Special Issue

New Trends in the Sensing and Control Techniques Used for Intelligent Industrial Perception and Service Robotics

Message from the Guest Editors

The evolution of sensing and control techniques is fundamentally reshaping intelligent systems in modern industrial automation and service robotics. Emerging applications such as smart manufacturing in dynamic environments, collaborative human–robot interactions in healthcare, autonomous logistics systems, agricultural automation under unstructured conditions, and dexterous service robotics for domestic scenarios demand unprecedented levels of real-time perception, adaptive decision-making, and closed-loop control precision. However, existing methods face critical challenges in terms of the robustness of their multi-modal sensor fusion, their self-optimizing control architectures, and their context-aware cognitive capabilities in complex operational scenarios. This Special Issue seeks cutting-edge research and state-of-the-art surveys addressing these gaps through innovative approaches including, but not limited to, the following: bio-inspired sensory systems, embodied AI for robotic cognition, tactile–visual–thermal cross-modal perception, edge-computing-empowered control strategies, and explainable learning frameworks for safety-critical applications.

Guest Editors

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Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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