

Call for Papers for the Special Session on

ADVANCED CONTROL AND SIGNAL PROCESSING IN MECHATRONICS

Organized and co-chaired by

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Technical Outline of the Session and Topics

Recent advances in mechatronic systems, especially those related to robotics, and their expected combination with AI tools raised a demand in exact, reliable, energy-efficient, and easily implementable control and signal processing algorithms, such as predefined-time convergent control, fully actuated system approach, reinforcement learning, velocity-free regulation, soft robotics gripping tools, variable structure control, sliding windows framework, data acquisition firmware, friction control and compensation, visual control and some others. A special attention is given to the techniques already used in functioning prototypes for AI-equipped mechatronic devices designed by leading technological companies in the area. This session is intended to provide an overview of the advances in the latest control and signal processing techniques of various mechatronic models employed in the applications.

Topics of the session include, but are not limited to:

- Exact and energy-efficient control
- Fully actuated system approach
- Reinforcement learning methods
- Soft robotics tools
- Reliable noise-insensitive control
- Velocity-free regulation
- Friction control and compensation / Visual control
- Implementation in AI-equipped mechatronic devices

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.

