

# EIC/EIT

## The European Innovation Council (EIC) / The European Institute of Innovation and Technology (EIT)

The European Innovation Council (EIC) has been established under the EU Horizon Europe programme. It has a budget of €10.1 billion to support game changing innovations throughout the lifecycle from early stage research, to proof of concept, technology transfer, and the financing and scale up of start-ups and SMEs.

The European Institute of Innovation and Technology (EIT) supports the development of dynamic, long-term European partnerships among leading companies, research labs and higher education. These partnerships are called EIT Knowledge and Innovation Communities and each is dedicated to finding solutions to a specific global challenge, from climate change and sustainable energy to healthy living and food.

Source: [EIC](#) & [EIT](#)



PhD, DSc

**Anna Ujwary-Gil**

LABORATORY OF PROCESS AND NETWORK ANALYSIS

**INSTITUTE OF ECONOMICS, PAS**



DIVISION I - HUMANITIES AND SOCIAL SCIENCES



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**EXPERTISE**

Our Laboratory is at the forefront of exploring how inter-organizational networks, digital innovation hubs, and ecosystems drive sustainability, digital transformation, and innovative business models in the digital era. We excel in utilizing advanced social network analysis techniques within the dynamic digital economy and sustainability landscape. Our research is dedicated to examining economic ecosystems such as industry clusters, innovation networks, and food cooperatives from network structure and relational perspectives.

**SEEKING FOR COLLABORATION WITHIN**

sustainability, digital transformation, digital innovation hubs, industry clusters, social network analysis

**RELEVANT PROJECTS**

[REINVENT](#)

[REV4.0](#)



Professor

**Marek Figlerowicz**

DEPARTMENT OF MOLECULAR AND SYSTEMS BIOLOGY

**INSTITUTE OF BIOORGANIC CHEMISTRY, PAS**



DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES



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**EXPERTISE**

Our group focuses on cell engineering, particularly for the purposes of regeneration and interceptive medicine. We study factors shaping cell identities and states in the context of epigenetic rejuvenation, direct cell reprogramming, and intercellular communication via short- and long-distance RNA transport.

We combine cutting-edge single-cell spatial multi-omics, micro-patterned cell cultures, organoid models, and machine learning to model cell trajectories and control cell fate and functions.

**SEEKING FOR COLLABORATION WITHIN**

aging, cardiology, AI, epigenetics, transdifferentiation, RNA, extracellular vesicles, CRISPR, APOBEC

**RELEVANT PROJECTS**

[ECBiG-MOSAIC](#)

[NEBI](#)

[LifeTime](#)



Assoc. Prof.

**Adam Jurgoński**

BIOLOGICAL FUNCTION OF FOOD TEAM

**INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS**



DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES



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**EXPERTISE**

Elucidating the physiological and molecular mechanisms through which both well-known and novel dietary components influence gut function and metabolic health. The team conducts controlled feeding experiments using animal models of disorders characteristic of diet-related diseases. The research to date has focused on: • phenolic extracts and fiber-phenolic preparations, • prebiotic preparations and food additives, • unconventional sources of unsaturated fatty acids, • trace minerals in nanoparticle form.

**SEEKING FOR COLLABORATION WITHIN**

preparation, chemical analysis, evaluation of the properties of novel food ingredients

**RELEVANT PROJECTS**

[NCN/OPUS](#)

[NCN/OPUS](#)

[NCN/SONATA](#)



PhD, Assistant Professor

**Kevin Waldron**

LABORATORY OF METALLOPROTEIN BIOLOGY

**INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS**

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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**EXPERTISE**

My work sits at the interface between biochemistry/structural biology and computational chemistry. This makes our work highly suited to research in drug discovery. Furthermore, we characterize proteins at the level of protein family, rather than just single isozymes, making our work highly relevant to biotechnology. As such, we are keen to apply our academic studies in tandem with industrial and commercial partners, to help create technological solutions for real-world problems.

**SEEKING FOR COLLABORATION WITHIN**

biotechnology, microbiology, drug discovery, chemistry

**RELEVANT PROJECTS**

[MAESTRO](#)

NIH R01 AI155611-01



Assoc. Prof.

**Radosław Kowalski**

AQUATIC ORGANISM REPRODUCTIVE BIOTECHNOLOGY TEAM

**INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS**

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**EXPERTISE**

The research interests focus broadly on the reproduction of aquatic organisms and its support under controlled conditions. This includes understanding physiological and biochemical mechanisms underlying gamete function, as well as developing and optimizing methods that enhance reproductive success in both experimental and applied contexts, including aquaculture and conservation programs. Specific expertise: sperm motility and kinematic analysis, seminal plasma biochemistry and functional biomarkers, sperm cryopreservation and long-term storage of genetic resources.

**SEEKING FOR COLLABORATION WITHIN**

genetic and genomic analyses, molecular data, reproductive processes

**RELEVANT PROJECTS**

[Salmocross](#)



Professor

**Łukasz Marciniak**

LUMINESCENT NANOPARTICLE FOR SENSING AND IMAGING LUNASI GROUP, DIVISION OF BIOMEDICAL PHYSICO-CHEMISTRY

**INSTITUTE OF LOW TEMPERATURE & STRUCTURE RESEARCH, PAS**

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**EXPERTISE**

Our laboratory is focused on developing multi-functional nano- and microparticles for sensing and imaging of physical and chemical quantities. We are interested in applications of luminescence thermometry and manometry. We work on the implementation of remote temperature and pressure readout techniques for controlling biological and industrial processes. Additionally, we have developed a phosphor for LED, the plant cultivation industry, and NIR lighting.

**SEEKING FOR COLLABORATION WITHIN**

optical spectroscopy, luminescence, luminescent materials, sensing, nanoparticles, nanomaterials

**RELEVANT PROJECTS**

[HSTI](#)

[SensiTherm](#)



Professor

**Artur Bednarkiewicz**

LUMINESCENT NANOPARTICLE ASSISTED SENSING AND IMAGING GROUP (LUNASI), DIVISION OF BIOMEDICAL PHYSICO-CHEMISTRY

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**EXPERTISE**

Our laboratory is focused on new colloidal luminescent nanomaterials and biodetection techniques (imaging, FRET biosensing) based on luminescence. We have expertise in synthesis of core-multiple shell nanoparticles doped with lanthanide ions, which could be alternative to organic fluorescent labels. They can be used for nanothermometry, FRET biosensing, optical cooling and heating, etc. We have experience in building customized optical/imaging/spectroscopic methods and instruments.

**SEEKING FOR COLLABORATION WITHIN**

biospectroscopy, biosensing, imaging, optical instruments, FRET, nanothermometry, hyperthermia

**RELEVANT PROJECTS**

- [NanoTBTech](#)
- [Sensitized Photon avalanche](#)
- [Photon avalanche](#)



Professor

**Rafał Wigłusz**

BBRA - BIOMATERIALS FOR BIO-RELATED APPLICATIONS, DIVISION OF BIOMEDICAL PHYSICO-CHEMISTRY

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**EXPERTISE**

Our laboratory is focused on the preparation of nanosized biomaterials, followed by the creation of periodically ordered nanostructures based on single nanoparticles. An important factor is the design and fabrication of nanocomponents with new functionalities and characteristics for improving existing materials: photonic and conductive materials, polymers and composites. The aim is to develop innovative products and applications in electronics and biomedicine based on nanoscale technology.

**SEEKING FOR COLLABORATION WITHIN**

biomaterials, tissue regeneration, cells proliferation, biopolymers, hydrogels, block copolymers

**RELEVANT PROJECTS**

- [NCN funded project](#)
- [NCN funded project](#)
- [POIR](#)
- POWR



Professor

**Bartłomiej Witkowski**

GROUP OF PHYSICS OF OXIDE STRUCTURES

INSTITUTE OF PHYSICS, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

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**EXPERTISE**

Our team specializes in the production and characterization of various types of oxide nanostructures. Among our recent achievements is the development of a simple and cheap method for the growth of CuO layers exhibiting memristor properties, which hold significant promise for applications in electronics. We have successfully demonstrated a memory cell that does not require power to maintain its logical state.

**SEEKING FOR COLLABORATION WITHIN**

memory cells, electrical characterization, in-situ TEM measurements, Electron Lithography

**RELEVANT PROJECTS**

- NCN projects
- Ministry of Science and Higher Education projects
- EAgLE
- NCBR projects (TECHMATSTRATEG, POIR, POIG, PBS)



Professor  
**Yaroslav Zhydachevskyy**  
GROUP OF HIGH-PRESSURE SPECTROSCOPY

**INSTITUTE OF PHYSICS, PAS**



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**EXPERTISE**

Our group is focused on the spectroscopy of optical materials in ambient and extreme conditions including high pressures, cryogenic and high temperatures. We are interested in studies of novel crystalline phosphors, semiconductors and quantum structures based on nitrides and oxides as laser materials, optical radiation converters, ionizing radiation detectors, luminescent temperature and pressure sensors, biological markers. We are also interested in materials for mechanoluminescent applications.

**SEEKING FOR COLLABORATION WITHIN**

optical spectroscopy, high-pressure spectroscopy, mechanoluminescence, thermoluminescence

**RELEVANT PROJECTS**

- [NCN project](#)
- [NATO SPS](#)
- [NCN project](#)
- [NCN project](#)
- [POIG](#)



PhD, DSc  
**Marcin Klepka**  
LABORATORY OF X-RAY AND ELECTRON MICROSCOPY RESEARCH

**INSTITUTE OF PHYSICS, PAS**



DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES



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**EXPERTISE**

Our lab focuses on the characterization of the structural and electronic properties of matter, ranging from bulk material, through 1D/2D/3D nanoobjects, to biologically active molecules. We apply experimental techniques based on X-ray (XRD, XAS, XPS), electron (SEM, TEM) and ion beams (SIMS), supported with theoretical modeling (DFT). Our research extends towards non-ambiguous (low/high temperature, high pressure) conditions and dynamic studies (down to sub-ps time scale).

**SEEKING FOR COLLABORATION WITHIN**

x-ray spectroscopy and diffraction, atomic structure and structural transformation

**RELEVANT PROJECTS**

- NCN projects
- Ministry of Science and Higher Education projects
- EAgLE
- Science Link
- Baltic Tram



PhD, DSc  
**Bożena Sikora-Dobrowolska**  
LABORATORY OF BIOLOGICAL PHYSICS

**INSTITUTE OF PHYSICS, PAS**



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**EXPERTISE**

Our research concentrates on the optical and thermoelectric properties of van der Waals-type materials and low-dimensional quantum structures obtained based on chalcogenides of metals from groups II and IV, as well as on developing methods for their growth. In particular, we focus on photonic and topological effects in semiconductor quantum structures to apply these effects to next-generation optical and thermoelectric devices.

**SEEKING FOR COLLABORATION WITHIN**

hyperthermia, protein labeling, MRI measurements, *in vivo* testing, nanoparticle synthesis

**RELEVANT PROJECTS**

- [NCN/SONATA8](#)



Professor  
**Iwona Grabowska**  
BIOELECTROANALYTICS TEAM

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**EXPERTISE**

Studying the interactions between biomolecules using electroanalytical methods to develop innovative analytical systems that can be applied in medicine, veterinary science, food analysis, and environmental protection. We are particularly interested in: • testing of antibodies, single-stranded nucleic acids (ssDNA, ssRNA), and aptamers as recognition element in electrochemical biosensors, • exploring new carbon or gold nanomaterials as transducer element in biosensors, • systems for targeted and controlled delivery of therapeutically significant compounds to cancer cells.

**SEEKING FOR COLLABORATION WITHIN**

electrochemical biosensors, aptasensors, immunosensors, genosensors, biomarkers

**RELEVANT PROJECTS**

- [ADEVASCO](#)
- [NCN OPUS](#)
- [NCN OPUS](#)



Professor  
**Marek Strączkowski**  
HEAD OF PROPHYLAXIS OF METABOLIC DISEASES TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

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**EXPERTISE**

Research within the Prophylaxis of Metabolic Diseases Team focuses on the pathogenesis of insulin resistance, with particular emphasis on assessment of insulin resistance in individuals at increased risk of type 2 diabetes, pathogenesis of skeletal muscle and adipose tissue insulin resistance - tissue transcriptomic, cell cultures mechanisms of an improvement in insulin sensitivity during lifestyle intervention.

**SEEKING FOR COLLABORATION WITHIN**

pathogenesis of skeletal muscle and adipose tissue insulin resistance

**RELEVANT PROJECTS**

- [NCN OPUS](#)



PhD, DSc, Assoc. Prof.  
**Tomasz Wypych**  
LABORATORY OF HOST-MICROBIOME INTERACTIONS

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

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**EXPERTISE**

Our research aims to unravel bidirectional interactions between the commensal microbiota and the host, which could be harnessed to treat inflammatory diseases. On the microbial side, we focus on identifying immunomodulatory metabolites active in the lungs and brain, and tailoring them toward the formulation of therapeutics against inflammatory conditions such as respiratory infections, asthma, and neuroinflammation. On the host side, we dissect IgA bacteria interactions that promote colonization of specific bacterial strains and exert far reaching effects on airway immunity.

**SEEKING FOR COLLABORATION WITHIN**

immunology, asthma, neurodegenerative disease, microbiome, metabolism

**RELEVANT PROJECTS**

- FIRST TEAM - FENG



Professor

**Izabela Woławek-Potocka**

EMBRYO BIOLOGY TEAM

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**EXPERTISE**

We research advanced reproductive biotechnology in cattle, focusing on pre-implantation embryo development and oocyte quality markers to assess embryo viability. Our core method is in vitro embryo production (IVP), supporting micromanipulation, gene expression analysis, immunofluorescence, embryo culture, cryopreservation, and transfer. We study oocytes collected post-mortem and in vivo (OPU) from mature and immature animals, including young cattle to accelerate genetic progress. Our findings are translated into practical field applications for veterinarians and cattle breeders.

**SEEKING FOR COLLABORATION WITHIN**

embryotransfer, in vitro embryo production, veterinary

**RELEVANT PROJECTS**

[NCN OPUS Lap](#)

[NCN OPUS](#)

[NCN OPUS](#)



Assoc. Prof.

**Joanna Wiśniewska**

LABORATORY OF SPATIAL EPIGENETICS

**INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS**

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**EXPERTISE**

The research of the Regenerative Biology Team focuses primarily on the cellular and molecular mechanisms of skin wound healing. We are particularly interested in the following areas: • the impact of diet, aging, and metabolic status on the wound healing process; • skin regeneration versus repair; • wound healing-associated skin fibrosis; • metabolic regulation of skin regeneration and fibrosis; • skin immunology; • stem cells in wound healing and skin regeneration; • *in vitro* skin models in translational research

**SEEKING FOR COLLABORATION WITHIN**

metabolic diseases, nutrition , aging and regenerative medicine, immunology, inflammation, bioengineering

**RELEVANT PROJECTS**



PhD, DSc

**Katarzyna Leszczyńska**

LABORATORY OF TUMOUR OF HYPOXIA AND EPIGENOMICS

**NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS**

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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**EXPERTISE**

Our research group focuses on tumour progression and therapy resistance in H3K27-altered diffuse midline gliomas (DMG). We investigate how tumour hypoxia and the H3K27M oncohistone can be exploited for therapeutic benefit. We apply CUT&RUN, ATAC-seq and chromatin capture to identify druggable vulnerabilities in DMG cells and their microenvironment. We study hypoxia-driven chromatin reprogramming, evaluate H3K27M-dependent gene targets, and explore strategies to eliminate the detrimental oncohistone from DMG cells.

**SEEKING FOR COLLABORATION WITHIN**

tumour microenvironment, mouse glioma models, paediatric high-grade gliomas, epigenomics, radiotherapy

**RELEVANT PROJECTS**

[HIT-GLIO](#)



PhD

**Michał Szot**

GROUP OF PHYSICS AND TECHNOLOGY OF EPITAXIAL LAYERS

**INSTITUTE OF PHYSICS, PAS**



DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES



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**EXPERTISE**

Our research concentrates on the optical and thermoelectric properties of van der Waals-type materials and low-dimensional quantum structures obtained based on chalcogenides of metals from groups II and IV, as well as on developing methods for their growth. In particular, we focus on photonic and topological effects in semiconductor quantum structures to apply these effects to next-generation optical and thermoelectric devices.

**SEEKING FOR COLLABORATION WITHIN**

van der Waals heterostructures, photonic structures and infrared detectors, thermoelectric devices

**RELEVANT PROJECTS**

[MagTop](#)



PhD, DSc

**Emilia Witkowska**

THEORETICAL PHYSICS

**INSTITUTE OF PHYSICS, PAS**



DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES



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**EXPERTISE**

Our research explores the foundations of quantum physics, in the context of applications in quantum information, simulators, metrology and quantum computing. Our work includes the physics of ultra cold atoms, ions and molecules, polariton-excitons, semiconductors and NV centres. Statistical physics methods are employed to study protein activity, the behaviour of cell membranes that control key aspects of biological cell functions, and the dynamics of semiconductor growth.

**SEEKING FOR COLLABORATION WITHIN**

quantum information, simulators, ultra-cold atoms, NV centres, semiconductor growth, biophysics

**RELEVANT PROJECTS**

[Quantera](#)

[NCN/SonataBis/OPUS/DAINA/SHENG](#)

[FNP/FirstTeam](#)



Professor

**Tadeusz Magiera**

DEPARTMENT OF ENVIRONMENTAL MAGNETISM AND RECLAMATION

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**EXPERTISE**

This laboratory is focused on the development of “in situ” geophysical methods for precise location of soil contaminated areas. In particular, we are interested in this implementation of soil magnetometry following the ISO 21226:2019 methodology for fast and precise identification of contaminated areas, for the better land-use management of local and regional soil resources, and to build a relevant database available for policy-makers, citizens, and local investors.

**SEEKING FOR COLLABORATION WITHIN**

Soil Mission, Green Deal, soil management practice, Transition Challenge: Environmental Intelligence

**RELEVANT PROJECTS**

[IMPACT](#)



Professor  
**Joanna Kulczycka**  
DIVISION OF STRATEGIC RESEARCH

MINERAL AND ENERGY ECONOMY RESEARCH INSTITUTE, PAS

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**EXPERTISE**

Our division carries out research in the field of economics, together with eco-efficiency, environmental management, raw material and waste markets, an environmental technology and engineering, including social aspects. We have competences and knowledge in the field of market analysis for raw materials, waste management, recycling, environmental technologies and life cycle assessment, as well as the circular economy. We create environmental policies and indexes.

**SEEKING FOR COLLABORATION WITHIN**

circular economy, eco-efficiency and environmental impact assessment, minerals and waste management

**RELEVANT PROJECTS**

- [Pheidias](#)
- [BattValue](#)
- [InPhos](#)



PhD, DSc  
**Joanna Domańska**  
SECURITY, MODELLING AND PERFORMANCE  
EVALUATION GROUP

INSTITUTE OF THEORETICAL AND APPLIED INFORMATICS, PAS

 DIVISION IV - ENGINEERING SCIENCES

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**EXPERTISE**

My team is working on issues related to: anomaly detection and energy performance in Internet of Things (IoT) networks; semantic spatial orientation as a foundation for autonomous navigation systems that understand natural language context; software vulnerability prediction, particularly focusing on static code analysis using artificial intelligence algorithms; explainability of deep neural networks.

**SEEKING FOR COLLABORATION WITHIN**

attack detection, autonomous driving, vulnerability prediction, energy performance, explainable AI

**RELEVANT PROJECTS**

- [SerIoT](#)
- [SDK4ED](#)
- [IoTAC](#)
- [DOSS](#)




Professor  
**Zbigniew Puchała**  
QUANTUM SYSTEMS OF INFORMATICS GROUP

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**EXPERTISE**

The Group is focusing on developing quantum algorithms, error correction methods, and practical applications of quantum devices. It actively participates in various R&D projects, including the Team Net project, addressing challenges in quantum technologies. Additionally, the Group has developed software for simulating quantum annealers on classical computers, facilitating research into modern quantum architectures and optimization, along with tools for visualizing and analyzing the results.

**SEEKING FOR COLLABORATION WITHIN**

quantum computing, quantum error correction, machine learning, and optimization

**RELEVANT PROJECTS**

- [Near-term Quantum Computers Challenges](#)



PhD, DSc

**Michał J. Dąbrowski**

COMPUTATIONAL BIOLOGY GROUP

INSTITUTE OF COMPUTER SCIENCE, PAS



DIVISION IV - ENGINEERING SCIENCES

[M.DABROWSKI@IPIPAN.WAW.PL](mailto:M.DABROWSKI@IPIPAN.WAW.PL)**EXPERTISE**

Dr. Dąbrowski specializes in bioinformatics, focusing on the epigenetics, especially DNA methylation in NGS data. His team discovers non-coding DNA regions contributing to i.e. gene expression regulation, 3-D chromatin structure composition, whose disorders result in pathological states and due to that are further tested in laboratory. They created a tool for Feature Selection in multidimensional data (MCFS-ID), returning ranking of features to be further used in classification as well as CytoMeth for comprehensive DNA methylation analysis.

**SEEKING FOR COLLABORATION WITHIN**

machine learning, feature selection, epigenetics, glioma tumor, single cell, population genetics

**RELEVANT PROJECTS**

Unveiling the role of VPS10P domain receptors  
Monte Carlo Feature Selection



Professor

**Szymon Jaroszewicz**

STATISTICAL ANALYSIS AND MODELING GROUP

INSTITUTE OF COMPUTER SCIENCE, PAS



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**EXPERTISE**

Our group is focused on statistical and machine learning methods, being particularly interested in causal discovery, from experimental and observational data, especially uplift modeling, heterogeneous treatment effect estimation, multi-label classification and positive-and-unlabeled data. We have also significant expertise in analysis of high-dimensional data, especially using information theoretical methods. We are also skilled in practical applications of machine learning and statistical methods.

**SEEKING FOR COLLABORATION WITHIN**

causal discovery, high dimensional data, positive-and-unlabeled classification, variable selection

**RELEVANT PROJECTS**[SAI](#)

Uplift modeling in marketing and biomedical research.