Industry Workshop

Workshop Title

Multimodal Treatment of the Lower Limb - Engineering, Evidence, and Clinical Application

Workshop Responsible

Iris Jakob (Tyromotion)

Speakers

Alexander Kollreider, Andrea Turolla, Sarah Daniel, Adam Parkinson, Clara Silvestro

Abstract

All patients that undergo a rehabilitation program want to regain mobility as independently as possible. However, gait is a very complex motor behavior which can only be realized when different functions and skills can be developed and achieved by the patient individually. According to the patients phase of rehabilitation and the functional abilities, therapists can work on mobilization, passive and active range of motion of the different joints (hip, knee, ankle), verticalization, trunk control, weight bearing, muscle force, weight shifting, balance, endurance, and many more.

When designing and developing an innovative technology for rehabilitation, many questions need to be answered: What is currently missing in the market? How can we improve existing therapy tools and processes? What additional benefits could we bring to healthcare professionals and the patient? How can the new technology fit into its surrounding environment? An introduction from the inventor side by Dr. Alexander Kollreider, CTO and Founder of Tyromotion, will briefly explore on the reasons and ideas behind the development of a multimodal robotic device for the rehabilitation of lower extremities and gait. Attendees will have the possibility to interact and ask questions regarding this important designing phase.

In the second part, a clinical application expert presents and practically demonstrates, with one or more volunteers, the main applications offered by using the device in the rehabilitation of neurologic and orthopedic patients. The focus will be on how some training and assessment options could be used for different goals and phases of rehabilitation to regain or improve the gait pattern. A short quiz with a sweet prize will then follow to award the most perceptive participants.

The third part of the workshop is dedicated to the evidence behind multimodal robotic technology, including the clinical protocol, experience, and research results using a multimodal treatment approach with stroke patients.

Finally, an experienced clinician will introduce a patient case for an interactive session where attendees will vote on the main rehabilitation goals for the patient, a recommended rehabilitation plan, different treatment approaches and on how technology could support in this particular patient scenario. Votes will be visible to the audience in real time offering the possibility of a discussion between the speaker panel and the participants. The clinician will then end the workshop by presenting the treatment approach that was used with the patient and the final results that were achieved.