

Special Issue

Advances in Robotic Micro/Nano Sensing and Human–Machine Interaction

Message from the Guest Editors

The convergence of micro/nano sensing technologies and human–machine interaction is revolutionizing robotic systems, enabling machines to perceive and adapt to dynamic environments with unprecedented precision. Recent breakthroughs in embodied intelligence (EAI) and AI-enhanced robotic platforms have accelerated the development of MEMS sensors, such as piezoelectric and triboelectric devices. Additionally, human–machine interaction is evolving beyond traditional gesture and voice controls. Innovations such as brain–computer interfaces (BCIs), micro/nanofiber-based haptic feedback systems, and AR/VR-integrated tactile gloves bridge cognitive decision making with robotic execution. This Special Issue seeks cutting-edge research on micro/nano sensing architectures (e.g., optical, electrochemical, and self-powered systems), intelligent interaction frameworks and their applications in robotics, healthcare, and autonomous systems. Contributions may explore novel fabrication methods, bioinspired material designs, or AI-enhanced tactile perception systems that advance collaborative intelligence between humans and machines.

Guest Editors

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