CALL FOR PAPERS - SPECIAL SESSION

"Human-in-the-Loop Control and Decision-Making in Biomedical Systems"

for CODIT 2026

July 13-16, 2026 ▪ Bari, Italy

Session Co-Chairs:

Prof. Buket Barkana, The University of Akron, USA - (email: bbarkana@uakron.edu)

Session description:

This special session deals with the problem of human-in-the-loop (HITL) control, decision, and information technologies in modern biomedical systems. HITL approaches explicitly incorporate human interaction, feedback, and variability within the control loop, enabling biomedical technologies to adapt dynamically to patients, clinicians, and users rather than relying solely on fully autonomous operation. Such integration is critical for ensuring safety, reliability, and effectiveness in biomedical applications where human factors play a central role. Control technologies emphasize adaptive and personalized strategies based on real-time physiological, behavioral, or user-interaction data. Decision-making technologies leverage artificial intelligence, machine learning, and optimization methods to interpret data, support informed decisions, and manage uncertainty. Information technologies enable robust data acquisition, multimodal data fusion, and real-time communication across biomedical systems.

The goal is to bring together researchers and industry practitioners to discuss recent advances, methodologies, and future trends in human-centered control and decision-making for biomedical systems, fostering interdisciplinary collaboration among control, information technology, and biomedical engineering communities.

The topics of interest include, but are not limited to:

- Human-in-the-loop control architectures for biomedical and healthcare systems
- Adaptive and personalized control strategies in medical and assistive devices
- AI- and machine-learning–based decision-making with human feedback
- Human-centered optimization and decision support in clinical applications
- Wearable, implantable, and monitoring systems with human-in-the-loop design
- Handling uncertainty, variability, and noise in biomedical control and decision systems
- Applications of HITL methodologies in medical devices, rehabilitation, healthcare automation, and intelligent healthcare systems

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **February 07, 2026:** **http://controls.papercept.net/conferences/scripts/start.pl**. In PaperCept, click on the **CoDIT 2026 link "Submit a Contribution to CoDIT 2026" and follow the steps.**

IMPORTANT: All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).

DEADLINES

February 07, 2026: deadline for paper submission

April 30, 2026: notification of acceptance/reject

May 20, 2026: deadline for final paper and registration