RI

Research Infrastructures

Research infrastructures are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. These include: major equipment or sets of instruments, knowledge-related facilities such as collections, archives or scientific data infrastructures, computing systems, communication networks.

AREAS OF INTERVENTION

- consolidating and developing the landscape of European research infrastructures,
- opening, integrating and interconnecting research infrastructures,
- reinforcing European research infrastructure policy and international cooperation,
- consolidating and developing the innovation potential of European research infrastructures and activities for innovation and training.

Source: Research Infrastructures

PhD
Bogumił Szady
MODELLING SPATIAL KNOWLEDGE

INSTITUTE OF HISTORY, PAS
DIVISION I - HUMANITIES AND SOCIAL SCIENCES
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EXPERTISE

The Department develops domain formal ontologies modelling knowledge about the settlement network and administrative units, its features and relations. These elements are an important part of research on historic space. We develop ontologies of manifestations, which is a strategy of modelling phenomena changing over time. The domain on- ologies we build refer to upper-level ontologies, such as CIDOC-CRM, BFO (Basic Formal Ontology), etc., to build infrastructure for digital research.

SEEKING FOR COLLABORATION WITHIN

geography, history, philosophy, knowledge acquisition, information science

RELEVANT PROJECTS

ONTOHGIS

PhD
Wiesława Duży
MODELLING SPATIAL KNOWLEDGE

INSTITUTE OF HISTORY, PAS
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EXPERTISE

Our Department develops domain formal ontologies modelling knowledge about the settlement network and administrative units, its features and relations. These elements are an important part of research on historic space. We develop ontologies of manifestations, which is a strategy of modelling phenomena changing over time. The domain on- tologies we build refer to upper-level ontologies, such as CIDOC-CRM, BFO (Basic Formal Ontology), etc., to build infrastructure for digital research.

SEEKING FOR COLLABORATION WITHIN

geography, history, philosophy, knowledge acquisition, information science

RELEVANT PROJECTS

URBANONTO

PhD
Adam Zapała
DIGITAL INFRASTRUCTURE FOR HUMANITIES

INSTITUTE OF HISTORY, PAS
DIVISION I - HUMANITIES AND SOCIAL SCIENCES
AZAPALA@IHPAN.EDU.PL
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EXPERTISE

The expertise of the interdepartmental DARIAH. Lab team at the Institute of History lies in preparing digital tools for the humanities & arts. Our work focuses on providing reliable reference databases for people & places in the past, preparing scholarly digital editions.

SEEKING FOR COLLABORATION WITHIN

editors/holders of historical materials, authority files creators, creators of digital repositories

RELEVANT PROJECTS

DARIAH

PhD

Maciej Maryl

DIGITAL HUMANITIES CENTRE

INSTITUTE OF LITERARY RESEARCH, PAS

DIVISION I - HUMANITIES AND SOCIAL SCIENCES

MACIEJ.MARYL@IBL.WAW.PL

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EXPERTISE

The Digital Humanities Centre is invested in digital methods in the humanities scholarship. It collaborates with CLARIN and DARIAH RIs, and serves as the national node of OPERAS RI, leading the OPERAS Innovation Lab. The Open Humanities Hub coordinates the Polish national node of OPERAS, the NPLP creates an infrastructure for digital scholarly editions and monographs, and the Bibliography Department coshapes the bibliographical data landscape in Europe. The "Polish Studies News-letter" serves the needs of the international Polish Studies community, combining the features of an online portal, database, magazine and medium bringing it all together.

SEEKING FOR COLLABORATION WITHIN

innovation & data in open scholarly communication, digital scholarly editing, UX/stakeholder research, IT solutions

RELEVANT PROJECTS

TRIPLE

OPERAS-PLUS

OPERAS-P

CRAFT-OA

PhD

Kinga Krauze

RESEARCH TEAM: SOCIO-ECOHYDROLOGY AND ECOSYSTEM SERVICES

EUROPEAN REGIONAL CENTRE FOR ECOHYDROLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

Our laboratory is focused on social, economic, and ecological drivers of natural capital and water management issues, from perspective of both resource quality and availability and people's conflicting needs (nexus) and attitudes. In particular, we are interested in long-term processes at the nature–human interface. We work on ecosystem services assessment, implementation of Nature-Based Solutions in rural and urban areas, and biodiversity and risk assessment.

SEEKING FOR COLLABORATION WITHIN

NBS, coupled human and nature systems (CHANS), water management, modelling

RELEVANT PROJECTS

eLTER PPP

BioAgora

Eupolis

ATENAS

PhD, DSc

Maciej Figiel

DEPARTMENT OF MOLECULAR NEUROBIOLOGY

INSTITUTE OF BIOORGANIC CHEMISTRY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

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EXPERTISE

Our team studies the pathogenesis and therapy of neurodegeneration in model diseases such as poly-glutamine Huntington's disease, juvenile HD, and SCA3/MJD. We define the earliest pre-symptomatic developmental pathogenesis using early brain models such as organoids, single-cell RNAseq, and proteomics. We investigate shRNA and AAV-based therapies (silencing or gene delivery) in our Knock-in SCA3 mouse and humanized HD mouse models model using BBB permeable AAV or AAV brain injections.

SEEKING FOR COLLABORATION WITHIN

brain, neurodegeneration, Huntington, SCA3, AAV, therapy, stem, organoids, scRNAseq, animal models

RELEVANT PROJECTS

SCACYP

TreatPolyQ

National Ataxia Foundation funded project

Professor
Łukasz Bratasz
CULTURAL HERITAGE RESEARCH GROUP

INSTITUTE OF CATALYSIS AND SURFACE CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
LUKASZ.BRATASZ@IKIFP.EDU.PL
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EXPERTISE

Preservation of cultural heritage, microclimatic monitoring, analysis of structural response of materials to changes in environmental parameters, impact of global climate change on cultural heritage, computer modelling of environmentally induced physical damage, non-invasive testing of historical objects, especially using acoustic emission, environmental control, risk assessment and energy efficiency in museums and historic buildings.

SEEKING FOR COLLABORATION WITHIN

neuroscience (visual reception), particle deposition gas-solid models and experimental techniques

RELEVANT PROJECTS

IPERION HS
CollectionCare
CRAQUELURE
PVCare

PhD
Magdalena Szechyńska-Hebda
PLANT BIOLOGY GROUP

W. SZAFER INSTITUTE OF BOTANY, PAS

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EXPERTISE

Our research focuses on plant physiological and ecological responses to environmental stresses, with particular emphasis on climate change. We investigate stress signalling pathways and photosynthetic performance at multiple spatial and temporal scales, integrating satellite and remote sensing, thermal imaging and advanced hyperspectral methods with chlorophyll fluorescence and biochemical analyses. Our innovative tools for environmental monitoring contributes to the creation of smart biotechnological solutions.

SEEKING FOR COLLABORATION WITHIN

biochemistry, biophysics, AI-based solutions, biotechnological applications, system biology

RELEVANT PROJECTS

COUTECH
COOLCITY

PhD.
Adam Kłosin
LABORATORY OF SPATIAL EPIGENETICS

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
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EXPERTISE

Our laboratory investigates the spatial organization of transcription during animal development and stress responses, focusing specifically on how transcription factors and chromatin interact to form nuclear condensates. By combining biochemical reconstitution with functional studies in the nematode *Caenorhabditis elegans*, the group aims to dissect the molecular composition, assembly mechanisms, and physiological relevance of these dense protein assemblies. Ultimately, we hope to uncover conserved mechanisms of transcriptional control that will enable new therapeutic strategies.

SEEKING FOR COLLABORATION WITHIN

biological phase separation, heat shock, transcriptional condensates, chromatin biology, embryonic development

RELEVANT PROJECTS

ERC

PhD, DSc
Sławomira Pusz
MICROSCOPY LABORATORY

CENTRE OF POLYMER AND CARBON MATERIALS, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
SPUSZ@CMPW-PAN.PL
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EXPERTISE

Polymers, lipids and their hybrids are of significant scientific interest because of their self-organisation features and potential applications as nanocarriers. Our team specializes in using Transmission Electron Microscopy, including its Cryogenic Mode, to visualize and characterize polymers, polymeric bioconjugates, polymer-lipid hybrids, lipids and carbon materials for use in nanomedicine, pharmacy and drug delivery systems. We focus on nanoparticles as potential carriers for drugs and active substances.

SEEKING FOR COLLABORATION WITHIN

lipids, polymer-lipid hybrids, lyotropic liquid crystalline nanoparticles, drug delivery systems

RELEVANT PROJECTS

NCBR funded project

PhD, DSc
Paweł Morawiecki
CRYPTOGRAPHY TEAM

INSTITUTE OF COMPUTER SCIENCE, PAS
DIVISION IV - ENGINEERING SCIENCES
PAWEL.MORAWIECKI@GMAIL.COM
+48 785 218 061

EXPERTISE

Our laboratory is focused on cryptography and security. In particular, we are interested in applying deep learning to security and privacy.

SEEKING FOR COLLABORATION WITHIN

security, privacy, deep learning

RELEVANT PROJECTS

PRIVNE

ComCrypt

EfEncrypt

Professor
Szymon Jaroszewicz
STATISTICAL ANALYSIS AND MODELING GROUP

INSTITUTE OF COMPUTER SCIENCE, PAS
DIVISION IV - ENGINEERING SCIENCES
S.JAROSZEWICZ@IPIPAN.WAW.PL
+48 22 380 05 51

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.

PhD, DSc
Maciej Ogrodniczuk
DEPARTMENT OF LANGUAGE MODELING

INSTITUTE OF COMPUTER SCIENCE, PAS
DIVISION IV - ENGINEERING SCIENCES
M.OGRODNICZUK@IPIPAN.WAW.PL
+48 533 675 675

EXPERTISE

Maciej Ogrodniczuk specializes in language modelling, both linguistic and computational, development of language resources and processing natural language at all levels of complexity, from morphology to discourse. His team creates large datasets of language data, implements innovative methods to analyze them, trains large language models (LLMs) and develops AI-based solutions with linguistic components.

SEEKING FOR COLLABORATION WITHIN

natural language processing (NLP), artificial intelligence (AI), linguistics, information technology,

RELEVANT PROJECTS

CLARIN
CURLICAT
DARIAH
HOMADOS
PLLuM

Professor
Zbigniew Puchała
QUANTUM SYSTEMS OF INFORMATICS GROUP

INSTITUTE OF THEORETICAL AND APPLIED INFORMATICS, PAS
DIVISION IV - ENGINEERING SCIENCES
ZPUCHALA@IITIS.PL
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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

Professor
Leonora Bużańska
DEPARTMENT OF STEM CELL BIOENGINEERING

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS
DIVISION V - MEDICAL SCIENCES
BUZANSKA@IMDIK.PAN.PL
+48 602 575 161

EXPERTISE

Our expertise lies in neurobiology, stem cells (human iPSC and MSC), genetic engineering (gene editing, genetic vectors), bioengineering (natural and synthetic scaffolds, cell/biomaterial or cell/ECM interphase) and GMP compliant precision medicine. We are modelling neural disorders with human iPSCs lines (isogenic/control) and brain organoids (whole brain and region specific) in biomimetic microenvironment. We derive therapeutically competent cells and MVs for preclinical and clinical treatment.

SEEKING FOR COLLABORATION WITHIN

modelling neuropathology with iPSCs and brain organoids, MSCs, secretome, GMP-based cell therapies

RELEVANT PROJECTS

NCN OPUS 28 LAP
NCN/PRELUDIUM 21
NCN/OPUS16
NCN/Preludium Bis2022

Professor

Marzena Maćkowiak

LABORATORY OF PHARMACOLOGY AND BRAIN BIOSTRUCTURE, DEPARTMENT OF PHARMACOLOGY

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES

MACKOW@IF-PAN.KRAKOW.PL

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EXPERTISE

The laboratory is focused on neurodevelopmental and pharmacological models of schizophrenia: prenatal MAM administration, blockade of NMDA receptors in juvenile and adult rodents. The laboratory uses maternal separation and social isolation paradigms to model early-life adversity. We conduct behavioral tests: fear conditioning, acoustic startle response, novel object recognition, social interaction, light/dark box, and molecular techniques (proteomics, transcriptomics), immunohistochemistry.

SEEKING FOR COLLABORATION WITHIN

early life stress, adolescent stress