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IEEE Transactions on Industrial Cyber-Physical Systems

CALL FOR PAPERS
for Special Collection on



Advances in Interaction Augmentation for Human-in-the-Loop Industrial Cyber-Physical Systems

Theme: Industrial cyber-physical systems (ICPS) have benefited from incorporating advanced communication protocols and control strategies. Less attention is paid to the integration of human sensorimotor intelligence and its compatibility with ICPS. This oversight ultimately extends the training duration and results in difficulty for human intervention under extreme situations. Conversely, understanding the collaboration patterns between humans and ICPS can augment sensorimotor connections and network interactions even on different sites. The two focal points converge to construct a human-in-the-loop interaction paradigm, thereby stimulating novel, interdisciplinary technologies in ICPS. This special collection will provide a platform to delve into the forefront of interaction augmentation by seamlessly merging multi-dimensional aspects of ICPS from the view of humans, such as the multimodal sensory feedback, interactive technologies to understand and assist humans naturally and effectively, and promising 5G and beyond wireless communications driven by user usage characteristics. This special section seeks strong applied work, with experimental validation in demonstrably non-consumer/industrial applications and representative devices.

This special collection will focus on (but not limited to) the following topics:

- Multimodal sensory-spatial network optimization (e.g., visual, haptic, proprioceptive sensation) of ICPS
- Assistance/Co-Operation/Co-Activity/Competition human-machine interaction strategies of ICPS
- Distributed interactive control of ICPS against dynamic network topology
- Skill learning and coordination strategy for bi-/multi-lateral ICPS and predictive analytics
- Human performance assessment, human factors analysis and classification of ICPS
- Collaborative decision-making and explainable/trustworthy AI of ICPS
- Network architecture, protocols and intelligence for human-centric applications in ICPS
- Safety-critical communications in B5G/6G with integrated sensing/computing/controlling
- Metaverse/holographic/semantic communications for human-centric services
- Applications in transportation, medical systems, smart manufacturing, and robotics, etc.

Manuscript Preparation and Submission:

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Cyber-Physical Systems <https://www.ieee-ies.org/pubs/transactions-on-industrial-cyberphysical-systems>. Please submit your manuscript in electronic form through Manuscript Central web site:

<https://mc.manuscriptcentral.com/ticps>. On the submitting page #1 in popup menu of manuscript type, select: SC on **Advances in Interaction Augmentation for Human-in-the-Loop Industrial Cyber-Physical Systems**. Submissions to this Special Collection must represent original material that has been neither submitted to, nor published in, any other journal.

Note: The recommended papers for the collection are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special collection, at the EIC discretion.

Timetable:

Deadline for manuscript submissions: October 30th, 2024

Excepted publication date (tentative): April, 2025

Guest Editors:

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