

Kolloquium

Biomedizinische Technik und verwandte Gebiete

Wintersemester 2016/17

Donnerstag, 26.01.2017, 17:00 - 18:30 Uhr

Prof. Dr.-Ing. Robert Riener

ETH Zurich & University of Zurich

(Moderation: Univ.-Prof. Dr.-Ing. Dr. med. Steffen Leonhardt,
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„Novel Assistive Robots for People with Disabilities and the Cybathlon“

Abstract:

Exoskeleton robots for the upper and lower limbs can be very useful to restore movement abilities in two ways. First, they can promote neurorehabilitation as training devices after neurological injuries such as spinal cord injury (SCI), traumatic brain injury and stroke. Second, they can be used as assistive devices to support patients or elders with gait impairments in daily life situations. However, current solutions are still too bulky, too heavy, and too inconvenient to use. Furthermore, torque induction into the human body joints is tricky, and often leads to mechanical stress in the attachment points and/or in the human joints as well as unwanted movements of the exoskeleton with respect to the human limbs. These disadvantages result to unsatisfactory performance and discomfort. In this talk I will present current solutions and future trends of stationary gait and arm training robots as well as wearable exoskeleton devices that can be used for training and assistance in daily life. I will also present the Cybathlon, which is a new kind of championship, where people with physical disabilities compete against each other at tasks of daily life, with the aid of advanced assistive devices including robotic technologies. The Cybathlon aims to promote the development of useful technologies that facilitate the lives of people with disabilities. The first championship has taken place in Zurich, on 8 October 2016. Further events will follow.

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