



COMPLEX DYNAMICAL SYSTEMS

Automation and Optimisation of Manufacturing
Processes, Products and Components



OUR MISSION A SUSTAINABLE, FLEXIBLE & COMPETITIVE MANUFACTURING INDUSTRY

We envision and work towards a future where industry's demand for high quality products meets society's demand for sustainability. To this end, we work closely with the manufacturing industry to understand the current and future challenges our partners are facing and to provide tailored, resource-efficient solutions.

OUR PARTNERS ENJOY

- Innovative solutions based on sectoral knowledge and customer needs
- Customer-oriented, agile project management
- Optimal knowledge transfer through concise documentation
- Scalable solutions designed to serve the world market



OUR RESEARCH AUTOMATION & SYSTEM ENGINEERING

WE SPECIALISE IN

- System analysis, design, modelling & simulation
- Data analysis, system identification & validation
- Algorithmic design for prediction, control & optimisation
- Implementation of real-time capable algorithms on industrial hardware

WE OFFER

- Digitalisation, automation, and optimisation of manufacturing systems
- Modelling, identification, and control for automation of mechatronic components
- Development of assistance systems for utility vehicles and construction machines

OUR SOLUTIONS INDUSTRIAL AUTOMATION, MECHATRONICS & ROBOTICS

SUSTAINABLE & FLEXIBLE MANUFACTURING SYSTEMS



The manufacturing industry demands high quality, throughput, and efficiency while simultaneously facing an ever-growing demand for sustainability. We provide expertise in real-time communication systems in an Industrial Internet of Things (IIoT) context as well as advanced control solutions for machine and process variables and product quality.

Fields of application

- Heat treatment and forming of metal products
- Injection moulding & die-casting

LEARNING & ADAPTIVE MECHATRONIC SYSTEMS

We develop virtual sensors and control algorithms for mechatronic systems, marrying the four key requirements for industrial automation components: fast commissioning, high precision, reliability, and resource-efficient operation. Our goal is to simplify variant configuration, facilitate adaptation to changing operating conditions, and extend the life span of mechatronic automation components.

Fields of application

- Pneumatic, hydraulic, and electric drives
- Sensor systems



COGNITIVE & AUTONOMOUS ROBOTIC SYSTEMS



Cognitive robotics enables robots and software agents to perform complex tasks and adapt to unpredictable environments. Our work focuses on integrating perceiving, reasoning, and acting in a unified framework to equip robots with higher-level cognitive functions, allowing them to process and react to novel circumstances.

Fields of application

- Commercial vehicles
- Construction machinery, tractors, forklifts, and off-road vehicles

THE AIT AUSTRIAN INSTITUTE OF TECHNOLOGY –
AUSTRIA'S LARGEST RESEARCH AND TECHNOLOGY ORGANISATION

1,400 RESEARCHERS
9 LOCATIONS
7 CENTERS



COMPLEX DYNAMICAL SYSTEMS

As part of the AIT Center for Vision, Automation & Control, our research group CDS conducts applied research in the field of dynamical system theory and its applications to industrial automation.

We achieve innovation through research, development, and implementation of methods, algorithms, and technologies for real-time capable information processing and automated decision-making.

An interdisciplinary combination of core competences from the fields of systems and control theory, physics, and computer science enables us to cover a wide range of engineering problems.

This enables us to support companies on their way to a greener production and in the implementation of their digitalisation strategy.

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TOGETHER WITH YOU

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