

# Advancing Human Electrical Brain Imaging



Scott Makeig

## CURRENT RESEARCH

### Understanding human brain dynamics through enhanced analysis of brain electrical activity

Understanding more about the human brain can uncover more effective methods for health care, learning, and communication. Of the current brain imaging modalities, only non-invasive brain electrical recording (electroencephalography or EEG) can follow brain activity at the full speed of thought and action itself. Using affordable and lightweight equipment, EEG recording can be used to uncover ways in which our brains support our thinking, feeling, acting, and interacting, and can identify pathologic brain activities that underlie brain disease and disabilities. Dr. Scott Makeig, Research Scientist and Director of the Swartz Center for Computational Neuroscience at the University of California, San Diego, develops high-resolution EEG brain imaging combined, for the first time, with simultaneous high-bandwidth recording of eye and body movements. This new Mobile Brain/Body Imaging (MoBI) can breathe new life into fields of psychiatry and neurology, while also allowing new, more effective human-computer interface designs for workplace, school, and home use. In particular, Dr. Makeig is now using these techniques to explore how the brain supports our experience, learning, and performance of music.

At the University of California, San Diego's Swartz Center, Dr. Makeig and his team develop new models of human electrical brain activity, build and distribute open source software to allow others to extract more useful information from their human EEG and related data, and work with clinical researchers to glean more meaningful information from the data they collect in studies of ADHD, schizophrenia, Parkinson's, epilepsy, glaucoma, traumatic brain injury, and other conditions. Others at the Swartz Center are developing...

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## AFFILIATION

 University of California, San Diego

## EDUCATION

- Ph.D. in 'Music Psychobiology' 1985, University of California, San Diego
- M.A. (abt) in 'Music Theory' 1979, University of South Carolina Columbia
- B.A. (Honors) in 'Self in Experience' 1972, University of California, Berkeley

## RESEARCH AREAS

Life Science, Diagnostics, Neurological / Cognitive, Telemedicine

## FUNDING REQUEST

Your contributions will help support the continued research of Dr. Scott Makeig and his team at the Swartz Center of the University of California, San Diego as they advance the analysis and biological modeling of human brain activity supporting our thoughts, feelings, actions, and social interactions. Donations will help them continue to contribute to develop brain-aware therapies and training methods, to release open source software allowing these and other advances to be widely tested and exploited, and to explore the essential nature of human experience and communication.

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