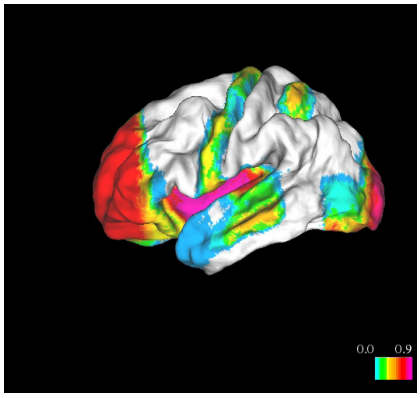
Brain Imaging and Answers to Tough Industrial Questions- the fMRI Facility at UCSB

Functional Magnetic Resonance Scanning (fMRI) is a technique that has been traditionally used to evaluate the hemodynamic response (change in blood flow) related to neural activity in the brain or spinal cord of humans or other animals. However, with the power of a 3 Tesla magnet, high performance cluster computing capabilities, and the creative techniques pioneered by faculty at UCSB, fMRI has the ability to answer many other novel questions that other devices have not. Take the need to understand the impact of prosthetic and aesthetic devices on the human body.

Scott Grafton, Associate Director of the Institute for Collaborative Biotechnologies and guardian of UCSB's fMRI, has partnered with Allergan Medical, a leading lifescience company, to create a series of studies that would demonstrate to the FDA that their new products are safe. Other medical devices that have been effectively assessed include mechanical devices that must function after exposure to magnetic fields. UCSB's fMRI facility and faculty don't stop at analyzing medical devices. Other projects have included post-mortem imaging to determine reasons behind the death of animals.



Grafton said, "We are applying this exceptional tool for multiple uses beyond human brain imaging. This is a great resource for UCSB engineering and science faculty and students to test new capabilities and applications. We have been able to show that fMRI is particularly useful in generating data on the effects of magnetic fields on new medical devices, in determining if new devices are safe, and in identifying abnormalities in prosthetics. It is our goal to continue offering the resource on a recharge basis. We are committed to assisting new users in developing imaging paradigms."

What makes the fMRI facility at UCSB exceptional is that it combines one of the best high field FDA approved MRI scanners, an accessible and patient friendly clinical environment, renowned expertise in functional imaging and image processing, and an innovative staff of young investigators. The campus environment for scanning patients in clinical trials is far less stressful than what patients typically face at medical centers. It goes without saying that the biggest research emphasis for UCSB's fMRI is in the arena of neuro-imaging, and current major supporters include the army and National Institutes of Health the army is interested in determining whether decision making can be improved using functional brain imaging and whether people decision makers. The NIH sponsors work in brain plasticity in the face of neurodegenerations and injury.

The ability of fMRI to decipher people's responses to external stimuli has had commercial uses too. The field of "neural marketing" uses fMRI to detect subconscious responses by consumers to new products or packaging. UCSB's approach to the fMRI and their pioneering techniques of analyzing outcomes from the data collected allows a spectrum of studies to be conducted here.

For more information about the fMRI please contact Phil Beach at beach@psych.ucsb.edu