Horizon Europe Brokerage Event
Cluster 6 Calls 2025

Warsaw , 27 May 2025

SmartAgriSense – Edge-AI and Sensor Fusion for Resilient Agriculture

Prof. Dr.-Ing. Matthias G. Ehrnsperger

OTH Regensburg | SappZ

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Who are we

www.sappz.de

People and facts

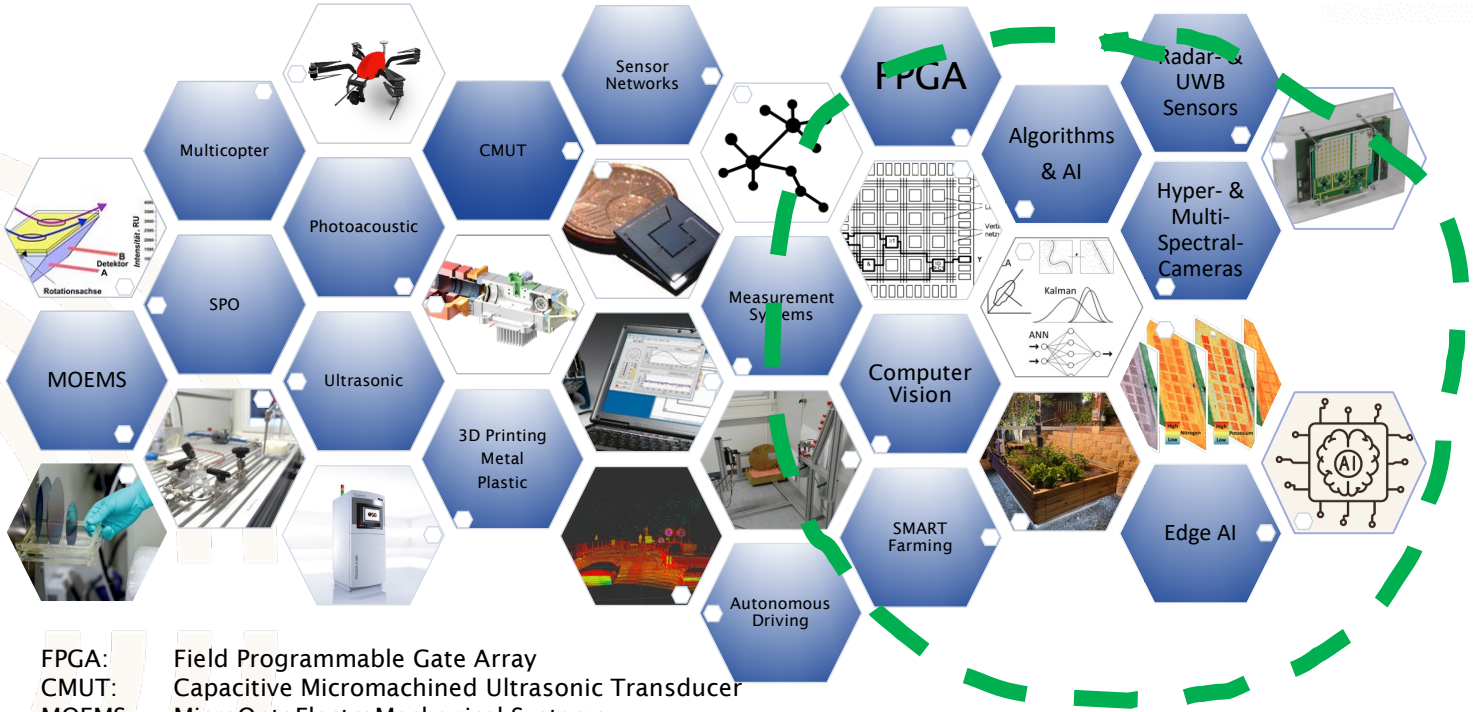
Scientific Directors
Prof. Dr. rer. nat. Rudolf Bierl
Prof. Dr.-Ing. Matthias Ehrnsperger

Scientific Personnel
6 permanent scientist + PhD students

20–30 personnel + students

Sensors – Application Centre (SappZ)

Competences – What can we do?



FPGA: Field Programmable Gate Array
CMUT: Capacitive Micromachined Ultrasonic Transducer
MOEMS: MicroOptoElectroMechanical Systems

Topic(s) addressed:

- **HORIZON-CL6-2025-FARM2FORK-01-05:**
  - **Digital technologies for resilient, inclusive and competitive agri-food systems**
  - **This topic aligns with our project "SmartAgriSense", which focuses on the development of modular sensing and Edge-AI systems for early plant stress detection and decision support in agriculture.**
- **Also following calls 2026+**

Other topics of interest:

- HORIZON-CL6-2025-CLIMATE-01-03: Innovative solutions for climate adaptation of farming systems
- HORIZON-CL6-2025-GOVERNANCE-01-01: Strengthening the science-policy interface in sustainable agriculture
- HORIZON-CL6-2025-02-FARM2FORK-05: Developing innovative phytosanitary measures for plant health - focus on systems approach for pest risk management

Project idea : SmartAgriSense

Modular, intelligent sensing and prediction system for plant stress detection (e.g. drought, nutrient deficiency, pest pressure).

- **Multi-sensor data** (hyperspectral, thermal, soil moisture, RF) using **Edge-AI** to generate **real-time**, **field-specific** recommendations.

- Objectives:
  - Enable **early** detection of **plant stress** under real-world conditions
  - **Empower** farmers through **AI-supported** decision-making
  - **Reduce water** and **fertilizer use** while improving yields
  - Provide **open APIs** for integration with smart farm machines

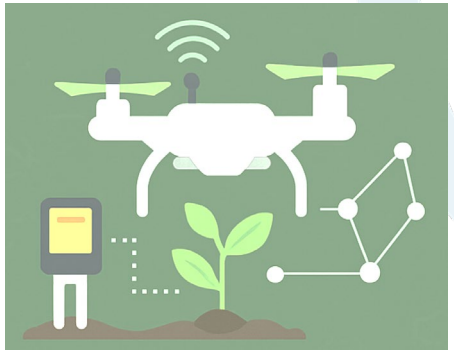
Main expertise offered / sought

Expertise Offered:

- Sensor hardware design and deployment
  - Basic sensors, hyperspectral, RF, thermal, gas, liquids, ultrasonic (incl. manufac.)
  - Platforms as drones and rovers
  - Server infrastructure and databases
- Edge AI for mobile and stationary sensing platforms
- Deep learning for stress classification and decision support
- Remote monitoring & sensor networks

Expertise Sought:

- Agronomy and plant science
- Soil science and meteorology
- Remote sensing
- Digital agriculture technology



Ongoing Projects (selection)

PestSens:

- Detect pests, low power, long live, reliable, including AI

Adlabsens:

- Fusion of Radar, Lidar, and Camera + weather Models

PROMPT

- Detecting methane with a photoacoustic sensor on an autonomous system (EU Methane Regulation (EU-MER))

RadGest:

- Radar based gesture and vital sign detection

Contact details

- Prof. Dr.-Ing. Matthias G. Ehrnsperger → Matt

- Ostbayerische Technische Hochschule Regensburg (OTH.R)
- SensorikApplikationsZentrum (SappZ)
  - We are 3 professors, 7 full-time engineers and 30 students (incl. PhD)

- SappZ is a **research institute** of the OTH.R in **Germany**
  - Visit us at: www.SappZ.de
  - E-Mail me via Matthias.Ehrnsperger@OTH-Regensburg.de
    - Or scan the code ---------->

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