Special Issue

Advanced Technologies for Construction and Maintenance of Engineering Structures

Message from the Guest Editors

Advanced technologies are revolutionizing the lifecycle management of engineering structures, driving unprecedented gains in efficiency, safety, durability, and sustainability. This Special Issue will focus on the transformative role of cutting-edge innovations—including robotics, artificial intelligence (AI), machine learning (ML), computer vision, the Internet of Things (IoT), 5G connectivity, advanced sensors, building information modeling (BIM), digital twins, drones, and computational methods—in automating and enhancing both the construction and maintenance of civil infrastructure. We welcome submissions on the following topics:

- Robotics and automation;
- AI/ML and data analytics;
- Smart sensing;
- Digital twins and BIM;
- Advanced computational methods;
- Remote inspection and monitoring;
- Intelligent construction systems;
- Data-driven methods;
- Resilience and sustainability.

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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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