Physical AI and Wireless Systems

RESEARCH ON INTELLIGENT TECHNOLOGIES
The Physical AI and Wireless Systems group at Kokkola University Consortium Chydenius explores how intelligence and connectivity transform the interaction between the digital and physical worlds. We develop AI-based systems capable of independent decision-making and operation in real-world environments.

We also design wireless embedded solutions that sense and process data from their surroundings. Our research spans from fundamental studies to practical applications, advancing smarter, more resilient, and more adaptable technologies.

OUR RESEARCH AREAS

- Autonomous cyber-physical systems – Merging IT with the physical world for intelligent decision-making and autonomous operation

- Wireless embedded systems – IoT devices and sensor networks with local data processing and online interaction

CINETCAMPUS.FI/EN >
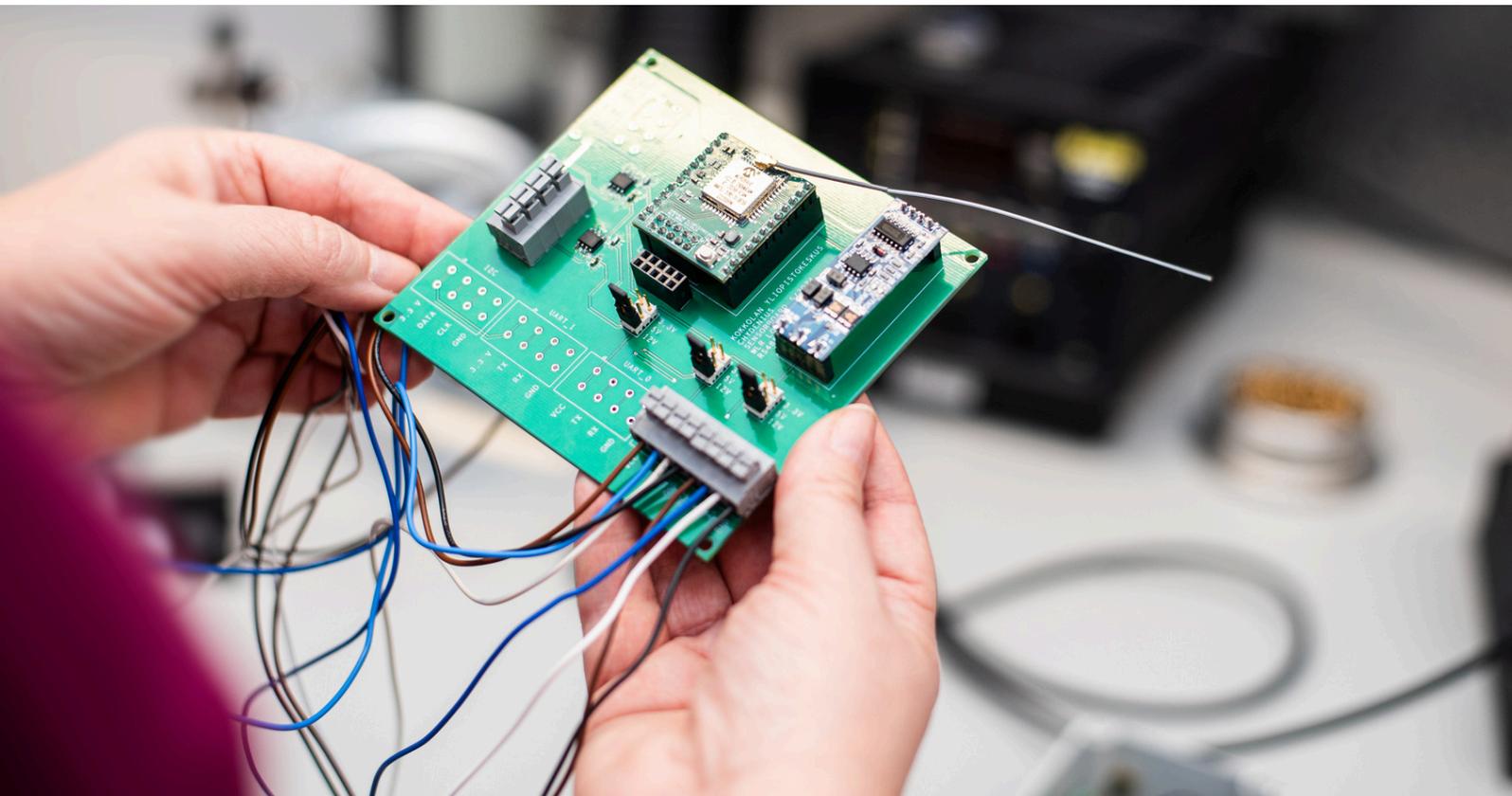
Our Current Research Themes

- Intelligent IoT and WSN solutions – Environmental, industrial, housing and health sensing and controlling solutions

- Data analytics and big data – Anomaly detection, process modeling and analysis to improve productivity and competitiveness

- GenAI and language models – State-of-art AI technologies for cyber-physical systems and industrial applications

- Sustainable and smart buildings – Intelligent monitoring and controlling solutions for smart buildings

- Autonomous machines and robotics – Autonomous decision-making, digital twins based simulations and controlling solutions for heavy machinery and robots

- Online education solutions – Online learning solutions supported with learning analytics

- Commercialization of research results – Commercialization and productization of outcomes from RDI projects

RESEARCH FOR THE BENEFIT OF BUSINESS AND SOCIETY
Our research activities are mainly based on project funding in close collaboration with companies and other partners. We have extensive experience in RDI activities as well as in transferring research results and expertise into practice.

Our goal is to continue implementing projects in our key research areas that are relevant to both industry and SMEs. RDI activities are also strongly linked to the Master's (FM) and Master of Science in Technology (DI) programs offered by our unit, ensuring a close connection between research and education.

CINETCAMPUS.FI/EN >

KOKKOLA
UNIVERSITY CONSORTIUM
CHYDENIUS