Special Issue

Advances in Artificial Intelligence and Signal Processing for Fault Detection

Message from the Guest Editors

In the past decade,the fusion of artificial intelligence (AI) and signal processing has transformed damage detection in structural and material engineering. Advances in sensor technology,machine learning, and computational methods have enabled real-time data acquisition and processing,significantly enhancing damage identification, predictive maintenance, and structural safety. Sustainability and efficient resource use have further underscored the importance of these innovations. Deep learning and advanced neural networks have improved the capability to detect patterns and anomalies, leading to significant advancements in damage detection across diverse structures.

This Special Issue compiles cutting-edge research and comprehensive reviews on innovations and practical applications in AI and signal processing for damage detection. It aims to highlight novel methodologies, algorithms, case studies, and sensor systems that push beyond current paradigms.

- AI-driven signal processing
- Smart sensor networks
- Predictive maintenance
- Multi-modal data fusion
- Uncertainty quantification
- Emerging materials

Guest Editors

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Deadline for manuscript submissions

15 October 2025

Electronics

an Open Access Journal by MDPI

Impact Factor 2.6
CiteScore 6.1

mdpi.com/si/229942

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Message from the Editor-in-Chief

Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

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