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Cooperative Robots Enhance Rehabilitation

Robert Riener

Sensory-Motor Systems Lab, Institute of Robotics and Intelligent Systems,
ETH Zürich, CH
Spinal Cord Injury Center, Balgrist University Hospital, Zurich, CH

ABSTRACT OF THE TALK

There exist new human-centered robotic approaches applied to the rehabilitation of gait and upper-extremity functions in patients with movement disorders. So-called patient-cooperative controllers, take into account the patient's intention and efforts rather than imposing any predefined movement. Audiovisual displays in combination with the robotic device can be used to present a virtual environment and let the patient perform different gait tasks and activities of daily living. Furthermore, the sensors implemented in the robots allow to measure and assess the patient performance and, thus, evaluate the therapy status. It is hypothesized that such cooperative robotic approaches can improve patient motivation and the quality of the therapy compared to conventional approaches. Several examples of human-centered approaches will be presented that have been realized on the arm therapy robot ARMin and gait therapy robot Lokomat.