Special Issue

Engineering Mathematics in Structural Control and Monitoring

Message from the Guest Editors

Due to issues in design, construction quality, load changes, and natural disasters, engineering buildings undergo deformation during construction and operation. If the deformation exceeds the limit, it will affect the use of the building and even cause accidents such as collapse. Since deformation monitoring can provide necessary information for judging the safety of engineering buildings, the significance of deformation monitoring has become more important. Monitoring and control generate a large amount of data, making engineering mathematics particularly important in the monitoring and control process. Engineering mathematics can be applied to signal processing, state estimation and filtering, optimization and decision-making, fault diagnosis and prediction, and other aspects in monitoring and control processes, providing an important theoretical basis and methodological support for the design, implementation, and optimization of monitoring and control systems.

- Structural analysis and modeling;
- Sensor layout optimization;
- Signal processing;
- Structural control system design;
- Data analysis and machine learning;
- Real-time monitoring and early warning systems.

Guest Editors

Prof. Dr. Xu Wang
Dr. Yanru Wang
Dr. Lei Zhou

Deadline for manuscript submissions

closed (31 October 2025)

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Buildings
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
buildings@mdpi.com

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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

Prof. Dr. David Arditi
Construction Engineering and Management Program, Department of Civil, Architectural, and Environmental Engineering, Illinois Institute of Technology, 3201 South Dearborn Street, Chicago, IL 60616, USA

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