Special Session on

"Industrial Robotics: Motion Control, Energy Optimization and Applications"

Principal Organizer:

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Call for Papers

Robotics-related technologies continue to evolve as a cornerstone of modern society, driven by increasing demands for sustainable development, flexibility, precision, and integration in emerging technological fields. Advances in sensing, intelligent control, modelling, and data-driven optimization are reshaping how robotic systems are designed, deployed, and operated across domains. As production systems transition toward Industry 4.0 and, nowadays, 5.0 paradigms, there is a growing need for methods that connect theoretical robotics development with industry-ready engineering solutions.

This special session focuses on advances in industrial robotics, with the emphasis on motion control, energy optimization, modelling, intelligent trajectory planning, and industrial applications. Contributions are invited, but are not limited to, topics addressing fundamental challenges in industrial robotics manipulator kinematics and dynamics, high-precision control, mechatronic system design, and sensor-actuator integration. The session also welcomes research on data-driven monitoring and energy-aware operation of industrial robots as enabling technologies for next-generation automated systems. The goal is to bring together researchers and practitioners developing methods that enhance performance, robustness, and sustainability in robotic systems deployed across manufacturing and industrial automation. Papers are encouraged to present field-tested solutions, comparative evaluations, and practical lessons learned from deploying the advanced technologies in real industrial settings.

Submissions Procedure:

All the instructions for paper submission are given at the conference website**:**
https://taltech.ee/en/PEMC2026/paper-submission

Topics of interest include but are not limited to

1	Motion planning and trajectory optimization for robotic manipulators
2	Sustainable and energy-aware design, modelling and control of robotic systems
3	Intelligent and adaptive control methods for industrial robots
4	Mechatronic system design and sensor-actuator integration
5	Data-driven monitoring and industrial analytics for robots
6	Manipulator kinematics, dynamics, and model-based control
7	Advanced applications for industrial robots