Research on Emerging Technologies for Structural Design, Inspection, and Maintenance

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Message from the Guest Editors

Dear colleagues,

Recent advancements in next-generation information technologies, including big data, artificial intelligence (AI), internet of things (IoT), and cloud computing, have spurred significant opportunities in structural engineering.

The aim of this Special Issue is to bring together original research and review articles discussing emerging technologies for structural design, inspection, and maintenance. Topics of interest include, but are not limited to, the following:

1. The AI-based design and optimization of structures;
2. Innovative inspection technologies with smart sensing materials and intelligent equipment in unmanned aerial vehicles and movable robots;
3. Advanced testing techniques for precast structures and composite structures;
4. Data fusion technologies and applications using multi-sensor or multi-source information from inspection and monitoring;
5. The DT-based intelligent construction and maintenance of structures for improved management.

Guest Editors

Special Issue

Editor-in-Chief

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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.

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