

Title: Technology-assisted personalized cognitive assessment and neurorehabilitation

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Abstract:

Cognitive deficits can result from a number of neurological conditions such as stroke, traumatic brain injury (TBI), Alzheimer's disease (AD), multiple sclerosis (MS) or HIV-associated cognitive disorder. The primarily affected domains are memory, attention, executive function and social cognition. These deficits have a profound impact on patients' autonomy, employment, social interactions and ultimately quality of life. Yet, drug-based and conventional neuropsychological approaches yield only modest effects. Recently, computerized, gamified, closed-loop adaptive approaches have emerged as a promising option for assessing, improving and restoring cognition. Closed-loop adaptation algorithms personalize the training and keep it in a motivating range. 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 executive function and social cognition in neurological patients.