

Title: Gamified and immersive closed-loop approaches for cognitive assessment and neurorehabilitation

Supervisor: PD Dr. Arseny Sokolov

Location: Neuroscape@NeuroTech, Pavillon 4, CHUV, Lausanne

Abstract:

Cognitive deficits are associated to a large number of neurological conditions, ranging from traumatic brain injury (TBI) to Alzheimer's disease (AD) and multiple sclerosis (MS). Such deficits, mostly affecting memory, attention and multi-tasking skills, affect the patients' autonomy, employment, social interactions and ultimately quality of life. Yet, drug-based and traditional neuropsychology-based approaches have demonstrated only modest improvements in cognitive function. More recently, computerized, gamified, adaptive approaches have been proposed as a promising option for improving and restoring cognitive function. Closed-loop adaptation algorithms ensure the training difficulty remains in a motivating range, and immersive screens and virtual reality headsets provide a highly ecological experience. The purpose of this doctoral thesis at the Neuroscape@NeuroTech Facility at the Department of Clinical Neuroscience in the CHUV will be to design and validate novel computerized gamified approaches for assessing and rehabilitating cognitive and physical function in neurological patients.