CALL FOR PAPERS
SPECIAL SESSION ON

AI-Driven Self-Organizing Networks and Emerging 6G Technologies for Next-Generation Connectivity

for ICCAD 2026
July 7-9, 2026, Lisbon, Portugal

Session Co-Chairs:
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Session description:

The accelerated evolution of wireless communication technologies is reshaping how global networks are designed, deployed, and managed. While 5G continues to expand, research is rapidly advancing toward 6G systems, which promise ultra-high data rates, near-zero latency, massive bandwidth, and the integration of emerging technologies such as terahertz communications, quantum computing, and nanotechnology. These innovations are expected to support next-generation digital ecosystems, including IoT, aerospace communications, immersive environments, and seamless rural–urban connectivity. A key enabler of this transition is the evolution of Self-Organizing Networks (SoN), originally conceived by 3GPP with self-configuration, self-optimization, and self-healing capabilities, later expanded to include self-protection. Despite significant progress, adoption has been slowed by network complexity and the limitations of rule-based approaches. Artificial intelligence and machine learning now offer powerful means to overcome these challenges, enabling automated configuration, predictive optimization, real-time anomaly detection, and adaptive operations. Yet their integration into operational telecom networks demands scalable orchestration, interoperability across diverse models, and transparent, trustworthy decision-making.

This special session welcomes contributions that explore AI-driven solutions for autonomous, resilient, and secure 5G/6G networks, emphasizing practical implementation challenges, interdisciplinary approaches, and innovations that foster efficiency, reliability, and sustainable digital transformation.

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 for spectrum optimization, interference management, and network capacity forecasting; terahertz communications, quantum-assisted networking, and emerging 6G architectures; AI-driven cybersecurity for mobile networks and anomaly detection in large-scale infrastructures; automation frameworks for network maintenance, fault prediction, and operational efficiency; integration of AI with IoT, edge computing, and cloud-native telecom solutions; data-driven personalization of telecom services and customer experience optimization; intelligent resource management and orchestration for ultra-dense and heterogeneous networks; privacy-preserving

techniques for AI-assisted network analytics; and robotics and autonomous agents for network deployment, monitoring, and repair.

SUBMISSION

Papers must be submitted electronically for peer review by**: January 31, 2026**

https://www.iccad-conf.com/submission/