Special Issue

AI-Powered Structural Health Monitoring: Innovations and Applications

Message from the Guest Editors

The integration of artificial intelligence (AI) into structural health monitoring (SHM) is reshaping how we assess and maintain the integrity of critical infrastructure. Advanced AI techniques, including machine learning, deep learning, and computer vision, enable more accurate damage detection, early warning systems, and real-time decision-making with minimal human intervention. This Special Issue seeks contributions that explore the use of AI/ML in SHM in terms of both theoretical advancements and practical implementations. Topics may include vision-based inspection, anomaly detection, sensor data fusion, AI-enabled digital twins, and AI-supported non-destructive testing (NDT) methods. We welcome high-quality original research, reviews, and case studies that address emerging challenges and opportunities in AI-driven SHM. We look forward to your valuable contributions to this Special Issue.

Guest Editors

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Dr. Qilin Li

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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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