

SCIENCE: POLISH PERSPECTIVES MEETUP ZURICH

23 September 2023

#KEEPCALMANDCURIEON

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Artificial Intelligence and the future of health care



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EVENT AGENDA

Saturday, September 23rd, 9:00 - 20:00 CET
ETH Zurich Central Campus

9:00 - 10:00 Registration at the venue and welcome networking coffee

10:00 - 10:15 Official Event Opening

Welcome message from:

- **Karolina Weryńska**, Polonium Foundation
- **Wojciech Jakóbiec**, Political and Economic Counsellor, Embassy of the Republic of Poland in Bern

10:15 - 11:00 **KEYNOTE SPEAKER: Daniel Razansky (University of Zurich and ETH Zurich)**

11:00 - 12:00 Speakers session I

- **Michał Januszewski** (Google Research) (20 min talk + 10 min questions)
- **Natalie Mrachacz-Kersting** (University of Freiburg) (20 min talk + 10 min questions)

12:00 - 12:15 **Partner talk Łukasiewicz-EMAG: Artur Kozłowski**

12:15 - 13:30 Lunch + coffee break and Group Photo

13:30 - 14:00 **Partner talk IDEAS NCBR: Piotr Sankowski**

14:00 - 15:15 Speakers session II

- **Sebastian Waszak** (EPFL) (20 min talk + 10 min questions)
- **Marta Stepien** (Sleepiz AG) (20 min talk + 10 min questions)
- **Sylwia Nowakowska** (University Hospital Zurich) (10 min talk + 5 min questions)

15:15 - 16:00 Coffee Break

16:00 - 16:10 **Polonium Mentoring: Anna Sobocińska**

16:10 - 16:30 **Partner talk Human Biome Institute: Zuzanna Karwowska**

16:30 - 17:45 **Panel discussion "Ethics and AI in healthcare"**

- **Anna Maria Trawińska** (Sano Centre for Computational Medicine)
- **Marcin Rządeczka** (IDEAS NCBR)
- **Wiktor Olszowy** (dsm-firmenich)
- **Moderator: Monika Zbytniewska-Megret** (Polonium Foundation)

17:45 - 18:00 **Closing remarks**

18:00 - 20:00 **Aperitivo Informal Networking Event**

KEYNOTE SPEAKER



Daniel Razansky

University of Zurich and ETH Zurich

Daniel Razansky is Full Professor of Biomedical Imaging with double appointments at the Faculty of Medicine, University of Zurich and the Department of Information Technologies and Electrical Engineering of ETH Zurich, where he also serves as Director of the joint Preclinical Imaging Center. He earned degrees in Biomedical and Electrical Engineering from the Technion - Israel Institute of Technology and conducted postdoctoral research at the Center for Molecular Imaging Research, Harvard Medical School. Prior to moving his lab to Zurich in 2019, he was Professor of Molecular Imaging Engineering at the Technical University of Munich and Helmholtz Center Munich in Germany. His Lab pioneered a number of bioimaging technologies for pre-clinical research and clinical diagnostics, among them the multi-spectral optoacoustic tomography (MSOT) and hybrid optoacoustic ultrasound (OPUS). He co-founded iThera Medical GmbH which successfully commercialized those inventions and deployed imaging scanners in numerous biological research labs and clinical facilities around the globe. Razansky's research has been recognized by the German Innovation Prize and multiple awards from the ERC, NIH, SNSF, DFG and HFSP. He is a Founding Editor of the Photoacoustics journal and serves on Editorial Boards of journals published by Springer-Nature, Elsevier, and IEEE. He is also a Council Member of the European Society for Molecular Imaging (ESMI) and an elected Fellow of the IEEE, SPIE, and Optica Societies.

INVITED SPEAKERS



Michał Januszewski

Google Research

Michał Januszewski is a Staff Research Scientist at Google in Zürich, where he is currently a member of the Connectomics group and works on automated methods for high-throughput brain mapping at synaptic resolution. Together with his team he has developed Flood-Filling Networks -- a method for precise neuron tracing which improved error-free path lengths by an order of magnitude. In 2020, this approach was used to reconstruct the *Drosophila* hemibrain in collaboration with the FlyEM team at HHMI Janelia, and in 2021, a 1 mm³ fragment of the human neocortex in collaboration with the Lichtman lab at Harvard University. Both were the largest synapse-resolution maps of brain connectivity ever produced at the time of their respective releases. Michał's current research interests lie at the intersection of machine learning, neurobiology and high-performance computing. Prior to Google, Michał did research in the fields of computational fluid dynamics and stochastic dynamical systems, in which he developed state-of-the-art GPU-accelerated numerical software. He holds a BSc degree in Computer Science, and a PhD in Physics, both from University of Silesia in Katowice, Poland.

INVITED SPEAKERS



Natalie Mrachacz-Kersting

University of Freiburg

Prof. Dr. Natalie Mrachacz-Kersting member of IEEE, received her Ph.D. degree in biomedical engineering from Aalborg University, in 2005, and currently holds the Chair for Neuroscience and Neuroscience in Sport at the Albert-Ludwigs University of Freiburg. She is the Practitioner Representative for the IEEE Engineering Medicine and Biology Society, Chair of the IEEE WI(BM)E and on the Initiative Steering Committee of the IEEE Brain. Since 2019 she has been serving on the International BCI Society Board where she heads the fundraising committee. She has previously held positions at Aalborg University, Denmark, FH Dortmund and at the University of Auckland, New Zealand. Natalie does research in Medical Technology, Biomedical Engineering and Neuroscience. She has authored over 80 articles in peer-reviewed journals, over 130 conference articles/abstracts, ten book chapters and one book. She is working on several projects specifically within the area of Brain-Computer-Interfaces (BCIs) involving patient populations such as those suffering from stroke or ALS. Dr. Mrachacz-Kersting received several awards including the international BCI award in 2017.

INVITED SPEAKERS



Sebastian Waszak

École Polytechnique Fédérale de Lausanne and
University of California, San Francisco

Sebastian Waszak is an Assistant Professor of Life Sciences at the École Polytechnique Fédérale de Lausanne (EPFL) and an Associate Adjunct Professor of Neurology at the University of California, San Francisco (UCSF). He leads the Laboratory of Computational Neuro-Oncology at the Swiss Institute for Experimental Cancer Research (ISREC). He obtained his PhD in Bioengineering and Biotechnology from EPFL in 2014 and specialized as a postdoctoral fellow in cancer genomics at the European Molecular Biology Laboratory (EMBL). His research is devoted to biomedical data science in pediatric neuro-oncology.

His group studies clinical cancer genomes and develops diagnostic approaches that are globally accessible and transformative for patients with gliomas. He published 80 scientific manuscripts in basic and clinical research journals and contributed to the latest edition of the WHO Classification of CNS Tumors and the WHO Classification of Genetic Tumor Syndromes. He is a member of the Pacific Pediatric Neuro-Oncology Consortium (PNOC), the UCSF Pediatric DMG Tumor Board, and the DIPG/DMG National Brain Tumor Board.

INVITED SPEAKERS



Marta Stepien

Sleepiz AG

Marta possesses a strong academic background and experience in biology, neuroscience, and clinical research. She obtained her Bachelor's degree in Medical Biotechnology from the Medical University of Lodz and pursued a Master's in Biology, specializing in Neuroscience, at ETH Zürich. Throughout her time in academia, Marta has contributed to research on neurofeedback and brain stimulation technologies for stroke rehabilitation at the Neural Control of Movement Lab in Zürich. Marta's international experience includes several research internships in Latin America and Asia where she explored practical applications of different biology branches. She currently holds the position of Vice President of Clinical, Regulatory, and Quality Affairs at Sleepiz AG, Zürich. Here, she is responsible for formulating global regulatory strategies, leading audits, and managing international projects. One of her notable achievements was the efficient introduction of a novel medical device to the EU market by securing the certification under EU Medical Device Regulation. Marta brings expertise in regulatory affairs (MDR, FDA), compliance (ISO, GDPR, HIPAA), and interdisciplinary medical device knowledge (software, active medical devices, sleep and cardiorespiratory disorders) to her career.

INVITED SPEAKERS



Sylwia Nowakowska

Diagnostic and Interventional Radiology Department,
University Hospital Zurich

Sylwia Nowakowska earned her Ph.D. in Nanoscience from the Physics Department at the University of Basel, where she conducted research on materials for molecular electronics and quantum computing. Afterwards, she transitioned into the industry, focusing her work at a start-up Avantama on quantum materials for high-tech applications.

Fascinated by the applications of Machine Learning and Deep Learning in healthcare, she made the decision to redirect her career in that direction. She joined a start-up Obviatec, where she was responsible for the scientific development of quality systems for detecting substandard and falsified medications using terahertz spectroscopy and imaging, combined with AI. Currently, Sylwia works at the Diagnostic and Interventional Radiology Department at the University Hospital Zurich. In this role, she engages in applied research in AI for breast imaging, with a primary focus on mammography and MRI.

PARTNER TALKS



Zuzanna Karwowska

Human Biome Institute

Zuzanna Karwowska is the Research and Development Lead at the Human Biome Institute. Her team employs AI and bioinformatics to improve fecal microbiome transplant outcomes across various diseases, going beyond clostridium difficile infections. She is also pursuing a PhD at the Malopolska Center of Biotechnology, focusing on understanding how the human gut microbiome changes over time and how this knowledge can enhance therapeutic strategies.

PARTNER TALKS

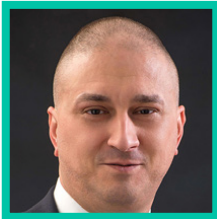


Piotr Sankowski

IDEAS NCBR

Piotr Sankowski is a professor at the Institute of Informatics, University of Warsaw, where he received his habilitation in 2009 and where he received a doctorate in computer science in 2005. His research interest focuses on practical application of algorithms, ranging from economic applications, through learning data structures, to parallel algorithms for data science. In 2009, Piotr Sankowski received also a doctorate in physics in the field of solid state theory at the Polish Academy of Sciences. In 2010 he received ERC Starting Independent Researcher Grant, in 2015 ERC Proof of Concept Grant, in 2017 ERC Consolidator Grant, and in 2023 another ERC Proof of Concept grant. He is a president of IDEAS NCBR – a research and development centre operating in the field of artificial intelligence and digital economy. Piotr Sankowski is also a co-founder of the spin-off company MIM Solutions.

PARTNER TALKS



Artur Kozłowski

Lukasiewicz Research Network – Institute of Innovative Technologies EMAG

Manager and scientist with 20-years experience in management. PhD of technical sciences. Professional experience in team management as well as the management of financial and intellectual capital gained during 20 years as a manager and chief executor of R&D projects and implementation projects, both in Poland and abroad. Mr Kozłowski uses fresh approach to challenges and long-term experience of an R&D manager in the implementation of new projects/technologies and in fulfilling the R&D strategy.

Mr Kozłowski is a member of steering committees of many projects in the realm of ICT, telecommunications, power engineering, new technologies, and security, such as National Scheme for Assessment and Certification of IT Products according to Common Criteria, Regional Cyber Security Centre, Public Administration Catalogues. He is also an active member of numerous associations, technical, scientific and organizational committees, scientific councils, expert councils, and technical committees.

Graduate of the Faculty of Electrical Engineering of the Silesian University of Technology, specializing in processing and use of electricity. Mr. Kozłowski completed postgraduate studies at the Faculty of Automatic Control, Electronics and Computer Science of the Silesian University of Technology in the field of "Computer networks, microcomputer systems and databases" and postgraduate studies at the Faculty of Organization and Management of the Silesian University of Technology in the field of "Modern methods of organization management". He participated in a number of national and overseas trainings which supplemented his education in the scope of science financing, commercialization, technology transfer, and projects management.

PANELISTS



Anna Maria Trawińska

Sano Centre for Computational Medicine

Anna Maria Trawińska is a PhD in social sciences, a researcher, PR specialist, branding expert, photographer, and storyteller. Anna Maria is a creative and innovative thinker and planner, who on one hand merges an analytical approach with a creative one on the other. She follows social changes on an ongoing basis, tries to build the so-called "big picture" of society and combines various elements of the social puzzle to navigate the world of constant change in the most efficient way. Holding her sociological hand on the society's pulse, she tries to merge the digital world with social components. She is a supporter of the #TechForGood idea and a laureate of the Presidential Expert Program "Ideas Laboratory", the winner of the Orange Polska and the National Chamber of Commerce "Digital Poland 2020" competitions. She has cooperated with, amongst others, the Ministry of Foreign Affairs of Poland, the Chancellery of the President of Poland, CYBERSEC Forum and one of the largest Polish think tanks – The Kosciuszko Institute. Currently she is PR, Branding and Communication Manager at the Sano Centre of Computational Medicine, as well as Marketing Director in the #CyberMadeInPoland Cluster.

PANELISTS



Marcin Rządeczka

IDEAS NCBR and Maria Curie-Skłodowska University
in Lublin

Dr. Marcin Rządeczka is an academic with a keen interest in the intersections of computational psychiatry, evolutionary psychology, cognitive science, computer science, and philosophy. Striving to blend computational perspective with evolutionary principles, Dr. Rządeczka hopes to contribute to the understanding of neurodiversity and the potential of AI to offer insights into mental health diagnosis and therapy, e.g. potential biases of mental health chatbots. He has had the opportunity to author a book on the philosophical intricacies of modern evolutionary biology. Additionally, he has written a paper on the evolving concept of expertise in the AI-dominated era and has contributed two papers that shed light on systemic cognitive biases and the occasionally non-rational beliefs among experts. In a significant highlight for him, he was honored to share his insights at the very first Computational Psychiatry Conference in Dublin in July 2023. As an Assistant Professor in Cognitive Science at UMCS in Lublin, Dr. Rządeczka enjoys the chance to engage with and learn from the next generation of thinkers. He oversees the Laboratory for Multimodal Research, and as the Deputy Director at the Philosophy Institute UMCS, he cherishes the chance to foster international academic exchanges. In his current role as a Postdoctoral Researcher at IDEAS NCBR, Dr. Rządeczka explores computational models of psychopathological cognitive processes and the nuanced impacts of AI on mental healthcare.

PANELISTS



Wiktor Olszowy
dsm-firmenich

Wiktor Olszowy studied economics, mathematics and statistics, after which he pursued a PhD in neurosciences at the University of Cambridge, followed by a postdoc at EPFL, Lausanne. His research interests were focused around fMRI: a technique used to investigate how the brain works. Wiktor validated statistical methods used in the processing of fMRI data, including in the context of ageing and clinical populations, and worked on a technique to measure the underlying neural changes with higher specificity than what the standard fMRI allows. Since 2021, he has worked as a data scientist in dsm-firmenich, supporting microbiome research in the context of early life nutrition, optimising fermentation production processes and working on chatbots.

PANEL MODERATOR



Monika Zbytnewska-Mégret

Roche and Polonium Foundation

Monika Zbytnewska-Mégret is a Digital Biomarker Scientist at Roche and a member of Polonium Foundation. She completed her PhD at the Rehabilitation Engineering Laboratory with a thesis entitled “Robot-assisted assessments of proprioceptive and motor hand impairments and their recovery in neurological disorders”. Her research focused on the development and evaluation of novel robotic assessments and therapy exercises for stroke patients. Her long-term goal is to bridge the gap between technological advancements and the clinic, contributing to the overall progress within the healthcare sector. She continued her work on robotic assessments as a Postdoctoral Researcher at the Singapore-ETH Centre on Future Health Technologies in Singapore.