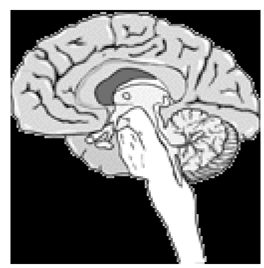
UF UNIVERSITY of FLORIDA *seeks partner to license*

A Real-Time Automated and Quantitative Brain Electrical Activity Monitoring System

The University of Florida is seeking a company interested in commercializing a real-time automated and quantitative brain electrical activity monitor. The electroencephalograph (EEG) is an important clinical tool for the evaluation and diagnosis of neuropathology. The EEG allows doctors to non-invasively evaluate changes in brain electrical activity that may be associated with neurological disorders. EEGs are used in the diagnosis or monitoring of epilepsy, coma, stroke, as well as metabolic and sleep disorders. Most notably EEGs play a particularly vital role in detecting seizures and other neurological disabilities in newborn infants. While EEGs provide doctors with a wealth of valuable information, analyzing and interpreting the data is often challenging even for neurophysiologists. Further, data is often evaluated hours after the neurological event took place, which can delay timely and accurate medical decisions. Researchers at the University of Florida have developed a real-time brain monitoring system that enables changes in brain electrical activity to be quantitatively measured. This technology allows doctors to be immediately alerted if their patient exhibits changes in brain electrical activity falling outside of a normal range.

Applications

- Diagnosing neuropathological disorders
- Monitoring during anesthesia
- Evaluating the brain's physiologic response to drug treatment, as well sleep and wake states.



Advantages

- Allows the clinician to make accurate and timely medical decisions
- Increases efficiency by providing constant automated patient monitoring
- Quantitative analysis of results improves the accuracy of diagnoses and assists the physician in developing appropriate treatment and management decisions

The Technology

This technology employs powerful linear and nonlinear mathematical algorithms in order to quantitatively measure deviations in brain activity from a normal state. EEGs of patients are analyzed in real-time and compared to an optimal normal range. Physicians will be automatically alerted if the patent's brain activity falls above or below this normal range. Once alerted, the physician can then evaluate the patient's brain activity, as well as a host of other physiological parameters such as heart rate, muscle tone, oxygenation, cerebral perfusion, arterial pressure, and lung tidal volume, recorded in the critical periods before during and after the neurological event.

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The Inventor

Dr. Paul R. Carney, above, is Associate Professor of Pediatrics, Biomedical Engineering, Neuroscience, and Neurology, Wilder Chair Professor of Epilepsy Research, and Chief of Pediatric Neurology at the University of Florida. He directs the Pediatric Neurology Comprehensive Epilepsy Program and is responsible for the diagnostic and presurgical procedures performed in patients at the University of Florida Epilepsy Monitoring Unit. He directs the Children's Miracle Network Neurophysiology Research Laboratory located in the McKnight Brain Institute at the University of Florida. His research has included several interdisciplinary projects investigating the pathophysiology of human epilepsy and the application of new technology to the diagnosis and treatment of epilepsy. These projects have utilized a variety of technical approaches including quantitative analysis of electroencephalograms and magnetic resonance imaging in humans and animal model. Dr. Carney currently serves as co-principal investigator of the University of Florida Bioengineering Research Partnership in Brain Dynamics.

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