Special Issue

Machine Learning Applications to Vibration Problems

Message from the Guest Editor

Machine learning and data-driven algorithms are promising approaches in analysing the dynamic behaviour of a mechanical system. These algorithms have the ability to automatically generate a model using data from past experiences; the number of applications is extensive and includes self-driving cars, high-frequency trading, house price estimation, search engines, bioinformatics, chemistry, and material science, for which large amounts of data are available. This Special Issue aims to collect the latest research findings in the field and invites the submission of articles related (but not limited) to the following topics:

- Surrogate machine learning approaches for the stress analysis of vibrating systems;
- Data-driven approaches for structural health monitoring;
- Machine learning approaches for sensor optimization in vibration analysis;
- Data-driven real-time stress predictions;
- Machine learning applications in relation to finite element analysis for vibrating systems;
- Uncertainty quantification in the stress analysis of machine learning modelling;
- Data-driven modal analysis;
- Physics-informed machine learning approaches for vibrating systems.

Guest Editor

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Deadline for manuscript submissions

closed (20 July 2025)

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About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

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Author Benefits

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 20.8 days after submission; acceptance to publication is undertaken in 3.6 days (median values for papers published in this journal in the second half of 2025).