Special Issue

Large-Scale AI Models Across the Construction Lifecycle

Message from the Guest Editors

Dear colleagues, As the construction industry progressively shifts towards greater intelligence, digitalization, and sustainable development, the application of large-scale AI models, represented by large language models (LLMs), has emerged as a pivotal technological force driving this transformation. This Special Issue aims to explore the contributions of large-scale AI models in areas such as generative design, project management, construction robotics, BIM, digital twins, and urban renewal. The key topics of this Special Issue include, but are not limited to, the following:

- Large language model;
- AI-driven urban renewal planning and design;
- Automation and robotics in construction;
- Integration of BIM and digital twins;
- Applications of AI in construction project management;
- Social impact assessment in urban renewal;
- AI-driven sustainable development of aging communities;
- Adoption of digital technologies in the construction industry;
- Industrialized construction.

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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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