Patient Controlled Brain Repair System

Published date: July 23, 2012

Technology description

Brain-computer interfaces (BCI) represent a large growing area for biomedical device development to assist patients with severe disability. Many brain-injured patients who have suffered a brainstem stroke, hemorrhage or axonal injury due to trauma that leads to partial or total paralysis may have injuries to brainstem and forebrain structures that control arousal level. Other patients will have severe damage to motor pathways at higher levels of the brain due to a variety of brain insults. Moreover, damage to central motor control structures even without interruption of the motor pathways may produce such severely impaired motor control that clinical distinctions between true damage to motor pathways and motor preparation systems is hard to distinguish. A common problem faced by these patients is a failure to maintain wakeful states and behavioral sets due to impairment of frontal executive systems that support motor preparation and goal-directed movement.
The present invention establishes a patient-controlled BCI/arousal regulation system (AR) that adapts and accommodates the level of brain activation to allow a patient with such problems to reliably communicate or control the BCI itself. Patients with both impaired motor control and motor pathways who retain the capacity to follow instructions or communicate as demonstrated by behavior or neuroimaging assessments would be candidates for this therapeutic system.

Institution

Cornell University

Inventors

Nicholas Schiff

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com