



Zabrze, 7 – 8 October 2024

HTIC

HealthTech Innovation CONFERENCE

ORGANISER

ASSOCIATES



Faculty of
Biomedical Engineering



ALP

American
Heart of Poland
Gruppo San Donato

Conference under the patronage of:



Minister of Science
Republic of Poland



Silesian
Voivodeship



Zabrze
w sercu Śląska



Medical
University
of Silesia,
Katowice, Poland



Silesian University
of Technology

GOLD SPONSOR





October 7, 2024

09.00 - 10.30

2024/2025 Academic Year Opening Ceremony for the Faculties of Biomedical Engineering and Organization and Management; Matriculation Ceremony

PHILIPS Auditorium (EHTIC)

10.00 – 11.00

Registration open

HealthTech Innovation Conference Opening Ceremony

Chair: Marcin Kaczmarek, Director of European HealthTech Innovation Center

Commemorative speeches

prof. Marek Gzik, Chair of the Scientific Committee, Secretary of State Ministry of Science and Higher Education

prof. Marek Pawełczyk, Rector of the Silesian University of Technology

prof. Krzysztof Milewski, General Director of Center for Cardiovascular Research and Development, American Heart of Poland

prof. Marcin Basiaga, Dean of the Faculty of Biomedical Engineering

Plenary Session

"Fueling the Future: Empowering Early-Stage Deep Tech Innovators to Transform Healthcare and Society"

11.00 - 12.15

Chair: Ferenc Pongracz, Deputy Managing Director EIT Health InnoStars, Joanna Broy, EIT Health InnoStars Ecosystem Lead for Poland

Introduction to EIT & EIT Health and Panel Discussion:

- *Strategies for Transitioning Innovative Solutions from Academia and Research Centers to the Market*
- *Essential Support for Deep Tech Solutions: Skills, Funding, and More*
- *Financing Early-Stage Innovations and Cross-Border Investments*

prof. Jan Guzowski, Polish Academy of Science (online)

dr. Anna Gawrońska, Healthcare Manager EIT Health

Maria Escarti Barcia, Deep Tech Venture Builder Programme Manager EIT (online)

dr. Marton Herczeg, Head of Innovation Ecosystem Unit EIT (online)

Mateusz Januś, Director of Corporate and Investment Banking (online)

dr. Miłosz Jamróży, CEO Medteq.design

PHILIPS Auditorium (EHTIC)



12.15 – 12.30 Coffee break

HealthTech Innovation Presentations – Part 1

Session within Priority Research Area: Computational Oncology and Personalized Medicine

Chair: prof. Ewa Piętka, prof. Sławomir Blamek

Technological advances in medical diagnostic imaging current status and future perspectives

Rafał Obuchowicz

Text mining supporting computer aided diagnosis of eating

Stella Maćkowska

12.30 – 13.45

Surface phenomena on Ti substrates coated with SiO₂ used in cardiovascular system

Witold Walke

The 3D planning of surgical treatment of maxillofacial defects and deformities

Krzysztof Dowgierd

Discussion

PHILIPS Auditorium (HTIC)

13:45 – 14:30 Lunch

HealthTech Innovation Presentations – Poster Session

Chair: prof. Grazyna Simha Martynkova, prof. Dominik Spinczyk, prof. Anna Ziębowicz, dr Rafał Józwiak, dr Piotr Wodarski

14:30 – 16:00

Opening lecture: Selection of patient-specific aortic valve prosthesis by a hybrid technique that integrates CFD simulations, machine learning, and multi-stage validation

Wojciech Adamczyk





Novel Methodology for the Assessment of Psychophysical Performance in Early Old Age for the Early Detection of Neurodegenerative Diseases

Ewelina Sobotnicka, Grzegorz Nowak, Jan Mocha, Monika Richter-Laskowska

Design and Development of Anatomical Plate for Zygomatic Arch Fractures in Cats

Mateusz Pawlik, Seralp Uzun, Iuliana Ionşcu, Aleksandra Kurkowska, Anna Barteczko, Piotr Trębacz, Marcin Basiaga

Evaluation of 3D Printed Biomimetic Canine Antebrachial Deformity Orthopedic Training Models

Mateusz Pawlik, Luca Manassero, Lisa Piras, Luca Vezzoni, Piotr Trebacz, Aleksandra Kurkowska, Anna Barteczko, Marcin Basiaga

Methodology for Modeling Blood Flow in the Middle Cerebral Artery Using Porosity Functions

Michał Tomaszewski, Michał Kucewicz, Radosław Rzepliński, Jerzy Małachowski, Bogdan Ciszek

Comparison of the Bone Tissue Model Reconstruction Process Based on Different Medical Imaging Techniques

Szymon Saternus, Kamil Sybilski, Jerzy Małachowski, Jerzy Kwaśniewski

Analysis of the Effect of Auxiliary Current Frequency on Patient's Safety in Bioimpedance Spectroscopy Measurements

Mirella Kluza, Ilona Karpiel, Andrzej Michnik, Kamil Pilarski, Piotr Bajon, Dariusz Komorowski

Wearable Mouse Project

Anna Miruk-Mirska, Andrzej Michnik

Analysis Of Lateral Flexion of Spine of Ultrasonographers' Bodies During Abdominal And Breast Ultrasound Examinations

Maria Hankus, Maria Filipek, Karolina Hanslik, Wojciech Pieniążek, Jakub Wężowicz, Mikołaj Gruca, Izabela Rosół, Marcin Ciekalski, Mateusz Winder, Anna Miller-Banaś, Agata Guzik-Kopyto, Robert Michnik

An Innovative, Comprehensive System Supporting the Elderly in Basic Daily Activities – Design and Research with Healthy Volunteers

Jakub Sielczak-Rum, Grzegorz Adamski, Michał Kacik, Jacek Komorowski, Dzmitry Khatskevitch, Marta Kozuń, Aleksandra Rosicka, Xavier Ho, Albert Chan, Samuel Hui, Matylda Żmudzińska





ECG Electrodes and Their Material Solutions

Angelika Auguścik, Klaudia Cholewa, Agata Piątek, Magdalena Antonowicz

Parameterization of Dental Geometric Features for Individual Identification Using the "Biometric Rosette" Concept

Sebastian But, Michał Rychlik, Agnieszka Przysańska

Assessment of Hand Grip Strength in Correlation to Anthropometric Data for Calisthenics Practitioners

Michał Wiciok, Bartłomiej Jankowski, Maria Hankus, Jakub Wężowicz, Natalia Jaskółka, Agata Guzik-Kopyto, Robert Michnik

Automation of Hardness Measurement and 3D Modeling in Generating a Forearm Hardness Map

Łukasz Gałęczka, Małgorzata Muzalewska, Marek Wyleżoł

Cardiolens - Platform for Non-Invasive Cardiac Diagnostics

Ziemowit Ostrowski

Parameters of Irreversible Electroporation in Oncological Therapy – A Review of Current Solutions

Jan Mocha, Ewelina Sobotnicka, Grzegorz Nowak, Jerzy Gałęcka, Aleksander Sobotnicki, Paweł Kostka

Hand Landmarks Detection in X-Ray Images Using Yolo Network

Jakub Krzysztof Grabski

Applicators for Tissue Ablation by Irreversible Electroporation Method in Oncology Application – A Review of Current Solutions

Grzegorz J. Nowak, Jan Mocha, Ewelina Sobotnicka, Jerzy Gałęcka, Marcin Kaczmarek

Mechanical and Electrical Properties of Conductive ABS and TPU Composites for Medical Applications through Additive Manufacturing

Imre Simon, Emese Paari-Molnar, Kinga Kardos, Roland Told, Peter Maroti

Robotic Solutions in Neurological Patient Rehabilitation

Maciej Tomik, Klaudia Lepa

Evaluation of Mechanical Properties of Bone Cement with PMMA-based Spherical Aluminosilicates

Agnieszka Antończyk, Magdalena Antonowicz, Witold Walke





Characterisation of Mechanical Properties and Thermal Conductivity of PLA-copper Composites through 3D Printing

Kinga Kardos, Emese Paari-Molnar, Peter Maroti, Roland Told

Numerical Simulation of Self-Expandable Flow Diverter Stent Implantation in the Basilar Artery

Łukasz Mazurkiewicz, Michał Tomaszewski, Michał Kucewicz, Radosław Rzepliński, Jerzy Małachowski, Bogdan Ciszek

The Impact of Air Pollution on Runner's Training Results: A Case Study in Krakow

Ilona Karpel, Marek Czerw, Kamil Olesz, Maciej Mysiński, Wacław Mirek

The Effect of E-Cigarette Smoke on Changing the Physicochemical Properties of The Surface of Biomaterials Used in Dentistry

Martyna Guła, Zuzanna Warska, Aleksandra Kopica, Alicja Piątek, Anna Taratuta, Magdalena Antonowicz

The Human-Centered Design in Creating Devices for People with Disabilities

Marek Ples, Barbara Grzyb, Paweł Wawrzala, Beata Pitula, Iwona Benek, Kamil Joszko, Wojciech Wolański

Biomechanical Analysis of Segmental Body Acceleration and Its Impact on Shooting Accuracy with Long and Short Firearms

Wojciech Pieniążek, Maria Filipek, Maria Hankus, Miłosz Chrzan, Sławomir Suchoń, Anna Miller-Banaś, Agata Guzik-Kopyto, Robert Michnik

Bedside Assistive Manipulator

Mariusz Sobiech, Xymena Poppe

Hexagonal TiO₂ Nanotubes: Formation and Characterization

Katarzyna Arkusz, Aleksandra Jędrzejewska, Ewa Paradowska

PHILIPS Auditorium (HTIC)





14.30 – 16.00

Meeting of Deans of Faculties teaching Biomedical Engineering

Council Room 005 (Faculty of Biomedical Engineering)

16.00 – 16.15

Coffee Break

Special session of the American Heart of Poland

“Innovations in medicine”

Chair: prof. Krzysztof Milewski

Shaping the future of cardiovascular disease – are we ready for a new era of cardiovascular care? Point of view of medical service provider

Paweł Kaźmierczak

Minimally invasive mitral and tricuspid valve interventions

Wojtek Wojakowski

16.15 – 17.30

Personal experience with biological materials (ProXiCor matrix) in vascular reconstructions in infected field

Przemysław Nowakowski

Minimally invasive interventions for aortic valve disease

Krzysztof Sanetra

The future of modern medicine with IT innovations

Łukasz Kołkowski

PHILIPS Auditorium (EHTIC)

17.30

Let's meet – Integration event for first-year Biomedical Engineering students

Zajadalnia (Faculty of Biomedical Engineering)

18.00

The gala dinner and meeting of the Conference Program Council and Scientific Committee

Hotel Diament, Zabrze





October 8, 2024

Special session

“Virtual Reality in Biomedicine”

Chair: prof. Paweł Kostka, prof. Jacek Jurkojć

Virtual Biomedical Education

Paweł Kostka, Peter Maroti

09.00 - 10.30 Exploring VR Applications for Training Medical and Health Science Professionals

Karol Jędrasiak

**Virtual Reality Technology in Diagnostic and Therapy Systems -
Conclusions from dozens of research sessions and 12 years of experience**

Piotr Wodarski

PHILIPS Auditorium (EHTIC)

10.30 – 10.45 Coffee break

HealthTech Innovation Presentations – Part 2

Session within Priority Research Area: Computational Oncology and Personalized Medicine

Chair: prof. Katarzyna Arkusz, prof. Janusz Szewczenko

10.45 – 12.30 Novel ultrasound imaging markers of vascular function for prediction of cardiovascular events

Spyretta Golemati

3D Bioprinted Meniscus: Advancing Regenerative Medicine with Cutting-Edge Technology

Jakub Rybka

Multimodal Assessment of Actinic Keratosis Progression Using Machine Learning Techniques

Anna Slian





Resorbable Polyester Implants

Michał Sobota

How Do We Respond to Loss of Balance? An Analysis of Changes in Selected Postural Control Mechanisms in Response to Real and Virtual Destabilizing Stimuli

Marta Chmura

AI4AR - upcoming radiological structured reporting educational platform with AI augmentation

Rafał Józwiak

Discussion

PHILIPS Auditorium (EHTIC)

12.30 -13.15 Lunch

Regional Cooperation PL CZ SK – Innovative Medical Solutions

Chair: Izabela Czeremcha

prof. Denisa Osinová, Martin University Hospital

dr. Silvia Pekarčíková, Department of Health, Žilina Municipality

dr. Jakub Doležel, Telemedicine Services Centre of the University Hospital in Ostrava, Faculty of Medicine of the University of Ostrava

dr. Ondřej Volný, University Hospital in Ostrava, Faculty of Medicine, University of Ostrava

13:15 – 14.30

prof. Piotr Ładziński, St. Barbara Specialist Hospital No. 5 in Sosnowiec

prof. Adam Wylęgała, Medical University of Silesia, District Railway Hospital in Katowice

dr. Bartłomiej Bolek, District Railway Hospital in Katowice

Marcin Ludyga, Burn Treatment Center in Siemianowice Śląskie

Mariusz Nowak, Burn Treatment Center in Siemianowice Śląskie,

Łukasz Bandała, Revolve Healthcare

Karol Kaprusiak, Revolve Healthcare

PHILIPS Auditorium (EHTIC)





IEEE Engineering in Medicine and Biology Society Special Session

"Engineers for Engineers in the Global Village Era"

14.30 – 15.00

prof. Spyretta Golemati, IEEE EMBS, Distinguished Lecturer Program

Martyna Borak, B.Sc., Silesian University of Technology, IEEE SUT Student Branch

Aleksandra Tuszy, M.Sc., Silesian University of Technology, IEEE SUT Student Branch

PHILIPS Auditorium (EHTIC)

Closing Session

15.00

Awards

PHILIPS Auditorium (EHTIC)

15.15

Social Event



SILVER SPONSOR



PARTNER

INVENTMED

