Invited Session on "Robotics and Control Problems in Cyber-Physical Systems" for IFAC MIM 2019

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Session Chairs

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A Cyber-physical system (CPS) is an emerging concept is system and control theory resulting from the development and integration of technology in three areas of control theory, information theory, and communication. A CPS is an engineered system that consists of a physical part presenting a real physical object and a computational part serving as a cyber shadow of the physical part. CPS are associated with such terms as the Internet of Things (IoT), robotics, smart cities and systems engineering.

Moreover, the research and development in robotics is shifted in the last years from industrial robotic platforms to intelligent and autonomous robotic systems. The long-term objective of designing such intelligent robots is to facilitate easier and safer integration of these systems with the human life to carry out dangerous, repetitive, and tedious tasks.

The aim of this invited session is to utilise the existing solutions and methodologies in design and development of cyber-physical systems as well as robotics and automatic control system in order to cross-fertilise both fields. The session provides a unique platform for the researchers in both fields to discuss the recent advances and cutting-edge solutions in both fields to overcome the challenges faced by the industry and stakeholders in development of a smarter robotic cyber-physical system under operational constraints, and to ensure a robust and stable operation even in case of subsystem failures.

Session Topics

The authors are invited to contribute theoretical and applied research papers in the areas including but not limited to the following topics:

Control algorithms and methodologies such as robust and adaptive control systems, distributed and networked control systems, event-triggered control systems, integration and fusion of sensors, mobile and static sensor networks, intelligent objects integrated in the internet of things, integration of real-time requirements for robotic applications, machine learning and intelligent decision support systems integrated into robotic systems for detecting and prognosis of faults, fault tolerant and reconfigurable control systems, energy-efficiency in robotics, multi-robot collaboration, synchronization and management, augmented and virtual reality systems.

Submission

All papers must be prepared in a two-column format in accordance with the IFAC manuscript style and submitted online through the conference website by **December 15, 2018**. The corresponding author submits the pdf-format as **an invited session paper**. Submission as an invited paper requires the **invited session code.** Several international journals are associated with the MIM 2019 for publication of special issues.

Important dates

December 15, 2018 Deadline for the submission
February 20, 2019 Notification of acceptance/rejection
March 15, 2019 Deadline for the final submission

Proposal 141 submitted to 9th IFAC Conference on Manufacturing Modelling, Management and Control. Received December 4, 2018.