

ETFA 2025

Porto Portugal

9-12 September

30th IEEE International Conference on Emerging Technologies and Factory Automation

Call for Papers

SS11 – Smart and Efficient - Emerging Trends in Building Automation

Organized and Chaired by

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❖ **FOCUS.** This special session focuses on emerging technologies in building automation, emphasizing intelligent control, energy efficiency and sustainability. Key topics include AI-driven optimization, IoT-enabled real-time monitoring, and data-driven decision-making. Contributions are expected to address challenges in system interoperability, cybersecurity, and adaptive automation. Special attention will be given to energy and air quality management strategies, occupant-centric solutions, and the role of digital twins in holistic system modelling and predictive maintenance. The session aims to highlight innovative research and practical implementations that enhance building performance, sustainability, operational efficiency as well as increase the well-being of persons in the indoor environment. Authors are encouraged to present novel approaches, case studies, and future trends shaping next-generation smart buildings.

❖ TOPICS

- ❖ ML/AI for Energy and/or Air Quality Management in Buildings
- ❖ IoT and Edge Computing for Smart Buildings – Real-time data processing, decentralized automation, and enhanced interoperability
- ❖ Interoperability and Open Standards in Building Automation Systems
- ❖ Cybersecurity and Privacy in Intelligent Buildings – Secure data exchange, resilience strategies, and regulatory compliance
- ❖ Interoperable Data Platforms and Data Modelling
- ❖ Digital Twins in the Building Automation context
- ❖ Occupant-Centric and Adaptive Building Systems – Human comfort, behavioural analytics, and dynamic space management
- ❖ Sustainable Building Operations – Smart HVAC, renewable energy integration, and carbon footprint reduction

❖ **AIM.** This Special Session aims at bringing together professionals from industry and academia to share cutting-edge concepts, recent developments, research results, and practical achievements in adaptive building automation and smart applications for building, in particular AI-driven optimization, IoT-enabled real-time monitoring, and data-driven decision-making.

❖ **CONFERENCE FORMAT.** The conference will comprise multi-track sessions for regular papers, to present significant and novel research results with a prospect for a tangible impact on the research area and potential implementations, as well as work-in-progress (WiP) and industry practice sessions.

❖ AUTHOR'S SCHEDULE (2025)

❖ Regular and special sessions papers

Submission deadline April 18
Acceptance notification May 23
Deadline for final manuscripts July 4

❖ Work-in-progress/Industry practice papers

Submission deadline May 30
Acceptance notification June 20
Deadline for final manuscripts July 4