

SPECIAL SESSION

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Cognitive Digital Twins, Smart IoT, and Applied Machine Learning: Bridging Healthcare, Environmental Quality, and Sustainable Infrastructure

This special session explores the real-world application of cognitive digital twins, edge IoT devices, and advanced machine learning algorithms to solve pressing socio-technical challenges. By bringing together research in predictive simulation and optimization, we focus on the deployment of smart systems that integrate human-in-the-loop decision-making. The session spans critical application domains, including emergency healthcare logistics, energy and sustainability management in public buildings, semi-supervised water quality monitoring, and video-based biomechanical modeling for assistive exoskeletons. Additionally, it highlights how AI-driven digital twins can revolutionize the scientific workflow itself by optimizing the literature review and analysis process.

Topics of interest include, but are not limited to:

Ambulance Location and Simulation:

Spatial optimization and predictive routing as foundational steps for building healthcare digital twins

Human-in-the-Loop in Smart Education & GenIoT:

Developing custom applications for energy efficiency and sustainable management of university buildings

AI-Driven Scientific Literature Analysis:

Digital twin frameworks applied to the automated review, synthesis, and deep analysis of scientific papers using LLMs and advanced AI tools

Semi-Supervised Learning for Environmental Monitoring:

Water quality assessment and prediction using machine learning with limited labeled data

Multi-Criteria Sensor Network Design:

Mathematical modeling and decision-making frameworks to locate water quality monitoring sensors

Video-Based Biomechanical Simulation:

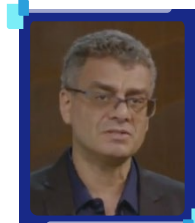
Machine learning methods to analyze video data and simulate dynamic force points exerted on assistive exoskeletons

For more information, please check: <https://www.icseb.org/SS1.html>

Submission System: <https://www.zmeeting.org/submission/ICSEB2026>

(Please log into the submission system and select Special Session 1 for your submission)

Special Session Chair >>>>



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