EMI 2026 International Conference

Napoli, Italy | September 2 — 4 2026

2026

MINI-SYMPOSIUM

MACHINE LEARNING TECHNIQUES FOR STRUCTURAL MECHANICS

Keywords:
machine learning, structural mechanics, structural health monitoring, digital twins, data-driven methods

ABSTRACT

This mini-symposium will convene researchers operating at the interface of machine learning and structural mechanics, focusing on data-driven methods, structural health monitoring, probabilistic mechanics, and computational mechanics for civil engineering structures. We are particularly interested in contributions where learning algorithms augment, complement, or accelerate mechanics-based models of structural systems, while maintaining physical interpretability, robustness, and reliability. The mini-symposium is promoted by the Machine Learning Academy (ML Academy), an international network of professors and experts in machine learning, civil engineering, and architecture that organizes advanced training courses and fosters cross-disciplinary collaboration.

The mini-symposium aims to provide a focused forum where mechanics and ML communities can jointly discuss fundamental advances and rigorously validated applications, fostering collaborations and sharing best practices for bringing machine learning "from algorithms to structures" within the EMI 2026-IC framework

Mini-Symposium Organizers

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Topics of interest include, but are not limited to:

- Surrogate and reduced-order models in structural mechanics
- Deep learning for structural health monitoring and damage detection
- Digital twins and data–model fusion in structural engineering
- Probabilistic ML, uncertainty quantification, and reliability of structures
- ML-driven structural optimization and design exploration
- Hybrid physics-informed and operator-learning approaches
- Case studies on civil and architectural structures

IMPORTANT DATES

Jan 8 2026	— Abstract Submission Opening
Feb 28 2026	— Abstract Submission Deadline
Apr 16 2026	— Abstract Acceptance Notification
Jun 12 2026	— Author Registration Deadline

https://emi-ic.asce.org/