CALL FOR PAPERS - SPECIAL SESSION

"Nonlinear Control Strategies for Robotic Systems"

for CODIT 2025

July 15-18, 2025 ▪ Split, Croatia

Session Co-Chairs:

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Session description:

This special session addresses challenges and developments in the field of nonlinear control for robotic systems. As robots can perform complex tasks in increasingly dynamic and unpredictable environments, the need for sophisticated control strategies that can cope with nonlinearities in both system dynamics and external disturbances becomes crucial. This session aims to explore the latest research, new techniques and practical applications of nonlinear control methods in robotics, with a focus on improving the robustness, stability and performance of robotic systems in real-world scenarios. Topics of interest include, but are not limited to, identification of models of robots, kinematic control of robots and integration of nonlinear controllers into different robotic systems. Contributions from both theoretical studies and experimental applications are encouraged, with particular emphasis on how these methods can be applied to enhance the capabilities of robotic systems in various fields such as industrial automation, soft robotics and mobile robotics.

The goal is to bring together researchers, engineers and practitioners from academia and industry to share insights, discuss challenges and propose innovative solutions related to nonlinear control techniques for robotic systems. By fostering collaboration and knowledge exchange, this special session aims to advance the development and application of nonlinear control strategies that improve the performance and stability of robots in complex, real-world environments. Attendees will have the opportunity to explore the latest research and practical applications addressing the evolving needs of diverse robot systems in various industries and across different robotics systems.

The topics of interest include, but are not limited to:

- Nonlinear control design and synthesis for robotic systems
- Identification of modelling parameters of robotic systems

- Adaptive and robust control techniques for uncertain and nonlinear dynamics
- Feedback linearization and backstepping control methods
- Lyapunov-based methods for stability and control in robotics
- Cooperative and multi-agent systems with nonlinear control
- Nonlinear control of mobile and aerial robots
- Nonlinear control applications in industrial robots, medical robots and autonomous vehicles
- Nonlinear control strategies for robot sensing and decision making
- Nonlinear control of soft robots and continuous manipulators

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SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **February 07, 2025:** **http://controls.papercept.net/conferences/scripts/start.pl**. In PaperCept, click on the **CoDIT 2025 link "Submit a Contribution to CoDIT 2025" and follow the steps.**

IMPORTANT: All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).

DEADLINES

February 07, 2025: deadline for paper submission

April 27, 2025: notification of acceptance/reject

May 17, 2025: deadline for final paper and registration