Back-support exoskeleton control via electromyography-driven musculoskeletal models

Alejandro Moya Esteban, Massimo Sartori, Herman van der Kooij

UNIVERSITY OF TWENTE.

The main goal of the project consists of developing a real-time electromyography-driven musculoskeletal model of the back, which will be used to control active back-support exoskeletons aiming at relieving low-back loading of factory workers.

Our model employs subject kinematics and muscle activity (EMG) to estimate lumbar spinal forces. Subsequently, these forces are used to determine the onset and magnitude of assistance provided by active exoskeletons such as those shown below.

This work is part of the Wearable Robotics program (P16-05), which is (partly) funded by the Dutch Research Council (NWO).
https://www.wearablerobotics.nl/projects/project-8/