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Intelligent Sensing, Control and Actuation in Networked Systems

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Deadline for manuscript submissions:
closed (20 October 2025)

Message from the Guest Editors

Dear Colleagues,

This Special Issue aims to showcase the latest advancements in sensing, control, and actuation technologies that are transforming the way we approach networked system challenges. By integrating cutting-edge techniques from fields such as machine learning, adaptive control, event-triggered control, and multi-agent coordination, researchers are developing innovative solutions to enhance the operational capabilities of networked systems. The scope of this Special Issue includes, but is not limited to, the following topics:

1. Distributed actuator layout optimization;
2. Advanced sensing and learning-based control algorithm;
3. Machine learning-based techniques, such as neural networks and data-driven models, for anomaly detection and fault diagnosis;
4. Actuator fault-tolerant control;
5. Planning and control strategies for networked systems involving actuators;
6. Actuator applications in networked systems.

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Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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