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Office of Technology Management

SYSTEM AND METHOD FOR NON-INVASIVE BRAIN STIMULATION FOR COGNITIVE ENHANCEMENT

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T-020194

Published date: 3/3/2026

Value Proposition: *Non-invasive platform that can increase cognitive function in humans.*

Technology Description

Researchers at Washington University in St. Louis have developed a system that enables near- real-time control of human brain activity using non-invasive transcranial electrical current stimulation (tECS). The invention uses a computational brain modeling method to allow for optimal control of brain activity that is explicitly linked to specific cognitive behaviors, including manipulation of large-scale brain networks. In contrast to existing tECS systems, this method combines a hardware software solution which allows for both pre-programmed and responsive stimulation and low-latency delivery of tCES to the human scalp, thus allowing for closed loop stimulation designs.

Stage of Research

Proposed 60 patient Trial

Applications

- Intervention for individuals with neurological and mental health disorders associated with cognitive impairment
- Improve higher cognitive function in humans

- Framework can be used to conduct neurostimulation

Key Advantages

- Enhances attention/focus caused by neuro/mental health disorders and cognitive impairment
- Makes second-to-second determination on the appropriate stimulation current to be delivered
- Allows for both pre-programed and responsive stimulation

Patents

Patent application filed

Related Web Links – Shinung Ching profile; Ching lab