

**Title:** Technology-assisted precision cognitive neurorehabilitation in acquired brain damage

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**Abstract:**

Beyond aphasia and neglect, acquired brain damage such as stroke or traumatic brain injury (TBI) also cause substantial deficits in executive function, social cognition and behavior, having a profound impact on patients' autonomy, employment, social interactions and ultimately quality of life. Unfortunately, conventional neuropsychological approaches yield only modest benefits.

At the Neuroscape@NeuroTech Facility at the Department of Clinical Neuroscience in the CHUV, we develop and assess novel approaches for cognitive neurorehabilitation using serious video games and virtual reality. Closed-loop adaptation algorithms personalize the training and keep it in a motivating range. Immersive screens and headsets provide a highly ecological experience. The purpose of this MD-PhD thesis will be to contribute to the design and validation of novel technology-assisted approaches for assessing and rehabilitating executive function and social cognition in acquired brain damage. The student will also have the opportunity to get acquainted with technology-assisted neurorehabilitation research protocols in other neurological conditions such as Alzheimer's disease, multiple sclerosis or HIV-associated cognitive disorder.