REINVENT: Rehabilitation Environment for Post-Stroke Motor Impairment

USC Case #2017-022

Market Opportunity:
Stroke remains one of the most devastating of all neurological conditions, and over 795,000 people in the United States have a stroke each year. Up to two-thirds of stroke survivors do not fully recover despite intensive rehabilitative treatment and are left with major motor impairments, requiring long-term assistance with their life. Stroke costs the United States an estimated $34 billion each year. There are, however, few, if any, treatments for severe motor impairment after stroke.

USC Solution:
USC researchers have created a novel-closed loop neurofeedback system called REINVENT (Rehabilitation Environment using the Integration of Neuromuscular-based Virtual Enhancements for Neural Training), which provides neurofeedback when an individual's own brain and muscle signals indicate movement attempts.

Applications
• Stroke rehabilitation recovery
• Severe motor impairment rehab

Stage of Development
• Prototype developed and validated
• Available for license

Intellectual Property

Key Publication:

Value Proposition
• Provides feedback using immersive (head-mounted) virtual reality to augment the user's embodied biological movement
• Reads and uses signals from both the brain (with electroencephalography, or EEG) and muscles (with electromyography, or EMG)
• Portable, cost-effective, and easy to use

Keywords:
Stroke recovery, stroke therapy, rehabilitation, motor impairment, neurofeedback, virtual reality

Contact information
Taylor Phillips
Licensing Associate, Physical Sciences
(213) 821-0943
taylorp@usc.edu