Software Platform that Enables Large Scale Brain Wave Data Collaboration (2014-081)

A web-based interface which allows researchers to view and interact with brain wave research

Market Overview

This software platform, EEGnet, provides researchers with an efficient database to view and interact with electroencephalography (EEG) brain wave data. EEG is an electrophysical monitoring system that records electrical activity in the brain and is used most often to diagnose epilepsy. Traditionally, EEG research has been limited due to a lack of large-scale standardized data and inefficient methods for collecting the opinion of large numbers of EEG experts. It is vital to have significant amounts of information in order to validate algorithms regarding EEG data as well as to train novices how to interpret EEG data. In order to resolve this, Clemson University and Medical University of South Carolina researchers designed EEGnet. The software effectively allows for researchers from across the country to view and collaborate with large scale brain wave data. EEGnet has the potential to dramatically change the research and application of EEG data by providing standardized data needed to validate new algorithms.

Application

Diagnostics; medical device

Stage of Development

Product

Advantages

- Offers online collection and storage of data, allowing researchers from any location to collaborate while safely storing information
- Allows easy large-scale distributive review and analysis of EEG brain wave data, accelerating the validation of new algorithms, technologies, and devices
- Eliminates the previous required step of sending paper reports of data to researchers around the country, decreasing costs and increasing efficiency sharing EEG data

Technical Summary

EEGnet is a web-based platform that allows a distributed team of experts to assemble and annotate events in large scale EEG datasets in a consistent way. EEGnet supports most features of modern digital EEG visualization software, such as multiple montages, digital filtering, and gain adjustment. Advanced visualization capabilities are provided for displaying the output of automated interpretation algorithms and comparing these results with annotations from human experts. The critical objective of EEGnet is to make the EEG research community more aware of EEGnet as a means of facilitating large-scale collaborative research initiatives.

App Type	Country	Serial No.	Patent No.	CURF Ref. Number	Inventors
Copyright	NA	NA	NA	2014-081	Brian Dean, Jonathan Halford

About the Inventors

Dr. Brian Dean is an Associate Professor and the Director of the Computer Science PhD Program in the School of Computing at Clemson University. He earned his Ph.D. in Computer Science from MIT. Among his accomplishments, Dr. Dean has received the Philip Prince Award for Innovation in Teaching (2016), an NSF CAREER award (2009), and developed LectureScribe – an application that allows users to record handwritten lectures along with audio to produce light-weight instructional videos. His research areas focus on computer science education and algorithmic computer science and its applications.

Dr. Jonathan Halford is an Associate Professor in the Department of Neurology at Medical University of South Carolina (MUSC). He earned his M.D. from Medical University of South Carolina College of Medicine, completed his Residency at Duke University Medical Center, and was a Clinical Neurophysiology Fellow at Duke University Medical Center. He holds board certification in sleep medicine, epilepsy, neurology, and neurology: clinical neurophysiology.

For More Information

To learn more about this technology, please contact:

Chris Gesswein

Technology Commercialization Officer

agesswe@clemson.edu

(864) 656-0797