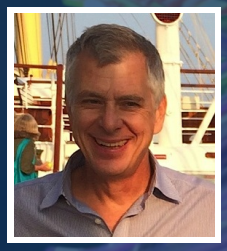
Mapping the Brain's Electrical Circuits



Scott Grafton
Professor, Department of Psychological & Brain Sciences

CURRENT RESEARCH

Breakthrough neuroimaging helps understand healthy and abnormal brains

In brain sciences perhaps the single most important conceptual revolution, now underway, is a view of the brain as a set of nested, hierarchical and interacting networks. It is not just local modules that are specialized for particular functions. These exist, but they sit on top of a much richer network architecture that scientists are now finally able to map with state-of-the-art human brain mapping methods. Dr. Scott Grafton, of the University of California, Santa Barbara, has focused on developing better methods to measure structural networks in the brain. These are the connections that link different modules together. While many try to do this, most methods are quick, noisy, and incomplete. Dr. Grafton and his team can generate dense, thorough and reproducible maps of brain connections. He develops software tools to visualize and quantify these connections. By breaking down dogma about how the brain ought to work locally, Dr. Grafton's research is beginning to show how it globally operates. This network based understanding provides practical approaches that are applicable to understanding individuality, and accelerating learning in healthy people. In addition, his research is helping to better understand obsessive compulsive disorder, depression, developmental disorders, Parkinson's disease, head injury and more.

While many labs use brain scanning resources, Dr. Grafton's is unique because he and his team combine state-of-the-art imaging, sophisticated analysis abilities, a development environment for building new analysis tools, and a focus on research questions that are rooted in fundamental clinical issues. At UCSB, he has freedom from the yoke of traditional medical school environments, and an...

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AFFILIATION

University of California, Santa Barbara

EDUCATION

- B.S., in Mathematics and Psychobiology, 1979 , University of California, Santa Cruz
- Medical, in 1984 , University of Southern California
- Internship, in Internal Medicine, 1985 , University of Arizona
- Neurobiology, in Division of Neurology, 1988 , University of Washington
- Residency, in Nuclear Medicine, 1990 , University of California, Los Angeles
- and 1 more.

AWARDS

- Elected, Fellow of the American Association for the Advancement of Science, 2014

RESEARCH AREAS

Life Science, Diagnostics, Neurological / Cognitive, Veteran's Causes

FUNDING REQUEST

Contributions will support the continued research of Dr. Scott Grafton, of the University of California, Santa Barbara, as he aims to understand the circuitry of the human brain. Donations will support the $200K/year required for imaging costs ($1K/hour) and personnel, particularly graduate students and postdoc fellows developing novel analysis tools. By donating, you will be creating amazing models of the human brain that reveal how we are all similar or special, as well as changes in disease and injury.