

Special Issue

Transforming Built Environment Performance through AI-Driven and Physics-Based Simulations

Message from the Guest Editors

As the built environment faces increasing demands for energy efficiency, sustainability, and occupant health and well-being, the convergence of artificial intelligence (AI), machine learning (ML), and physics-based methods provides a powerful computational toolkit for advancing performance modeling and assessment. By leveraging the strengths of AI/ML alongside the interpretability and precision of physics-based models, this approach enhances predictive accuracy, improves design processes, and streamlines operations.

This Special Issue explores how these emerging technologies can be applied to optimize design, improve operational efficiency, and contribute to the development of smarter, more sustainable built environments across various scales, from individual buildings to urban environments.

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