

Bio signal-Based Control System Enhanced by Real-Time Environmental Feedback

This study aims to develop an intelligent control system by integrating EMG signal classification with real-time environmental interaction, enabling accurate recognition of user intent and effective control of multiple hand movements.

Objective: To develop a control system using EMG and object detection for adaptive, precise, and intuitive real-time motor actuation.

Hand gestures are classified from EMG signals, and object detection adds environmental context to trigger adaptive motor actions in real time.

This study bridges human intention and environmental awareness, opening new paths for smarter, more responsive, and personalized control systems.

