Special Issue

AI and Optimization in Industrial Networks: Advancing Efficiency, Real-Time Decisions, and Security

Message from the Guest Editors

AI-powered algorithms are increasingly enhancing industrial networks, machine vision, robotics control, and large-scale industrial models, boosting operational efficiency, real-time decision making, and safety. However, in complex industrial internet environments, challenges such as cross-layer communication optimization, computing–networking cross-domain resource allocation, and task scheduling are deeply intertwined, complicating integrated intelligent decision making. Additionally, the highly dynamic nature of industrial environments and network topologies, along with the stringent demands for stability and rapid response, impose significant challenges on the reliability and security of data-driven decision-making models. Addressing these obstacles is essential for advancing system optimization, predictive maintenance, intelligent control, and industrial cybersecurity.

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