

Special Issue

Machine Learning Applications in Earthquake Engineering

Message from the Guest Editors

Machine Learning is expected to significantly advance earthquake engineering research and practice. Currently, there are two main approaches in this field: physics-based methods, which are transparent, interpretable, and somewhat predictable, and data-driven Machine Learning models, which are unique and can be difficult to interpret. Consequently, there is a growing trend toward finding a balance between these approaches. Since the lack of physical interpretation in Machine Learning models can limit their applicability, integrating physical research into Machine Learning-based earthquake engineering studies is essential. With the support of next-generation data sharing and sensor technologies, Machine Learning holds great potential to revolutionize earthquake engineering. It has been applied in four key areas: seismic hazard analysis, system identification and damage detection, seismic fragility assessment, and structural control for earthquake mitigation. This Special Issue invites contributions on all these topic areas, as well as on Machine Learning methods in earthquake engineering.

Guest Editors

Dr. Konstantinos G. Megalooikonomou
School of Science and Technology, Hellenic Open University, Parodos
Aristotelous 18, 26335 Patras, Greece

Dr. Leonidas Alexandros S. Kouris
Laboratory of Engineering Mechanics, School of Civil Engineering,
Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece

Deadline for manuscript submissions

30 June 2026



Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



mdpi.com/si/242202

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

[mdpi.com/journal/
applsci](https://mdpi.com/journal/applsci)





Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



[mdpi.com/journal/
applsci](https://mdpi.com/journal/applsci)



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, Embase, CAPIus / SciFinder, and other databases.

Journal Rank:

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