

Special Issue

Artificial Intelligence for Intelligent Systems and Energy-Efficient Buildings

Message from the Guest Editors

Rising demand for energy-efficient buildings and digital transformation calls for new design, operation, and optimisation approaches. Integrating AI into technical systems and modern buildings is a key research area of high importance. Modern building systems use interconnected sensor networks, data acquisition, and advanced computation to monitor, analyse, and optimise performance. These enable adaptive, real-time decisions, allowing building operation to respond dynamically to changing conditions and user needs. This Special Issue focuses on AI for intelligent, energy-efficient building systems. Scope includes AI-based modelling, predictive and adaptive control, indoor environmental quality, energy optimisation, and smart operation. Special attention goes to sensor networks, automated data processing, and machine learning for system analysis and optimisation. Contributions are invited on AI-driven modelling, intelligent control, indoor environment management, and real-building validation. The aim is to advance intelligent, efficient buildings via AI-enabled approaches.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

Editor-in-Chief

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