Special Issue

Advanced Geotechnics: Optimization, Reliability, and Intelligent Methods for Underground, Foundation, and Earth Structures

Message from the Guest Editors

This Special Issue aims to gather cutting-edge research advancing geotechnical engineering via optimization, reliability concepts, and intelligent data-driven methods. We welcome contributions covering underground structures, foundations, slopes, embankments, pavements, and earth-retaining systems, relevant to both research and practice. Topics of interest include:

- **Optimization-Based Design:** Single and multiobjective optimization of geotechnical and soil–structure systems.
- **Reliability Frameworks:** Reliability-based and performance-based design, probabilistic modeling of soil/rock parameters, and unified design procedures integrating geotechnical and structural limit states.
- **Intelligent Methods:** We particularly encourage studies using Artificial Intelligence and Machine Learning tools for prediction, decision support, and design-space exploration.
- **Digital Workflows:** Site investigation, model calibration, field monitoring, and digital twins.

We encourage both methodological papers and application-oriented case studies, especially those demonstrating clear implications for safer, more economical, and more sustainable geotechnical design and construction.

Guest Editors

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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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