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Neural Prosthesis Seminar

Robotics and Wearable Sensors for Neurorehabilitation

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Wolstein Auditorium
Case Western Reserve University

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Abstract

Robotic therapy refers now to a diverse set of technologies and algorithms that can match or improve on the therapeutic results achievable with conventional rehabilitation therapies. However, the principles by which robotic therapy devices can be optimized are still not well understood. What is needed is a computational framework that integrates the science of motor learning, neural plasticity, and human-robot interaction, which can then be used to predict optimal device designs. In this talk I will review several results from clinical testing of robotic therapy devices, robot-assisted motor learning studies, and the emerging field of computational neurorehabilitation that suggest the beginnings of such a framework. I will also discuss several new mechanical devices and wearable sensors for rehabilitation that my research group and collaborators are developing within this framework.

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