Special Issue

Systems Modelling, Simulation and Experimentation for Condition Monitoring

Message from the Guest Editor

This Special Issue explores evolving systems modelling, simulation, and experimental validation in condition monitoring (CM). Driven by demands for reliability, safety, and efficiency in aerospace, automotive, energy, and manufacturing, CM is key to predictive maintenance and intelligent asset management. This Issue features cutting-edge research integrating physics-based models, data-driven approaches, and hybrid methods for system health diagnosis, prediction, and management. Contributions employ digital twins, multi-domain simulation, machine learning, and real-time sensor fusion for complex systems. Emphasis is on the synergy between modelling and physical experimentation, validating simulations via testing or in situ measurements. Insights into scalable frameworks reducing costs, optimizing lifecycle performance, and supporting real-world decisions are provided. Aimed at researchers, engineers, and practitioners advancing intelligent CM through innovative computational and experimental approaches.

Guest Editor

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Message from the Editor-in-Chief

Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.
Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.
There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

Editor-in-Chief

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