Special Issue

Wearable Robots for Rehabilitation Engineering

Message from the Guest Editor

Wearable robots and exoskeletons are important devices in medical fields, providing functionalities to assist people who are unable to move their bodies in a typical manner. Since the early 1990s, many robotic devices for rehabilitation have been designed and developed. However, these devices cannot be used by the patients alone because they are cumbersome to use, heavily weighted, produce significant inertia, can cause joint misalignment, have static and dynamic friction, and exhibit backlash–hysteresis. Lower-limb exoskeletons can contain single or multiple joints. In a single-joint device, only one joint is used; in a multiple-joint device, more than one hinge is actuated. In recent years, many kinds of research on control approaches for knee joints have been conducted. A suitable control scheme is essential to ensure exoskeletons meet the requirements of the wearer. Dynamic system complexity, including the exoskeleton, its wearer's accessories, and external disturbances, makes traditional controllers inappropriate. This complexity and system nonlinearity motivate researchers to suggest a variety of suitable controllers.

Guest Editor

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