IEEE MASS 2025 Workshop on
Digital Twin and Pervasive Intelligence for Sensing, Communication, and Computing in Next-Generation Wireless Systems
Call for Papers

Emerging paradigms like Digital Twin (DT) and Pervasive Intelligence (PI) are reshaping next-generation wireless systems by intelligently managing sensing, communication, and computing. These technologies are especially valuable in dynamic environments demanding real-time response, contextual awareness, and autonomous adaptation. While this integration enhances system capabilities, it also introduces challenges, such as maintaining robust connectivity under changing topologies, handling large-scale sensor data, and optimizing performance under resource constraints. DTs offer real-time virtual models for simulation and prediction, while PI leverages context-aware artificial intelligence (AI) to manage network demands, resource allocation, and decision-making across distributed nodes. Together, DT and PI enable wireless systems to evolve from reactive networks into proactive, self-optimizing ecosystems with improved efficiency, reliability, and scalability. However, realizing this vision requires overcoming key technical hurdles, including accurate DT modeling, scalable edge computing, real-time processing, and cross-domain interoperability.

This workshop aims to explore cutting-edge techniques, architectures, and applications that incorporate DT and PI into wireless systems. It encourages interdisciplinary collaboration and shows innovations that advance intelligent wireless infrastructures, focusing on energy and resource efficiency, URLLC, edge intelligence, and automated adaptability at scale.

- Integrated Sensing, Communication, and Computing (ISCC) Architectures
- DT Modeling and Synchronization for Smart Systems
- PI for Network Management and Optimization
- Networking Protocols for Dynamic and Resource-Constrained Environments
- Distributed and Edge AI for Sensing-Driven Applications
- Cross-Layer Design and Optimization in DT/PI-Driven Frameworks
- Real-Time Context Awareness and Decision-Making Algorithms
- URLLC in Smart Wireless Systems
- Energy-Efficient and Intelligent Data Processing and Communication Techniques
- DT/PI-Enabled Predictive Analytics for Network Adaptation
- Adaptive Resource Management in Integrated Sensing, Communication, and Computing Systems
- DT/PI-Assisted Security, Privacy, and Trust Architectures
- Scalability and Interoperability in Pervasive Intelligence Systems
- Testbeds, Benchmarking, and Performance Evaluation for DT/PI-Enabled Systems
- Novel Use Cases and Applications (e.g., autonomous vehicles, industrial automation

Paper submission: Papers must be formatted in the standard IEEE two-column format that is used by the IEEE MASS 2025 main conference and must not exceed 6 pages in length (including references). All submitted papers will go through a peer review process.
Submission link (EDAS): https://edas.info/N33357 **(please choose DT-PISCC Workshop for submission).**

Organizing Committee:

General Co-chairs
Vojislav Misic, Toronto Metropolitan University, Canada
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Important Dates
Paper Submission Deadline: June 30, 2025
Acceptance Notification: July 31, 2025
Camera Ready: August 7, 2025
Day of Workshop: October 6, 2025