Special Issue

Recent Advances in Security, Resilience, and Multi-Objective Optimization of Cyber-Physical Systems

Message from the Guest Editors

Cyber-Physical Systems (CPS) are the digital backbone of smart grids, Industry 4.0, autonomous transportation, and connected healthcare. Their tight integration of computation, communication, and control makes them both performance-critical and cyber-vulnerable. This special issue invites innovations in real-time control, system integration, security, and machine learning for CPS, emphasizing their role in solving complex real-world problems like autonomous systems, industrial Internet of Things (IoT), and smart healthcare. Topics of Interest (include but are not limited to):

- Attack detection, isolation, and mitigation for sensor, actuator, and network layers of CPS
- Formal verification, runtime monitoring, and digital-twin-based security assessment
- Real-time resource allocation under safety, security, and energy constraints
- AI/ML-driven control and scheduling with provable guarantees
- Edge-cloud orchestration for latency-reliability trade-offs in large-scale CPS
- Game-theoretic, learning-based, and adaptive control approaches for secure and resilient CPS
- Federated and privacy-preserving learning in distributed CPS
- Generative AI for threat modeling and automated system hardening

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Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

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