Call for Papers

Special Session at ROPEC 2025

Applications of Machine Learning in Engineering, Biomedicine, and Materials: Interdisciplinary Challenges and Solutions

Gerardo M. Chávez-Campos[1], Antony Morales-Cervantes[1], and Héctor J. Vergara-Hernández[1]

[1]Tecnológico Nacional de México – Instituto Tecnológico de Morelia
`gerardo.cc@morelia.tecnm.mx`

Thermal processes are central to a wide range of engineering and industrial applications, from manufacturing systems to biomedical technologies. The ability to model, control, and optimize these thermal systems is crucial for improving energy efficiency, reliability, and innovation.

This special session aims to bring together contributions at the intersection of thermal systems, system identification techniques, machine learning approaches, and embedded platforms for data acquisition, processing, and control.

Topics of interest include, but are not limited to:

- Machine learning for thermal system prediction and control
- Embedded systems for thermal data acquisition and monitoring
- System identification techniques for thermal dynamics
- Thermal image processing and analysis
- Control strategies for heat transfer systems
- Smart sensors and actuators in thermal applications
- Hybrid modeling approaches combining physics-based and data-driven methods
- Real-world thermal applications in manufacturing, health, and energy

Important Dates (ROPEC 2025):

- February 3, 2025: Submission opening

- July 4, 2025: Full paper submission
- August 18, 2025: Acceptance notification
- September 12, 2025: Final full paper submission and registration
- November 12–14, 2025: ROPEC 2025 Conference

Submitted papers should follow the official ROPEC 2025 author guidelines. Each paper will undergo the standard peer-review process. Submission implies the commitment of at least one author to register and present the work at the conference if accepted. Accepted papers will be included in the ROPEC proceedings and submitted for indexing through **IEEE Xplore**.

For submission guidelines and updates, please visit:

`http://ropec.org`

We look forward to your contributions!