

Special Issue

Digital Twin Networks, Network Virtualization and Applications for Next-Generation Sensor Systems

Message from the Guest Editors

The convergence of Digital Twin Networks with 6G technology and advanced Sensor Networks represents a promising breakthrough capable of transforming how we connect, communicate, and utilize networks. By integrating terahertz communications, AI-native network orchestration, and ultra-massive MIMO, this synergy establishes the foundation for a new generation of intelligent, ultra-responsive applications and services, enabling unprecedented levels of automation, connectivity, and real-time data exchange. Network virtualization serves as a key enabler for the seamless deployment and scalability of Digital Twin Networks for a new generation of resilient, adaptive, and context-aware applications and services.

This Special Issue aims to highlight original research and review articles in this field. Potential topics includes:

- Architectural foundations;
- Modelling;
- Data acquisition and synchronization;
- Network communications and protocols;
- Energy-efficient protocols for large-scale sensor-digital twin network connectivity;
- Data management;
- AI processing;
- Edge devices;
- Security;
- Resilience and fault-tolerant strategies;
- Application domains.

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Message from the Editor-in-Chief

Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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