Special Issue

Data-Enhanced Engineering Structural Integrity Assessment and Design

Message from the Guest Editors

Engineering structures, such as construction, offshore platforms, machinery, and equipment, face significant challenges in maintaining structural integrity under complex and uncertain conditions. This Special Issue seeks to develop advanced structural integrity assessment and design strategies for complex engineering structures by integrating advanced computational techniques and real-world data. The specific objectives include, but are not limited to:

- Physics-informed machine learning;
- Multifidelity modeling and optimization;
- Uncertainty quantification and propagation;
- Generative design and data augmentation;
- Digital twin technology;
- AI-augmented multidisciplinary design optimization (MDO);
- Probabilistic design optimization;
- Topology optimization with machine learning;
- Real-time optimization using edge computing;
- Energy-efficient computational methods;
- Resilient infrastructure design;
- Surrogate-assisted optimization;
- Multi-objective optimization with explainable AI;
- Robust and adaptive algorithms for dynamic systems;
- Hybrid optimization frameworks for renewable energy systems.

Guest Editors

Dr. Debiao Meng

School of Mechanical and Electrical Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China

Dr. Wei Li

School of Mechanical Engineering, Hefei University of Technology, Hefei 230009, China

Deadline for manuscript submissions

20 February 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/226906

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

mdpi.com/journal/applsci

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/journal/applsci

MDPI

About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)