



— 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 Świdorska-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 Wyciśłok, Małgorzata Kardynańska*, 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 Les*, 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 Jarząb, Sebastian Student</i>
13:00	LUNCH
14:00	KEYNOTE LECTURE Simulation of blood flows in deformable vessels Prof. Ryszard Białycki <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 Mirola, 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 Błazej*, Wiktoria Foryś, Mateusz Daniol</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	COFFEE BREAK
16:30	<p>PLENARY SESSION</p> <p>Modelling and Imaging</p> <p>Moderators: Dominik Spinczyk, Ryszard Bialecki</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	GALA DINNER

Tuesday, June 23rd, 2026

09:00

KEYNOTE LECTURE

Intelligence Integrated: Balancing AI Potential with Clinical Reality

Prof. Elizabeth Krupinski

Ernest Garcia Endowed Professor & Vice Chair for Research

Department of Radiology & Imaging Sciences

Emory University

Moderator: Joanna Czajkowska

10:00

PLENARY SESSION

Texture Analysis in Biomedical Images I

Moderators: Ewa Pietka, Michał Strzelecki

Introductory talk: Radiomics in Medical Image Analysis: From Classical Machine Learning to Deep Learning

Michał Strzelecki, Adam Piórkowski

White Matter Hyperintensity Segmentation in Brain MRI Images Using Local Histogram Skewness

Tomasz Woźniak, Adam Piórkowski*

The Enhancement of Trabecular Bone Structure on X-ray Images using the Statistical Dominance Algorithm

*Oliwia Gratek**

Clinical experience shapes visual strategies across multiple diagnostic modalities in Dentistry: An Eye-Tracking Study

Piotr Kociński, Kinga Mytnik, Kinga Janczukowicz, Jaromir Przybyło, Elżbieta Pociask*

Effect of Contrast-Limited Adaptive Histogram Equalization on the Correlation Between Bone Mineral Density and Histogram-Based Features in Digital Radiography

Olga Zegzda, Adam Piórkowski, Paweł Kamiński*

11:30

COFFEE BREAK

12:00

PLENARY SESSION

Texture Analysis in Biomedical Images II

Moderators: Joanna Czajkowska, Adam Piórkowski

ThermoTrack: An Interactive Framework for Robust Thermal Signal Extraction

Oskar Kapuśniak, Adam Piórkowski, Paweł Rubiś*

Transparent Augmented-reality Head-Mounted Displays vs Medical-Grade Monitor in Laryngologic Endoscopy: A Comparative FM-100 Color Discrimination and Fitts' Law Pointing Study

Jaromir Przybyło, Paweł Dobosz*

Radiomic Feature-Based Classification of BI-RADS 4/5 Breast Lesions on Contrast-Enhanced Mammography

Wiktoria Błędzińska, Jakub Pałachniak, Mateusz Winder, Anna Grażyńska, Joanna Czajkowska*

Skin Segmentation in High-Frequency Ultrasound Images Using the nnU-Net Framework

Irmina Lepiarczyk, Anna Slian, Katarzyna Korecka, Adriana Polańska, Natalia Salwowska, Joanna Czajkowska*

13:00

LUNCH

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 Head of Optoelectrophysiological Engineering Technische Universität Ilmenau, Ilmenau, Germany</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: Piotr Zarychta, Damian Borys</p> <p style="text-align: center;">Pre-stimulus Oculomotor Signatures of Deception in the Concealed Information Test <i>Weronika Celniak*, Dominika Słapczyńska, Piotr Augustyniak</i></p> <p style="text-align: center;">Deep learning-based hair removal on ultraviolet-induced fluorescence dermatoscopy images <i>Aleksander Kempski*, Natalia Salwowska, Anna Slian, Katarzyna Korecka, Paweł Pietkiewicz, Adriana Polańska, Damian Borys, Joanna Czajkowska</i></p> <p style="text-align: center;">Identification and characterization of genetic variants based on the analysis of NGS data from breast cancer samples <i>Szymon Tylnicki, Anna Tamulewicz*</i></p> <p style="text-align: center;">Integrating Evolutionary Game Theory with SEIRD Models: A Spatial Epidemic Simulator for Strategy-Based Interventions <i>Paweł Mendzik, Damian Borys*</i></p> <p style="text-align: center;">Analysis of Modification in Photoplethysmographic Signal Descriptors Induced by Orthostatic Maneuver <i>Bartosz Tomasz Śmigielski*, Milena Natalia Chołuj, Mateusz Pałasz, Marek Żyliński, Gerard Cybulski</i></p> <p style="text-align: center;">Application of the quantum reconstruction method to the geometry of a commercial CT scanner <i>Robert Cierniak*, Jakub Sosnowski</i></p> <p style="text-align: center;">Spectral Super-Resolution for Parkinson's Voice via Diffusion-Inspired Models and Signal-Consistent Constraints <i>Miłosz Dudek*, Jakub Sikora, Justyna Krzywdziak, Magda Zbik, Daria Hemmerling, Wojciech Szczowka, Marek Wodźński, Mateusz Daniol, Magdalena Wojcik-Pędziwiatr</i></p> <p style="text-align: center;">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 <i>Karina Maciejewska, Kamil Wałczyk*, Tomasz Nowak</i></p>
16:30	COFFEE BREAK
17:00	<p style="text-align: center;">PANEL</p> <p style="text-align: center;">Ophthalmology in Biomedicine</p> <p style="text-align: center;">Moderator: prof. Andrzej Mitas, prof. Sławomir Teper</p>
18:30	SOCIAL EVENT

Wednesday, June 24th, 2026

09:00	<p>KEYNOTE LECTURE</p> <p>Why Medicine Needs Robots, Why Robots Need Intelligence, and Why Physicians Need Engineers</p> <p>Zbigniew Nawrat</p> <p><i>Department of Biophysics, Faculty of Medical Science, Medical University of Silesia</i> <i>Foundation of Cardiac Surgery Development, Zabrze</i> <i>International Society for Medical Robotics, President</i></p> <p>Moderator: Paweł Badura</p>	
10:00	<p style="text-align: center;">SPECIAL SESSION</p> <p style="text-align: center;">Advances in Biomechanics</p> <p>Moderators: Daniel Ledwoń, Robert Michnik</p> <p>Energy Expenditure During Variable-Speed Walking Under Rhythmic Auditory Stimulation <i>Martyna Świtula, Daniel Ledwoń*, Andrzej W. Mitas</i></p> <p>Effects of Movement Sonification on Simple Motor Task Performance: A Pilot Study <i>Aleksandra Tuszy*, Patrycja Romaniszyn-Kania, Daniel Ledwoń, Martyna Świtula, Damian Kania, Milana Komosar, Jens Haueisen, Andrzej W. Mitas</i></p> <p>Biomechanical Evaluation of the Impact of Cigarettes and Nicotine Products on Reaction Time Results <i>Jakub Sornek*, Patryk Pasternak, Martyna Przybylska, Klaudia Śmiełowska, Jakub Wołosz, Piotr Szaflik, Hanna Zadoń, Robert Michnik</i></p> <p>Biomechanical Evaluation of the Influence of Cigarettes and Nicotine Products on the Results of Stabilographic Examination <i>Martyna Przybylska*, Klaudia Śmiełowska, Jakub Sornek, Patryk Pasternak, Piotr Szaflik, Jakub Wołosz, Hanna Zadoń, Robert Michnik</i></p> <p>Biomechanical Effects of Cigarette Smoking and Nicotine Use on Spatiotemporal Gait Parameters <i>Klaudia Śmiełowska*, Martyna Przybylska, Jakub Sornek, Patryk Pasternak, Piotr Szaflik, Jakub Wołosz, Hanna Zadoń, Robert Michnik</i></p> <p>Rigid-Body Transformation for Head Motion Compensation in Facial Expression Tracking Using ArUco Markers – Pilot Study <i>Marta Polewka*, Dawid Danecki, Davide Rzeszowski, Wiktoria Mazur, Sebastian Zowada, Zuzanna Miodońska, Andrzej Myśliwiec, Krzysztof Dowgierd, Anna Lipowicz, Michał Kręcichwost</i></p>	<p style="text-align: center;">SPECIAL SESSION</p> <p style="text-align: center;">Voice and Speech Analysis</p> <p>Moderators: Michał Kręcichwost, Agata Sage</p> <p>Histopathology-Verified Clinical Voice Database – Pilot Acoustic Analysis of Sustained <i>Katarzyna Mazur*, Oliwia Skórzewska, Zuzanna Miodońska, Barbara Mika, Miłosz Dudek, Daria Hemmerling, Michał Simlot, Alicja Dworak-Marczenko, Wirginia Likus, Jarosław Markowski, Michał Kręcichwost</i></p> <p>Voice Pathology Detection Based on Acoustic Signal Analysis Using ML Models <i>Jakub Kosman*, Aleksandra Badura, Oliwia Skórzewska, Zuzanna Miodońska, Michał Simlot, Alicja Dworak-Marczenko, Wirginia Likus, Jarosław Markowski, Michał Kręcichwost</i></p> <p>Sigmatism Detection from Child Speech Spectrograms Using Convolutional Autoencoders and Support Vector Machines <i>Wojciech Pieniążek*, Maria Filipek, Oliwia Skórzewska, Zuzanna Miodońska</i></p> <p>The Influence of Environmental Conditions on Acoustic Voice Parameters and Vowel Differentiation <i>Aleksandra Urantówka*, Hanna Zielonka, Patrycja Romaniszyn-Kania, Damian Kania, Klaudia Wojciech, Mirosław Czak, Paulina Krasnodębska, Agata Szkiełkowska, Andrzej W. Mitas</i></p> <p>Relative spectral and frication-based descriptors as numerical indicators of place of articulation shifts in fricatives produced by Polish children <i>Oliwia Skórzewska*, Zuzanna Miodońska</i></p>
11:30	<p>COFFEE BREAK</p>	

<p>12:00</p>	<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 Bienkowska</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>
<p>13:00</p>	<p style="text-align: center;">LUNCH AND CLOSING</p>