

Kolloquium

Biomedizinische Technik und verwandte Gebiete

Wintersemester 2019/2020

Dienstag, 10.12.2019, 09:30 – 11:00 Uhr

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(Moderation: Univ.-Prof. Dr.-Ing. Dr. med. Steffen Leonhardt,
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„Compliant Control of Variable Stiffness Actuator Considering Lower-Limb Robot Applications“

Abstract:

A rehabilitation robot is always closely interacting with the patient. Hence a safe and controllable “physical Human-Robot Interaction” (pHRI) strategy should be considered.

For therapeutic exoskeleton, one option to implement safe operation is to employ variable stiffness actuators (VSAs).

Such actuators are equipped with a compliant element, which can be adjusted with respect to stiffness.

In this project, both are a new VSA and a proper impedance-control scheme were developed and experimentally tested. Furthermore, the new *mechanical-rotary variable impedance actuator* (MeRIA) was tested in a one-degree of freedom lower-limb exoskeleton.

A treadmill-based exoskeleton system equipped with the MeRIA joint was also successfully tested.



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