

## Special Issue

# Artificial Intelligence and Machine Learning for Structural Health Monitoring and Nondestructive Evaluation

### Message from the Guest Editor

Structural systems are widely used in civil, mechanical, and aerospace engineering but degrade over time due to loading, temperature changes, corrosion, and hazards such as earthquakes and typhoons. Monitoring and informed maintenance are essential to ensure safety, reliability, resilience, and cost efficiency. Structural health monitoring (SHM) and nondestructive evaluation (NDE) enable automated condition assessment and decision-making. Advances in artificial intelligence (AI) and machine learning (ML) improve extraction of complex patterns from large datasets. In SHM and NDE, they enhance damage detection, enable predictive maintenance, support real-time monitoring, and reduce manual inspection. This Special Issue focuses on AI/ML-based SHM and NDE, including physics-informed learning, data-driven models, digital twins, transfer learning, signal processing, and information fusion. Topics include damage detection, system identification, smart sensing, sensor fault diagnosis, predictive maintenance, material characterization, vibration- and vision-based methods, reduced-order modeling, and probabilistic decision-making.

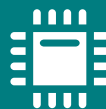
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### Deadline for manuscript submissions

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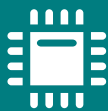


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