

ARCAI 2026 Special Sessions Proposal Form

Format: Maximum 4 pages. All pages are formatted to letter paper size with margins of one inch on every side. All texts use single space, Times New Roman, and a font size of 11.

Success of SS: At least 6 accepted & registered papers with authors from at least 2 independent institutions (other than the organizers institutions) should be required for each SS.

Submission: This form should be submitted to icarcai.info@gmail.com once completed.

Special Session on “Modelling, Optimization, and Control of Cyber-Physical Systems”

Organized by

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➤ **Technical Outline of the Session and Topics (100-150 words):**

Cyber-Physical Systems (CPS) have emerged as a fundamental paradigm for integrating physical processes with computation, communication, and control. With the rapid development of smart infrastructures, renewable energy systems, industrial automation, intelligent transportation, and autonomous technologies, modern CPS are becoming increasingly large-scale, interconnected, and data-driven. These developments bring significant challenges in system modelling, optimization, decision-making, security, and real-time control. Advanced methodologies are therefore needed to ensure the efficiency, resilience, stability, and intelligence of CPS operating in uncertain and dynamic environments.

This special session aims to provide a forum for researchers and practitioners to present recent advances in the modelling, optimization, and control of CPS and to discuss emerging theoretical developments and practical applications.

Topics of interest include, but are not limited to:

- *Dynamic modelling and system identification of CPS*
- *Optimization and decision-making under uncertainty*
- *Distributed, cooperative, and multi-agent control of CPS*
- *Data-driven, AI-enabled, and learning-based control and optimization*
- *Cybersecurity, resilience, and fault-tolerant control of CPS*
- *Smart grids, energy systems, and industrial automation*
- *Intelligent transportation and autonomous systems*

Accepted and presented papers will be submitted for inclusion into Springer-Lecture Notes in Networks and Systems subject to meeting its scope and quality requirements and indexed by EI Compendex and Scopus. Selected papers will be invited to SCI Journal Special Issues.