VIRTUAL CITY - battery of serious games for cognitive training in ecologically valid virtual environment

Development status

Clinical trials

IP protection status

The technology was published only in a form of short conference proceeding. Source codes are not publicly available. The licensing plan is being prepared.

Partnering strategy

Collaboration, investment, licensing

Institution

National Institute of Mental Health

Vlastník

Center for Technology Transfer - National Institute of Mental Health CZ (NIMH) 3dsense s.r.o.

Challenge

Current training systems applied in elderly apply simple computer tasks presented on a computer screen. While such simple applications bring some benefits, such as easy game control allowing broad usage in homes of individuals, the limitation of these approaches is mainly in the ecological validity of the trained abilities or the training content. The proposed project of “Virtual City” therefore incorporates training games directly located in complex city environment allowing simulation of real-like situations and scenarios, including social life. Moreover, an immersive form of presentation using virtual glasses allows us to integrate the own movements of participant into actions performed in a virtual environment and thus increase the immersive training experience. This form of representation can also lead to the intuitive control of training games incorporating body movements, especially crucial for population with low computer experiences. The realism of virtual environment.

Description

We have created prototypes of seven serious games each focused on training of distinct cognitive abilities (attention and processing speed, working memory, spatial memory, verbal memory, episodic memory, mental flexibility, executive functions - planning). All the games are currently tested in the population of elderly (over 60 tested seniors, overall positive feedback). Additional game concepts can be realized in future SW development in order to address some other more specific skills (such as body movement and posture exercise, social skills and decision making), missing in the current state of the Virtual City project. The SW is connected to online database enabling management of individual clients and visualization of their performance including the planning of future training sessions.

Commercial opportunity

The aim of the project was to create a complex training SW in VR city environment with high ecological validity that enables a comprehensive exercise of cognitive abilities (such as attention and memory). The program is currently intensively tested in seniors and will be later applied in the day-care facilities for elderly, where it can serve in healthy aging programs as prevention of cognitive deficits associated with physiological aging and neurodegenerative disorders.