Postdoctoral Research Fellowship in Human Invasive Neuroscience and Neural Engineering at MGH/Harvard Medical School

The Division of Neurotherapeutics at Massachusetts General Hospital (Darin Dougherty, MD) is seeking applicants for a multi-year, federally funded postdoctoral fellowship in the areas of invasive human neuroscience and brain stimulation. The fellow will be responsible for collection and analysis of electrophysiologic recordings from patients who are undergoing or have recently undergone neurosurgical procedures. Modalities we currently use include EEG, MEG, intracranial LFP recording (stereo-EEG, ECOG, long-term recordings through implanted devices, and intraoperative single-unit/LFP mapping. These experiments involve psychophysical tasks and/or electrical stimulation in the awake, behaving human as well as electrical stimulation in asleep humans. The overall goal is to better understand how brain networks give rise to and regulate emotional experiences, how those networks malfunction in severe psychiatric illness, and how that might lead to neurostimulation treatments for mental illness.

The fellow will gain experience in working with rare clinical populations and a unique set of multi-resolution investigations of the human mind. There will be extensive opportunities to learn electrophysiologic techniques, novel statistical approaches, the fundamentals of human brain intervention, and the art of translational neuroscience. If desired, the fellow will also have opportunities to be exposed to neurosurgical and other clinical aspects of his/her research. The successful candidate will have a rich dataset and toolbox of skills to launch an independent research program in human cognition or medical device research.

Successful applicants should have a PhD, or another doctoral degree with substantial research experience in a relevant discipline. This may include (and is not limited to) engineering, mathematics, psychology, neuroscience, computer science, or physics. For engineering and computer science specifically, we will consider candidates with a terminal masters' degree. Candidates should describe in their cover letter how their specific academic background is relevant to this position. Candidates should have one or more of:

- Prior experience in electrophysiological recordings and analysis in humans or animals
- Strong programming skills, in Python and MATLAB
- Prior work in human cognitive neuroscience and/or a demonstrated understanding of psychophysical task design/executions
- Prior conduct of neurostimulation experiments, with an understanding of the strengths and limitations of various designs
- Grounding or formal training in signal processing for time-series data in the time and frequency domains
- Machine learning experience/knowledge of theory

We expect to be able to train a successful candidate in several of these areas according to his/her ability and interests. We would particularly welcome applicants with prior experience in neural engineering, brain-computer interfaces, or network/systems-level neuroscience.
Please send a cover letter, a CV, and the names of 2-3 references to Tina Chou, Ph.D. at tchou@mgh.harvard.edu.

A good cover letter will explain why your skills and interests overlap with our laboratory's goals, what you hope to gain from working with us, and what you think you might uniquely bring to our team.

MGH is an equal-opportunity employer and welcomes applicants from any ethnicity, gender, nationality, or background. For this position, visa sponsorship is available for qualified non-citizens, but the need for such sponsorship should be disclosed early in the interview process.