Special Issue

Wearable Sensors for Gait Monitoring and Motion Analysis

Message from the Guest Editor

Walking is one of the most ubiquitous forms of physical activity in daily life, and detailed evaluations of human gait serve as a direct indicator of overall health status and functional mobility. Leveraging advances in miniaturized wearable sensor hardware—such as inertial measurement units, surface EMG electrodes, and sophisticated signal-processing and machine-learning techniques—recent years have seen significant improvements in both the precision and latency of motion data acquisition. These technological breakthroughs have enabled the seamless real-time monitoring and automated analysis of gait and other movement patterns outside of laboratory settings. By integrating multi-modal sensor fusion, adaptive algorithms, and intuitive feedback systems, researchers have developed streamlined workflows for rapid, objective gait assessments applicable to fitness tracking, workplace ergonomics, fall risk screening, and clinical rehabilitation.

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