

Special Issue

Artificial Intelligence for Next-Generation Wireless Communications

Message from the Guest Editors

Artificial intelligence (AI) is becoming a key enabler for next-generation wireless communication systems. By learning complex channel characteristics, network dynamics, and user behaviors, AI can improve physical-layer transmission, radio resource management, network optimization, and service provisioning. However, its practical deployment still faces challenges related to data availability, generalization, computational complexity, interpretability, security, and real-time implementation. This Special Issue aims to present recent advances in AI for next-generation wireless communications. Topics of interest include, but are not limited to: deep learning, deep unfolding, reinforcement learning, graph neural networks, federated learning, generative models, diffusion models, foundation models, and large language models for channel estimation, signal detection, beamforming, resource allocation, network optimization, semantic communications, integrated sensing and communication, massive access, edge intelligence, satellite communications, and the Internet of Things.

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