piórkowski, Paweł Kamiński</i></p>
11:30	<p>COFFEE BREAK</p>
12:00	<p style="text-align: center;">PLENARY SESSION</p> <p style="text-align: center;">Texture Analysis in Biomedical Images II</p> <p style="text-align: center;">Moderators: Joanna Czajkowska, Adam Piórkowski</p> <p style="text-align: center;">ThermoTrack: An Interactive Framework for Robust Thermal Signal Extraction <i>Oskar Kapuśniak*, Adam Piórkowski, Paweł Rubiś</i></p> <p style="text-align: center;">Transparent Augmented-reality Head-Mounted Displays vs Medical-Grade Monitor in Laryngologic Endoscopy: A Comparative FM-100 Color Discrimination and Fitts' Law Pointing Study <i>Jaromir Przybyło*, Paweł Dobosz</i></p> <p style="text-align: center;">Radiomic Feature-Based Classification of BI-RADS 4/5 Breast Lesions on Contrast-Enhanced Mammography <i>Wiktoria Błędzińska*, Jakub Pałachniak, Mateusz Winder, Anna Grażyńska, Joanna Czajkowska</i></p> <p style="text-align: center;">Skin Segmentation in High-Frequency Ultrasound Images Using the nnU-Net Framework <i>Irmina Lepiarczyk*, Anna Slian, Katarzyna Korecka, Adriana Polańska, Natalia Salwowska, Joanna Czajkowska</i></p>
13:00	<p>LUNCH</p>
14:00	<p style="text-align: center;">KEYNOTE LECTURE</p> <p style="text-align: center;">Towards the rehabilitation of neurovascular retinal functions</p> <p style="text-align: center;">Univ. Prof. Dr. Ing. Sascha Klee <i>Head of Optoelectrophysiological Engineering Technische Universität Ilmenau, Ilmenau, Germany</i></p> <p style="text-align: center;">Moderator: Andrzej Mitas</p>
14:30	<p style="text-align: center;">PLENARY SESSION</p> <p style="text-align: center;">Biomedical Signal Processing</p> <p style="text-align: center;">Moderators: Paweł Badura, Damian Borys</p>

Pre-stimulus Oculomotor Signatures of Deception in the Concealed Information Test

Weronika Celniaak, Dominika Stąparczyńska, Piotr Augustyniak*

Deep learning-based hair removal on ultraviolet-induced fluorescence dermatoscopy images

Aleksander Kempski, Natalia Salwowska, Anna Slian, Katarzyna Korecka, Paweł Pietkiewicz, Adriana Polańska, Damian Borys, Joanna Czajkowska*

Identification and characterization of genetic variants based on the analysis of NGS data from breast cancer samples

*Szymon Tylnicki, Anna Tamulewicz**

Integrating Evolutionary Game Theory with SEIRD Models: A Spatial Epidemic Simulator for Strategy-Based Interventions

Paweł Mendzik, Damian Borys*

Analysis of Modification in Photoplethysmographic Signal Descriptors Induced by Orthostatic Maneuver

Bartosz Tomasz Śmigielski, Milena Natalia Chołuj, Mateusz Pałasz, Marek Żyliński, Gerard Cybulski*

Application of the quantum reconstruction method to the geometry of a commercial CT scanner

Robert Cierniak, Jakub Sosnowski*

Spectral Super-Resolution for Parkinson's Voice via Diffusion-Inspired Models and Signal-Consistent Constraints

Miłosz Dudek, Jakub Sikora, Justyna Krzywdziak, Magda Zbik, Daria Hemmerling, Wojciech Szecowka, Marek Wodźński, Mateusz Daniol, Magdalena Wojcik-Pędziwiatr*

Neural estimates of language comprehension of sentences with selected action verbs in a non-literal context in the Polish language studied by permutation cluster-based analysis and decoding of the event-related potentials

Karina Maciejewska, Kamil Wańczyk, Tomasz Nowak*

16:30

COFFEE BREAK

17:00

SPECIAL SESSION

Neurology and Ophthalmology: Clinical Needs as a Source of Inspiration in Biomedical Engineering

Moderator: prof. Andrzej Mitas, prof. Sławomir Teper

Collaborative Platform for Evidence-Based Ophthalmology

Sławomir Teper

Clinical perspectives on multimodal retinal imaging in Biomedical research

Adam Sendeki

More data, even more tools, not as much clinical implementation and even less profit - what are we doing wrong?

Oskar Bożek

Automated MRI Assessment of Atrophy Progression in Multiple Sclerosis

Weronika Galus

Neurophysiological biomarkers derived from alterations in brain bioelectrical activity in various neurological disorders

Katarzyna Zawisłak-Fornagiel

18:30

SOCIAL EVENT

09:00

KEYNOTE LECTURE

Why Medicine Needs Robots, Why Robots Need Intelligence, and Why Physicians Need Engineers

Prof. Zbigniew Nawrat
*Department of Biophysics, Faculty of Medical Science, Medical University of Silesia
 Foundation of Cardiac Surgery Development, Zabrze
 International Society for Medical Robotics, President*

Moderator: Piotr Zarychta

10:00

SPECIAL SESSION
Advances in Biomechanics

Moderators: Daniel Ledwoń, Robert Michnik

Energy Expenditure During Variable-Speed Walking Under Rhythmic Auditory Stimulation

Martyna Świtula, Daniel Ledwoń, Andrzej W. Mitas*

Effects of Movement Sonification on Simple Motor Task Performance: A Pilot Study

Aleksandra Tuszy, Patrycja Romaniszyn-Kania, Daniel Ledwoń, Martyna Świtula, Damian Kania, Milana Komosar, Jens Haueisen, Andrzej W. Mitas*

Biomechanical Evaluation of the Impact of Cigarettes and Nicotine Products on Reaction Time Results

Jakub Sornek, Patryk Pasternak, Martyna Przybylska, Klaudia Śmiełowska, Jakub Wołosz, Piotr Szaflik, Hanna Zadoń, Robert Michnik*

Biomechanical Evaluation of the Influence of Cigarettes and Nicotine Products on the Results of Stabilographic Examination

Martyna Przybylska, Klaudia Śmiełowska, Jakub Sornek, Patryk Pasternak, Piotr Szaflik, Jakub Wołosz, Hanna Zadoń, Robert Michnik*

Biomechanical Effects of Cigarette Smoking and Nicotine Use on Spatiotemporal Gait Parameters

Klaudia Śmiełowska, Martyna Przybylska, Jakub Sornek, Patryk Pasternak, Piotr Szaflik, Jakub Wołosz, Hanna Zadoń, Robert Michnik*

Rigid-Body Transformation for Head Motion Compensation in Facial Expression Tracking Using ArUco Markers – Pilot Study

Marta Polewka, Dawid Danecki, Davide Rzeszowski, Wiktoria Mazur, Sebastian Zowada, Zuzanna Miodońska, Andrzej Myśliwiec, Krzysztof Dowgierd, Anna Lipowicz, Michał Kręcichwost*

SPECIAL SESSION
Voice and Speech Analysis

Moderators: Michał Kręcichwost, Agata Sage

Histopathology-Verified Clinical Voice Database – Pilot Acoustic Analysis of Sustained

Katarzyna Mazur, Oliwia Skórzewska, Zuzanna Miodońska, Barbara Mika, Miłosz Dudek, Daria Hemmerling, Michał Simlot, Alicja Dworak-Marczenko, Wirginia Likus, Jarosław Markowski, Michał Kręcichwost*

Voice Pathology Detection Based on Acoustic Signal Analysis Using ML Models

Jakub Kosman, Aleksandra Badura, Oliwia Skórzewska, Zuzanna Miodońska, Michał Simlot, Alicja Dworak-Marczenko, Wirginia Likus, Jarosław Markowski, Michał Kręcichwost*

Sigmatism Detection from Child Speech Spectrograms Using Convolutional Autoencoders and Support Vector Machines

Wojciech Pieniążek, Maria Filipek, Oliwia Skórzewska, Zuzanna Miodońska*

The Influence of Environmental Conditions on Acoustic Voice Parameters and Vowel Differentiation

Aleksandra Urantówka, Hanna Zielonka, Patrycja Romaniszyn-Kania, Damian Kania, Klaudia Wojciech, Mirosław Czak, Paulina Krasnodębska, Agata Szkiełkowska, Andrzej W. Mitas*

Relative spectral and frication-based descriptors as numerical indicators of place of articulation shifts in fricatives produced by Polish children

Oliwia Skórzewska, Zuzanna Miodońska*

11:30

COFFEE BREAK

12:00	<p style="text-align: center;">PLENARY SESSION</p> <p style="text-align: center;">Biotechnology and Biomaterials</p> <p style="text-align: center;">Moderators: Jan Juszczyk, Maria Bieńkowska</p> <p style="text-align: center;">Prototype of Hydrogel-Based Corneal Implant via Bioprinting Technique <i>Mikołaj Gąbka*, Zofia Sierpień, Ewa Stodolak-Zych</i></p> <p style="text-align: center;">Effect of Nanoscale Surface Texturing of Metallic Implants on Microbiological Properties <i>Zuzanna Burkiewicz*, Paulina Armatys, Ewa Stodolak-Zych</i></p> <p style="text-align: center;">Multimodal Analysis of 3D Skin Models Thickness Using 75 MHz HFUS, OCT and Histopathology: A Preliminary Study <i>Anna Slian*, Christoph Malkmus, Christa Albert, Maximiliane Wußmann, Marc Möllmann, Maryam Sadat Mirabdollahyan, Jan Hansmann, Joanna Czajkowska</i></p>
13:00	LUNCH AND CLOSING