



SPECIAL SESSION

Machine Learning for Thermographic Process Monitoring in Non-Destructive Testing

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OBJECTIVE AND TOPICS:

This Special Session will focus on the application of Machine Learning (ML) and Artificial Intelligence (AI) in enhancing process monitoring through thermographic and other Non-Destructive Testing (NDT) techniques. The objective is to bring together researchers and engineers to discuss how data-driven and hybrid approaches can improve the real-time supervision, control, and optimization of industrial processes using infrared thermography. The session aims to highlight recent advances, challenges, and industrial applications of ML-enhanced NDT monitoring, emphasizing automation, reliability, and sensitivity in detecting process anomalies and ensuring production quality.

Contributions are encouraged from both academic researchers and industrial practitioners working on the integration of AI, thermography and NDT, in different sectors such as aerospace, civil engineering, energy, and manufacturing.

Areas of interest include, but are not limited to:

- Machine Learning for process monitoring and control with thermographic images
- Deep learning for spatio-temporal analysis of thermal sequences
- Data fusion combining thermography with complementary modalities for enhanced process understanding
- AI-assisted decision support for NDT monitoring in industrial manufacturing process
- Transfer learning and domain adaptation for thermographic datasets
- Real-time ML-enabled thermographic monitoring systems
- Physics-informed ML for thermal signal interpretation and process anomaly detection
- Case studies and industrial deployment of ML-enhanced process monitoring solutions

All the instructions for paper submission are included in the conference website: <https://www.ecndt2026.org>