

## Scientific/Educational Workshop

### Workshop information

**Workshop responsible :**

Domen Novak

**Workshop title :**

Better Together: Workshop on Interpersonal Rehabilitation Gaming

**Workshop goals :**

- Present cutting-edge research on how interpersonal exercises can be used to improve motivation, exercise intensity and motor learning
- Discuss promising game design principles for interpersonal rehabilitation
- Discuss evaluation methods for interpersonal rehabilitation games

**Abstract :**

A major issue in rehabilitation robotics has been how to keep patients actively engaged in the rehabilitation process, thus ensuring frequent and intensive exercise. One promising approach is interpersonal games, where two or more people compete against each other or work together to achieve a common goal. These could be patients of similar ability levels, patients of different ability levels, or even a patient exercising with a therapist or unimpaired relative.

Preliminary studies have shown that interpersonal motor exercises can improve motivation, exercise intensity, and motor learning. However, they are not suitable for everyone and have only seen limited evaluation. Our workshop will thus bring together engineers, clinicians and psychologists to discuss current issues in design and evaluation of interpersonal exercises. In particular, the workshop will discuss how interpersonal exercises can be tailored to ensure an enjoyable, intensive experience for all participants using techniques such as intelligent role assignment and dynamic difficulty adaptation. Furthermore, it will examine how observed short-term benefits can be translated into long-term improvements in rehabilitation outcome. The workshop's format will consist of multiple 15-20 minute talks by invited speakers followed by a discussion round.

**Speakers:**

- Michael Mace; *Title: Games with auto-regulating difficulty for two people of differing skill levels*
- Michelle Johnson; *Title: Quantifying therapist-patient interactions during task-oriented stroke therapy: Implications for robot-patient interactions*
- Kilian Baur, *Title: Haptic difficulty adaptation: Flowing to health behavior change*
- Domen Novak, *Title: A multisession evaluation of competitive arm rehabilitation games: first results*