Scientific/Educational Workshop

Workshop title
Rehabilitation technology: training to assist or assisting to train?

Workshop organizer
Jaap Buurke (Roessingh Research and Development)

Speakers
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Workshop goals
The goals of this workshop are twofold. First, we want to share our experiences in doing evaluation studies of therapeutic and assistive technology and state that, to our opinion, these fields are merging together. The second goal is to have a group discussion in which participants can reflect on our statements and have a discussion about how both fields can learn from each other to stimulate future progress within both fields and see if and how they can converge.

Abstract
Assistive and therapeutic technology each has its place in rehabilitation. Assistive technology, by definition, is technology through which users can do an activity which is impossible or more difficult without the technology. Therapeutic technology, by definition, is technology with which the user practices to improve functioning and, ideally, this improved function is maintained after the use of the technology is discontinued. Traditionally, therapeutic technology was primarily aimed at stimulating recovery or compensation strategies, while assistive technology took over the functions that were no longer present. Nowadays, however, assist-as-needed principles are increasingly incorporated in both assistive and therapeutic technology. Examples of these are respectively auto-adaptive prosthetic knees and soft robotic gloves to train arm and hand function. With the emergence of highly-adaptive devices questions rise, such as: Can patients actually use and take optimal advantage of such adaptive technology? Can the use of assist-as-needed technology support patients beyond assistance? We state that we need to consider such technology on another level than the technology itself, and pay particular attention to the user-technology interaction. We then encounter interesting concepts that underline a merge of the two fields: Training by assistance and assistance by training. To foster and stimulate a discussion regarding the merging of assistive and therapeutic technology, we will present our hypotheses and results of experimental research regarding assist-as-needed rehabilitation technology in this workshop.

This will be followed by group discussions focusing on:

(1) how assistive and therapeutic rehabilitation technology can learn from one another;

(2) in what way can assistive and therapeutic rehabilitation technology best be merged; and

(3) how can assist-as-needed rehabilitation technology be applied in rehabilitation.