Special Issue

Agentic and Explainable AI for Secure and Trustworthy Industrial IoT: Advances in Cyber-Physical Systems, Wireless Communication and the Cloud–Edge–IoT Continuum

Message from the Guest Editors

Industrial IoT ecosystems are rapidly evolving through Industry 4.0, seamlessly integrating physical processes, computational intelligence, and communication across the cloud–edge–IoT continuum. At the core of this evolution lies Agentic AI—which encompasses intelligent systems characterized by autonomy, adaptability, and proactive decision making, essential for managing the complexity and dynamism inherent in modern industrial operations. Agentic AI facilitates the effective integration of CPSs, industrial communication protocols, sensor technologies, wireless networks, semantic communications, and emerging 6G technologies, ensuring synchronized collaboration under stringent real-time conditions. Nevertheless, the increasing dependence on autonomous AI-driven decisions presents significant challenges concerning transparency, security, and trustworthiness. As critical operations in industry become more reliant on AI agents, there is a compelling need to ensure that these systems are transparent, secure, and reliable. For detailed information, please visit here.

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