

Call for Papers

Special Issue on Next Generation of Sensors and Technologies for Human-Machine Interaction

The field of human-machine interaction (HMI) has undergone a profound transformation, fuelled by rapid advancements in sensing technologies, smart sensors, and AI-driven digital processing. These developments have enabled more seamless, intuitive interactions between humans and machines across diverse settings. The next generation of HMI technologies focuses on enhancing precision, reducing latency, and improving contextual awareness, while also prioritizing sustainability and cost-efficiency. Sensors, as the critical bridge between the physical and digital worlds, have become increasingly sophisticated—capable of not only gathering highly detailed data but also of interpreting human intentions and behaviours in real-time. Innovations such as augmented reality (AR), haptics, and learning from demonstration are revolutionizing the way machines understand and respond to human actions. This special issue invites cutting-edge research on these emerging technologies, with a particular focus on sustainable, cost-effective solutions that enhance both performance and mass adoption. The aim is to foster a deeper understanding of how next-generation sensors and technologies are reshaping HMI across multiple domains, from healthcare to consumer electronics, and to address the ongoing challenges in integrating these innovations into practical applications.

Topics

Original research papers and reviews are sought in the following areas, including (but not limited to):

- Sensors for scene understanding and environmental sensing
- Sensors for human behavior understanding and anticipation
- Sensors for vital signal monitoring
- Sensors for advances in haptics and AR
- Advanced sensing technologies in precision-guided medical applications
- Energy-efficient and environmentally sustainable Sensors for HMI
- Sensors for smart environments, wearable technology, and collaborative robotics

Important dates (tentative)

May 31, 2025:	Deadline for Manuscript Submission
July 31, 2025:	Completion of Final Review
October 31, 2025:	Publication

Upon acceptance papers appear as Early Access (preprints) in IEEEExplore and are fully citable.

Guest Editors

- Dr. Xiao Xu, Technical University of Munich (xiao.xu@tum.de)
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Submission and Peer Review of Papers

Manuscripts submitted to the special issue should maintain an explicit focus on sensors or sensor systems, to be considered within the scope of the IEEE Sensors Journal (please check full journal scope). All manuscripts must be submitted on-line, via the *IEEE Manuscript Central*, see <http://mc.manuscriptcentral.com/sensors>. Choose the special issue listed in the dropdown menu during submission. For manuscript preparation and submission, please follow the guidelines in the *Information for Authors* at the IEEE Sensors Journal web page, <https://iee-sensors.org/iee-sensors-journal/for-authors>