

CALL FOR PAPERS
SPECIAL SESSION ON
Smart and Autonomous 6G Networks: AI-Enabled Optimization and Emerging Applications
for ICCAD 2027
July 6-8, 2027, Paris, France

Session Co-Chairs:
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Session description:

Artificial intelligence (AI) is becoming a cornerstone of smart and autonomous 6G networks, enabling adaptive, self-organizing and increasingly resilient communication infrastructures. As networks grow more heterogeneous and complex, machine learning and reinforcement learning can support intelligent resource allocation, predictive optimization, interference management and automated operation. Beyond higher capacity and lower latency, these advances are crucial to reliable, energy-efficient connectivity and the digital transformation of society and industry. Their convergence with the Internet of Things (IoT), edge computing and distributed intelligence will support real-time processing and decisions closer to connected devices and critical services.

The potential impact is both societal and economic: robust intelligent connectivity can improve emergency response and disaster monitoring, facilitate timely information exchange during crises, and support more efficient transport, smart cities and industrial services. Drone-assisted monitoring, connected autonomous mobility and IoT applications illustrate how future 6G networks could contribute to safer operations, sustainable resource use and new opportunities for innovation. Achieving these benefits will require secure, trustworthy and interoperable AI-based network solutions.

The goal of this special session is to bring together researchers and practitioners advancing AI-enabled optimization, self-organization and autonomous network management for Beyond-5G and 6G systems. It welcomes research on intelligent radio access, adaptive orchestration and practical network automation, as well as connectivity and computing challenges arising in edge-enabled IoT, UAV and connected mobility scenarios. The central focus remains the intelligence, optimization, reliability and resilience of future wireless networks, while encouraging discussion of their emerging applications and wider impact.

The topics of interest include, but are not limited to:

- AI-enabled self-configuration, self-optimization, self-healing and self-protection in 5G/6G networks; machine learning and reinforcement learning for radio resource allocation, spectrum and interference management; intelligent O-RAN architectures, network orchestration and automation; predictive analytics, anomaly detection and AI-based cybersecurity; emerging 6G architectures and heterogeneous network optimization; AI integration with IoT, edge and cloud-native computing; distributed edge intelligence for low-latency applications; intelligent connectivity and resource optimization for UAV and drone-assisted networks; AI-enabled wireless communications for connected and autonomous vehicles; privacy-preserving, explainable and energy-efficient network intelligence.

SUBMISSION

Papers must be submitted electronically for peer review by**: January 31, 2027**
https://www.iccad-conf.com/submission/

All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).