Special Issue

Advances in Bionic Tactile Systems for Sensor Application and Flexible Operation

Message from the Guest Editor

With advancements in medical technology, there is growing demand for equipment that provides accurate, reliable diagnostic and treatment methods. Traditional devices lack the tactile feedback capabilities of the human sensory system. Bionic tactile systems, applicable in surgical robots, prosthetics, and rehabilitation, offer significant potential. Understanding how pressure and electrical stimulation affect tactile perception in human skin can guide the development of multimodal bionic systems. By simulating skin's sensory abilities, these systems provide precise feedback, aiding in the detection of object shape, hardness, and texture. A major challenge is integrating and processing data from multiple sensors to generate accurate tactile feedback. Techniques such as data fusion, feature extraction, and denoising are essential for improving system accuracy and reliability. Practical challenges include sensor integration, real-time processing, and system interoperability. This Special Issue will explore the development of sensor integration, data fusion algorithms, and electro-tactile skin mechanisms to advance bionic tactile systems in medical and everyday applications.

Guest Editor

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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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