Translating Neurotechnology Advancements

Tzyy-Ping Jung

Adjunct Professor, Department of Engineering Co-Director, Center for Advanced Neurological Engineering Research Scientist, Institute for Neural Computation

CURRENT RESEARCH

Using interdisciplinary approaches to develop technologies with real-world applications

The past twenty years have witnessed remarkable advances in fundamental neuroscience research and next-generation neurotechnologies. In the past 15 years alone, over half a million citable documents were published in 300+ neuroscience-related journals. The neurotechnology industry alone draws over $140 billion investment annually, yet despite these world-wide investments, we have not seen the potential benefits fully realized. The most realistic cause for this inefficiency is the fundamental differences between laboratory-based and naturalistic human behavior. Thus it remains unclear how well current knowledge of human brain function translates into the highly dynamic stresses of activity in the real world. Dr. Tzyy-Ping Jung, Co-Director of the Center for Advanced Neurological Engineering at the University of California, San Diego, is developing technologies that work with patients, allowing for information of the brain to be extracted and analyzed beyond the well-controlled settings of a laboratory in a number of real-world environments. This work is highly interdisciplinary, combining the efforts of neuroscientists, clinicians and physicians, and neuroscientists all within the same lab. The combination of various fields of research allows for students and staff members across many different disciplines to focus their skills on the same problems, resulting in the development of translational technologies that could have immense future impacts on clinical research and practice in neurology, psychiatry, gerontology, and rehabilitation medicine.

Dr. Tzyy-Ping Jung, Associate Director of Swartz Center for Computational Neuroscience (SCCN) and Adjunct Professor in the Department of Bioengineering at the...

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AFFILIATION

University of California, San Diego

EDUCATION

- B.S., in Department of Electronics Engineering, 1984 , National Chiao Tung University, Taiwan
- M.S., in Department of Electrical Engineering, 1989 , The Ohio State University
- Ph.D., in Department of Electrical Engineering, 1989 , The Ohio State University
- Postdoc Fellow in National Research Council, 1996 , National Academy of Sciences, USA

AWARDS

- Elevated to Fellow, IEEE, 2015
- Distinguished Alumni Award, National Chiao Tung University, Hsinchu, Taiwan, 2012
- SPIE Unsupervised ICA Learning Pioneer Award, 2008

RESEARCH AREAS

Life Science, Health IT, Neurological / Cognitive, IOT, Devices, Data

FUNDING REQUEST

Your contribution will allow Dr. Jung to proceed with his over 30 different current research topics. Each is in a different stage of development, from early basic research to (pre-)clinical trials and even to the birth of start-up companies. Each stage requires various levels of funding, and your contributions will allow for the advancement of technologies that will revolutionize the way we understand, study, and treat the brain.