

IEEE Future Networks Series

-

7th Special Issue on 6G Technologies and Applications

The academic and industrial communities have shifted their focus to 6G, which is expected to be a significant improvement over previous generations of wireless communication. 6G is anticipated to offer a lean network that utilizes intelligence to adapt network topology to support a high quality of experience for connected users. This new technology is set to revolutionize various industries as it will enable the development of innovative applications. Although much is yet to be learned about 6G technology, it is expected it will usher in a new era of connectivity and innovation. For example, 6G will integrate both virtual and physical realities bringing forward new paradigms of data distribution and network operations. This vision will transform mobile network infrastructure from connectivity provider to service hosting platform. 6G networks will be embedding artificial intelligence (AI) into functional and operational modules to create smart infrastructures with proactive, secure, and adaptive systems. These networks will expand beyond terrestrial environments, incorporating analytics, energy-efficient mechanisms, and blockchain systems to boost network autonomy and enable self-synthesizing and self-healing operations. Fuelled by ever-growing connectivity and data rate demands, 6G will cover new spectrum bands and optical wireless communications in addition to novel or advanced transmission technologies, the use of reconfigurable intelligent surfaces as well as the co-design of communications and sensing functionalities, among others.

Sponsored by the IEEE Future Networks initiative, this series has already featured six very successful Special Issues. It aims to assist research communities in defining and shaping the architecture, technologies, and services for 6G networks. We invite original contributions not published or currently under consideration by any other journals or conferences. The topics of interest include but are not limited to:

- 6G dimensions and fundamental analyses
- New PHY and medium access technologies
- MU-MIMO and new antenna technologies
- Terahertz communications
- Wireless networking using the optical spectrum: LiFi, visible light communications (VLC), optical camera communication (OCC) and free-space optical (FSO) communications
- Reconfigurable intelligent surfaces
- Integrated communications and sensing
- Situational-aware communications and sensing
- Semantic communications
- Goal-oriented communications
- Deterministic communications and networks
- New core network entities and interfaces
- 6G network assurance and service optimization
- Cloudification, multi-access edge computing and IoT
- Cyber security and trusted platforms
- Digital Twin and Quantum communications
- AI/ML intelligent and autonomous networks
- Green 6G networks, wireless harvesting technologies and energy efficiency
- 6G satellite, non-terrestrial networks and UAV networks

Submissions should clearly identify how they relate to 6G and how they would progress beyond current 5G technologies. All manuscripts should contain state-of-the-art material presented in a tutorial or survey style, and must adhere to [IEEE VTM guidelines](#). Papers presenting original and state-of-the-art research and technical contributions are also considered. However, their presentation should be in tutorial style and accessible for all readers. Submit your manuscript through the [IEEE Author Portal](#).

GUEST EDITORS

Anwer Al-Dulaimi
Veltris, Canada

Sumei Sun
Institute for Infocomm Research (I2R), A*STAR, Singapore

Francesco Restuccia
Northeastern University, USA

Tommy Svensson
Chalmers University of Technology, Sweden

Hao Guo
Chalmers University of Technology, Sweden

IMPORTANT DATES

Manuscript Submission by: 29 August 2025
First Round Reviews by: 30 November 2025
Second Round Submissions by: 15 January 2026
Second Round Reviews / Editorial Decision: 15 February 2026
Publication: June 2026