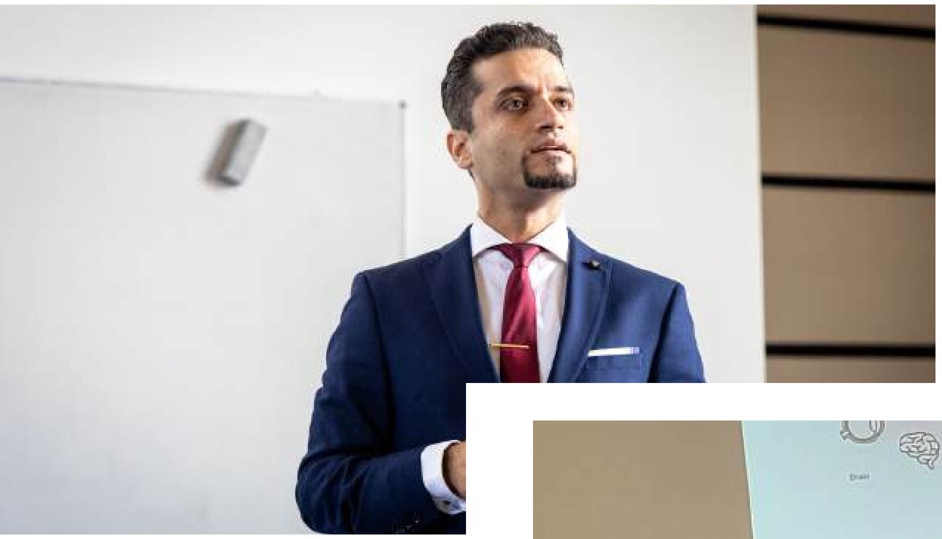
VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Journal Club

A forum for students, academics, and experts from research centers to meet



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What is a Journal Club

- A regular **meeting of students, academics, and research professionals.**
- Focused on discussing **recent scientific articles, research, and trends** in a given field.
- Aims to develop **critical thinking, presentation, and argumentation skills.**
- Often involves **guests from industry or international universities,** supporting multidisciplinary collaboration.

Motivation for Establishing the FEI Journal Club – Journal Clubs Abroad

At most prestigious international universities – across all faculties and research groups.
MIT & Harvard – joint Journal Club.
ETH Zurich – held weekly, discussing 2 research papers.
Imperial College London, Oxford – weekly Journal Club sessions combined with webinars.
KU Leuven – weekly Journal Club and webinars.

EN

CZ

Journal Club

Journal Club is a form of gathering of students, academics and professionals from research centres that is common in many foreign higher education institutions and research centres. The main aim is to discuss recent research and articles in particular fields, which promotes the development of critical thinking, presentation and argumentation. The Journal Club involves students taking it in turns to present and discuss selected articles or research papers, and includes guests from industry, research institutions and universities. Discussion focuses on critical lysis and comparison with other research, which encourages diversity of topics and multidisciplinary collaboration.

main contributions of the Journal Club to the PhD study can be summarized as follows:

moting collaboration and discussion - students and teachers discuss and share their experiences, opinions and information together. This can lead to future joint solutions to a problem and develop collaboration across disciplines. The discussion particularly helps students to think critically about their own research projects and their applicability, both research and practical.

Developing critical thinking and reasoning skills - a key skill for success in academia, but also in other scientific research positions (e.g. scientific institutions in corporate firms, project management positions, etc.). Students learn to critically evaluate and analyze scientific articles or research papers.

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Benefits for PhD Students

Encouraging collaboration and discussion

- Sharing experiences and perspectives among students and academics
- Building interdisciplinary communication and research connections

Developing critical thinking and argumentation skills

- Evaluating and analysing scientific papers
- Strengthening the ability to defend one's own research and results

Preparation for publications and conferences

- Improving presentation and communication skills
- Receiving constructive feedback from peers and experts

Keeping track of current research and innovation trends

- Staying up to date with new methods and discoveries
- Gaining inspiration for one's own research and dissertation work

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Top Guests of FEI Journal Club

Pavol Szomolányi, Ph.D. - Austria / Medical University of Vienna
- Using Artificial Intelligence for Quantitative MRI Data

Prof. Martin Pumera – Czech Republic / Singapore
- High-impact publishing and global research visibility

Prof. Seyedali Mirjalili – Australia
- Agile Workflows and Generative AI in a New Era of Autonomous Optimization

Dr. Muhammet Deveci – Türkiye
- Fostering Research Excellence: Publishing in WoS Q1 & Q2 Journals

Prof. Heikki Kälviäinen – Finland (LUT University)
- Computer Vision Research at LUT CVPR Laboratory

Prof. Carlos Marques – Portugal (University of Aveiro)
- Optical Sensors – from Robotics to Biomedical Applications

Prof. Siddhartha Bhattacharyya – India
- Quantum Computing: A Gentle Introduction

Prof. Pavel Cheben – Canada (NRC Ottawa)
- Integrated Photonic Devices for Agile Control of Free-space Optical Beams

Prof. Ole Bang – Denmark (DTU Photonics)
- Research in Fibre Sensors and Super-continuum Lasers

Jan Schenk - Canada (University of Waterloo)
- Study and Research Experience in the USA and Canada – Robotics & Hackathons

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Overview of FEI Journal Club Guests and Topics

I – Ing. Pavol Szomolányi, Ph.D. - AI for Quantitative MRI Data
II – Prof. Martin Pumera – How to Publish Results with High International Impact
III–IV – Research Groups of the Faculty – Who They Are, What They Do
V – Methodology 2017+ Results, Bibliometrics & OBD System
VI – Study, Science and Research – Discussion with the Vice-Rector
VII – About Science and Research over a Beer with the Dean and Vice-Deans
VIII – Prof. Seyedali Mirjalili – From Passion to Promotion: Harnessing the Power of Research for Maximum Impact
IX – Dr. Muhammet Deveci – Fostering Research Excellence: Publishing in WoS Q1 & Q2 Journals
X – Mgr. Tomáš Inspektor & Ing. Robert Šamárek – Bibliometrics and Evaluation of Scientific Performance
XI – Dr. Swagatam Das – Publishing in Top-tier Venues in an Era of AI and LLMs
XII – Ing. Hana Martiníková – Patents Step by Step: How to Prepare Invention Protection
XIII – On Science and Research over Good Wine with the Dean and Vice-Deans
XIV – Prof. Heikki Kälviäinen – Computer Vision Research at LUT CVPR Laboratory
XV – Prof. Carlos Marques – Advancing Optical Sensors: from Robotics to Biomedical Applications
XVI – Prof. Siddhartha Bhattacharyya – Quantum Computing: A Gentle Introduction
XVII – Visit of Research Laboratories and Short Presentations in Labs
XIX – Prof. Seyedali Mirjalili – Agile Workflows and Generative AI in a New Era of Autonomous Optimization
XX – Review of the Faculty's Research Achievements (Radek Martinek)
XXI – Jan Schenk – Study and Research Experience in the USA and Canada – Robotics & Hackathons
XXII – Prof. Pavel Cheben – Integrated Photonic Devices for Agile Control of Free-space Optical Beams
XXIII – Michaela Liegertová – Use of Large Language Models in Research Workflows
XXIV – Prof. Ole Bang – Research in Fibre Sensors and Super-continuum Lasers

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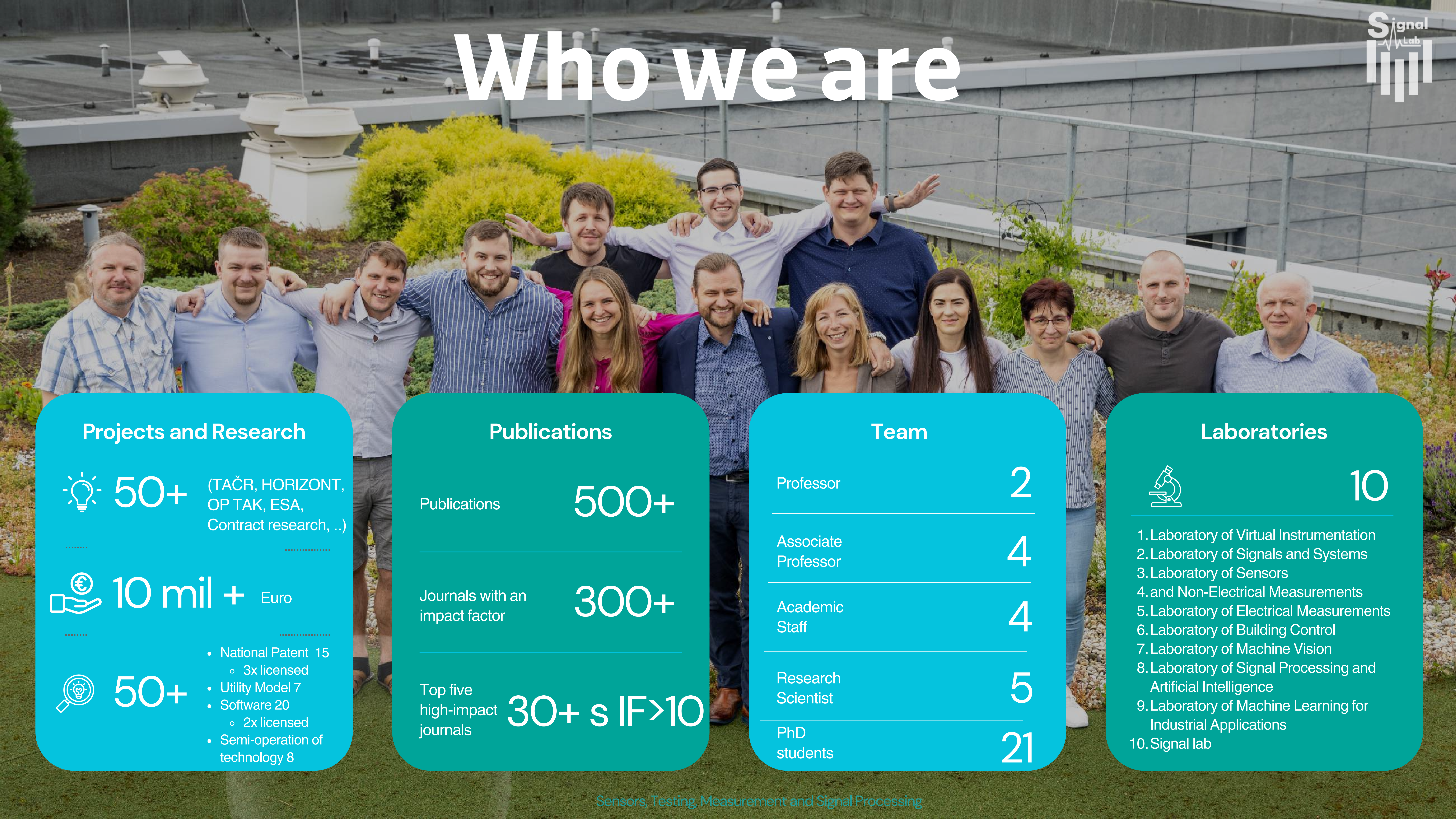
Signal Lab

Sensors, Testing, Measurement and Signal Processing

prof. Radek Martinek

Dean FEECS, VSB–TUO
Head of Signal Lab
Professor of Cybernetics



Who we are

Projects and Research

50+ (TAČR, HORIZONT, OP TAK, ESA, Contract research, ..)

10 mil + Euro

50+
- National Patent 15
  - 3x licensed
- Utility Model 7
- Software 20
  - 2x licensed
- Semi-operation of technology 8

Publications

Publications	500+
Journals with an impact factor	300+
Top five high-impact journals	30+ s IF>10

Team

Professor	2
Associate Professor	4
Academic Staff	4
Research Scientist	5
PhD students	21

Laboratories

10

1. Laboratory of Virtual Instrumentation
2. Laboratory of Signals and Systems
3. Laboratory of Sensors
4. and Non-Electrical Measurements
5. Laboratory of Electrical Measurements
6. Laboratory of Building Control
7. Laboratory of Machine Vision
8. Laboratory of Signal Processing and Artificial Intelligence
9. Laboratory of Machine Learning for Industrial Applications
10. Signal lab

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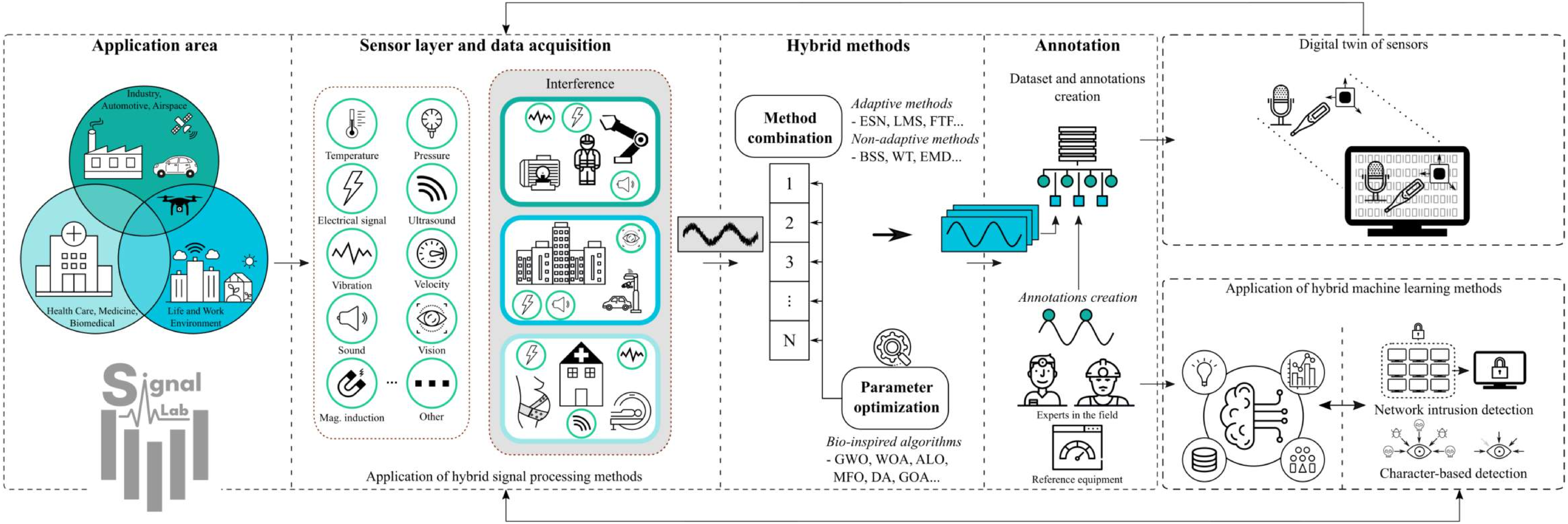
Research Focus



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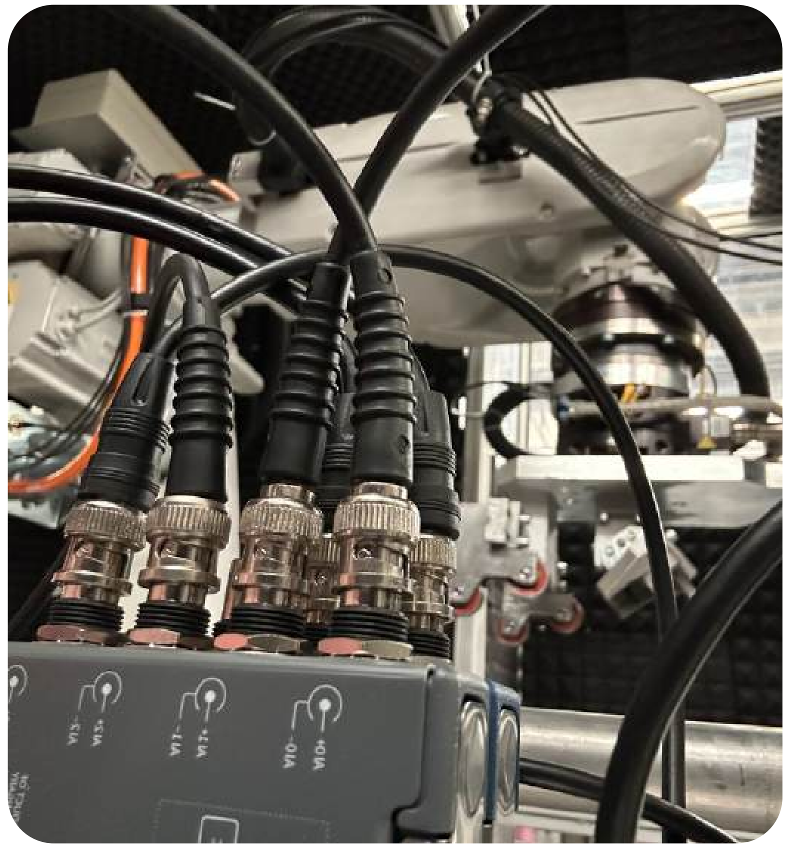

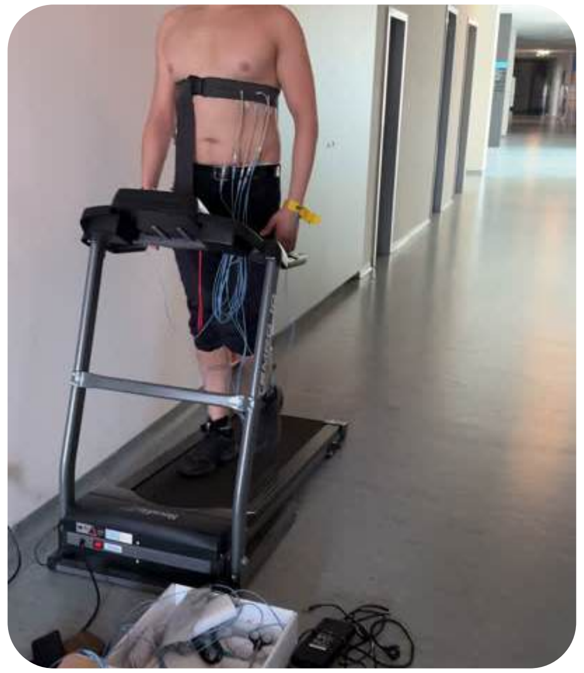

Sensors, Testing, Measurement and Signal Processing

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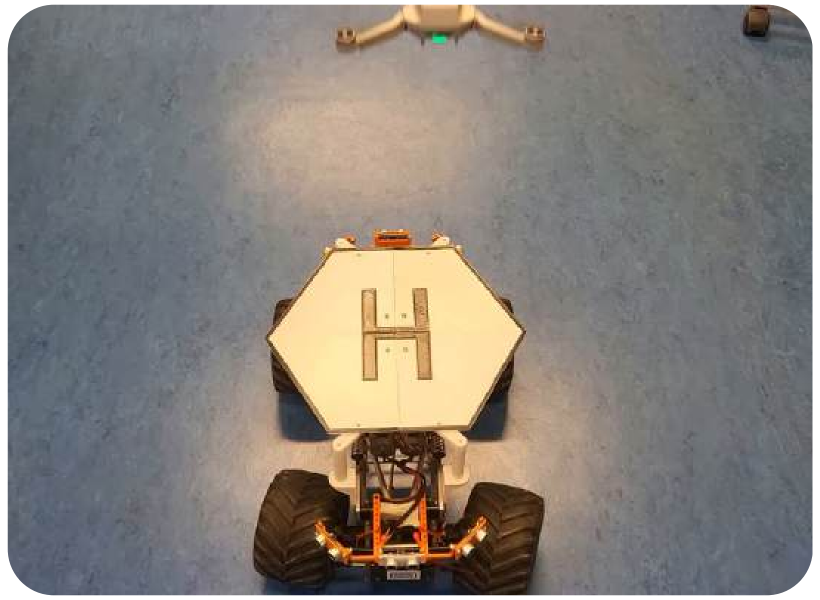

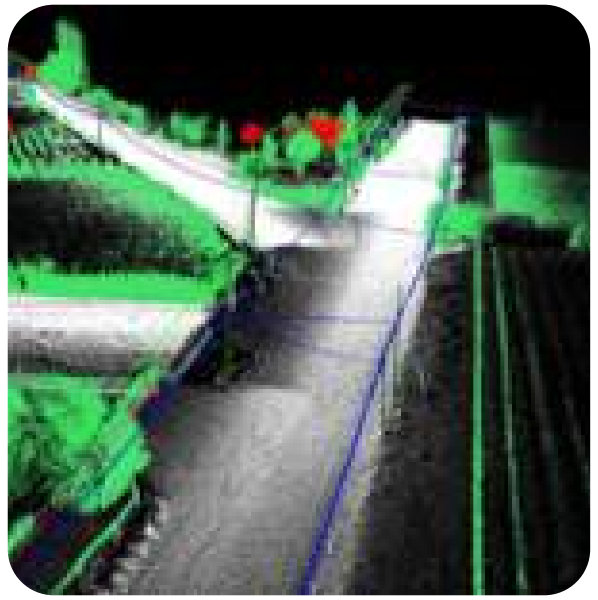

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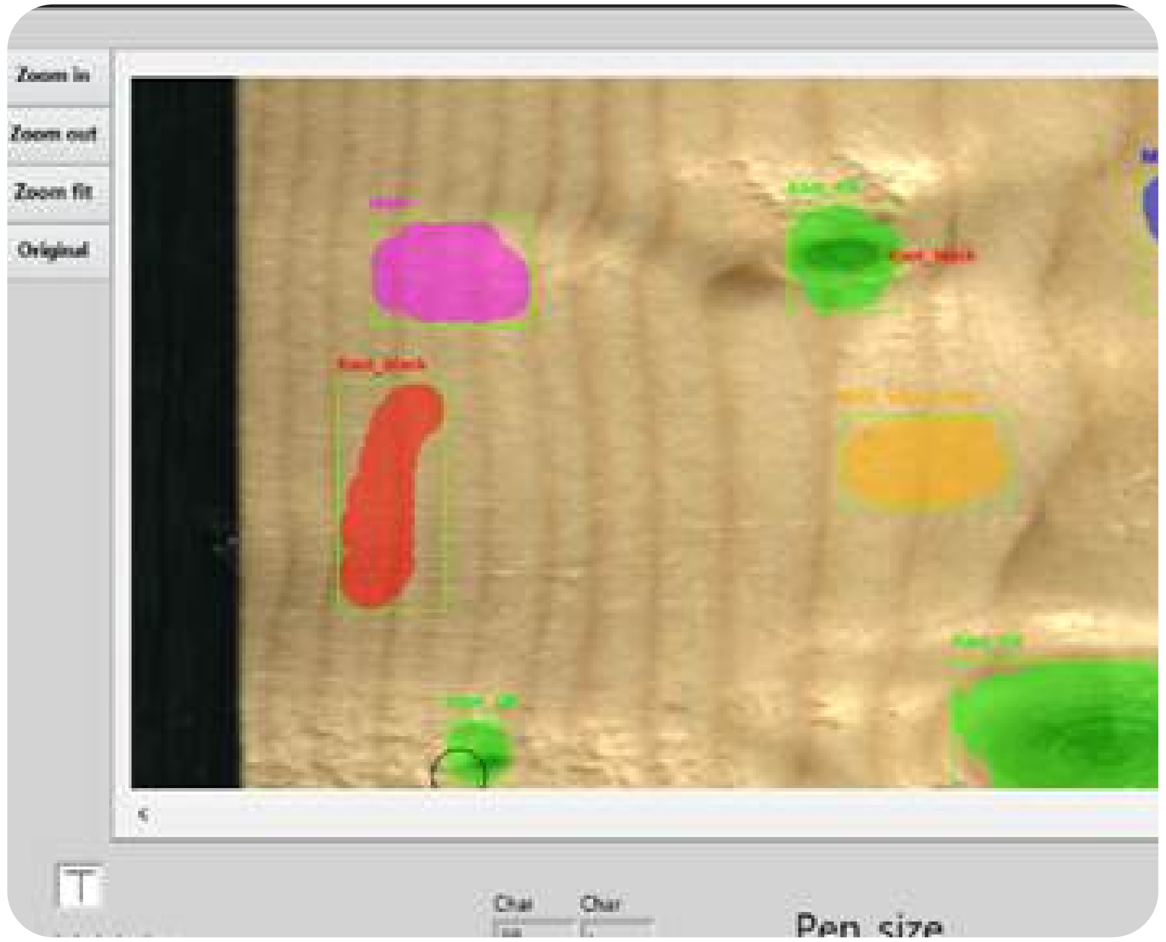
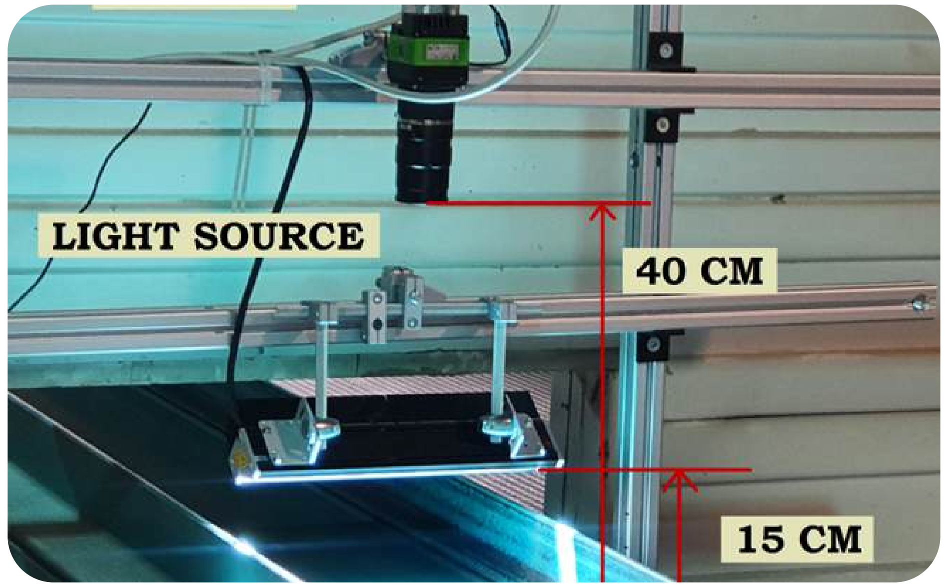




Key Results

MR Relaxometric Assessment of Basal Ganglia in Neonates with Hypoxic-Ischemic Encephalopathy (HIE)

- TREND - Technology Agency of the Czech Republic
- 1 100 000 EUR
- 2023–2027
- Computer-Aided Diagnosis for Quantitative Evaluation of Brain Development Incorporating
  Motion DetectionDuring MR Examination

Use of Pulsed Excitation Technique for Non-Destructive Testing of Elastic Material Properties

- Ministry of Industry and Trade
- 1 300 000 EUR
- 2024–2026
- Introducinginnovationintoproduction
  Unique system to characterize the elastic properties of materials under different thermal and atmospheric conditions

Strategic university projects

REFERSH,
Research Platform for Digital Transformation and Society 5.0,
AI-MATTERS-Testing and Experimentation Facilities,
ESA/MD (CONREX, ISS T-shirt)

and many more...

ACM Computing Surveys

IF=28.0

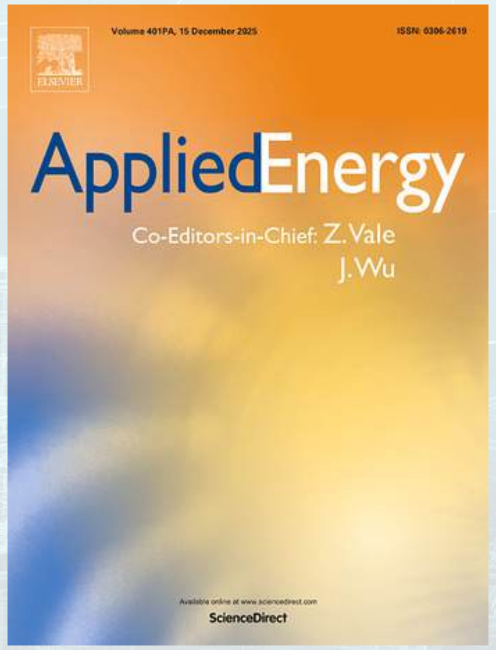
Information Fusion

IF=15.5

Archives of Computational Methods in Engineering

IF=12.1

Applied Energy



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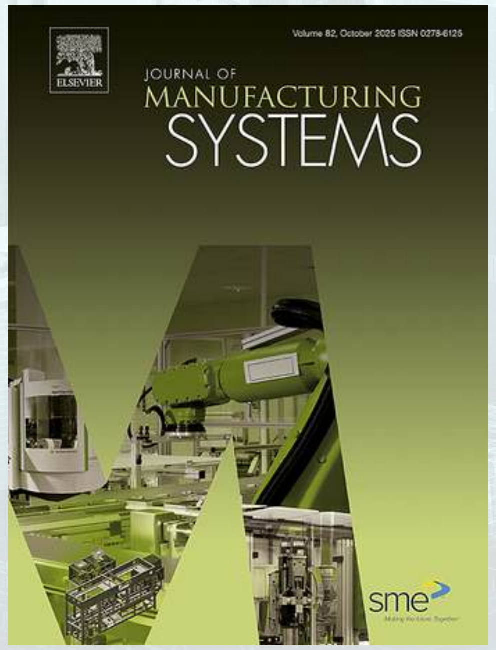
Journal of Manufacturing Systems



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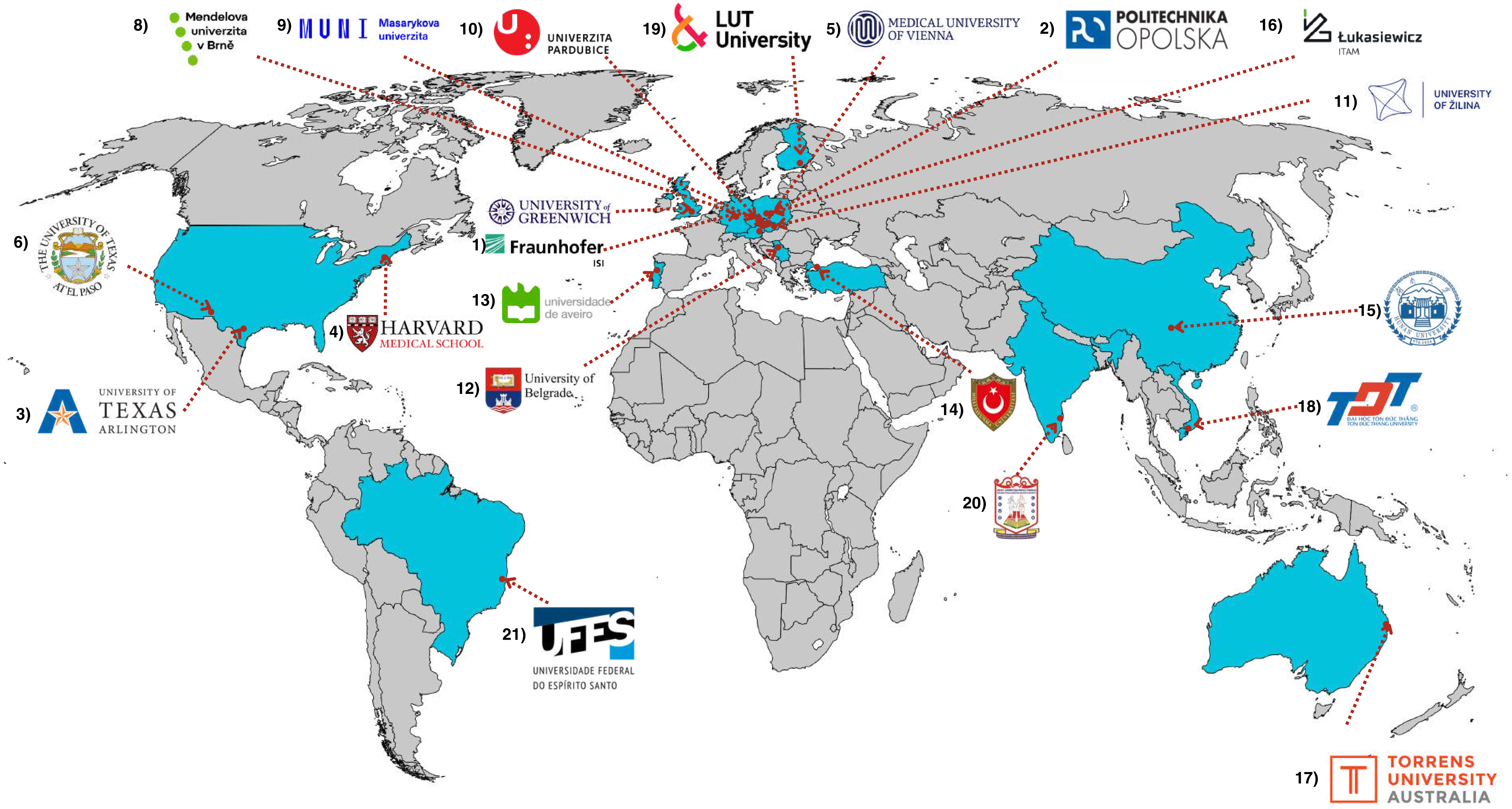
Signal Lab

Collaborations

Legend

1. Fraunhofer Institute, Germany
2. Opole University of Technology, Poland
3. University of Texas at Arlington
4. Harvard Medical School
5. Medical University of Vienna
6. The University of Texas at El Paso
7. University of Greenwich
8. Mendelova univerzita v Brně
9. Masarykova univerzita Brně
10. Univerzita Pardubice
11. University of Žilina
12. University of Belgrade
13. University of Aveiro
14. National Defence University (Istanbul)
15. Hunan University
16. Institute of Medical Technology and Equipment (Zabrze)
17. torrens university australia brisbane
18. Ton Duc Thang University
19. LUT University
20. Tamil Nadu Physical Education and Sports University, Chennai, India
21. University of Espírito Santo, Brazil



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Thank you for your attention

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