

Special Issue on Redefining Perception: Applications of Artificial-intelligence-driven Sensor Systems

Call for Papers

The rapid evolution of sensor technologies, coupled with the increasing integration of artificial intelligence (AI), robotics, and cyber-physical systems (CPS), is revolutionizing industries across the globe. From industrial automation to healthcare, agriculture, and environmental monitoring, sensors are becoming the eyes and ears of intelligent systems, enabling unprecedented levels of precision, efficiency, and autonomy.

This special issue seeks to explore recent research and development at the intersection of sensor technologies, AI, robotics, CPS, and appropriate technologies. We invite researchers, engineers, and industry practitioners to submit original research papers, review articles, and case studies that address the latest advancements, innovative applications, and future trends in this dynamic field.

Scope:

AI-driven Sensor Systems:

- ✓ Machine learning for sensor data analysis
- ✓ Real-time signal processing and feature extraction
- ✓ Sensor fusion and data integration
- ✓ AI-powered sensor calibration and self-calibration
- ✓ Predictive maintenance and fault diagnosis

Robotics and Autonomous Systems:

- ✓ Sensor-based navigation and localization
- ✓ Perception and object recognition
- ✓ Human-robot interaction
- ✓ Collaborative robotics and automation
- ✓ Unmanned aerial vehicles and ground vehicles

CPS:

- ✓ Sensor-based control and optimization
- ✓ Networked sensor systems
- ✓ Security and privacy in sensor networks
- ✓ Digital twins and virtual sensing

Novel Sensor Technologies:

- ✓ Advanced materials for sensor fabrication
- ✓ Flexible, wearable, and implantable sensors
- ✓ Bio-inspired sensors
- ✓ Quantum sensors
- ✓ Multimodal sensing

Industrial Applications:

- ✓ Smart manufacturing and Industry 4.0
- ✓ Process monitoring and control
- ✓ Quality assurance and inspection
- ✓ Supply chain optimization
- ✓ Energy efficiency and sustainability

Appropriate Technologies:

- ✓ Low-cost and energy-efficient sensors
- ✓ Robust and reliable sensors for harsh environments
- ✓ Open-source hardware and software platforms
- ✓ Community-based sensor networks
- ✓ Simulation and modeling of sensor systems

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