



Postdoctoral Research Associate in Neuroscience and Neuroengineering Brown University

As part of our ongoing pilot clinical trials of an intracortically implanted neural interface system ([BrainGate](#)), we seek enthusiastic individuals with expertise in intracortical neurophysiology or neuroengineering to join our worldwide recognized research team. Our work focuses on developing brain-computer interfaces that will one day help to restore upper limb function and communication for people with severe motor disabilities. In the process, we also conduct fundamental human neuroscience research in movement control, cognition, and attention.

As a highly multidisciplinary endeavor, our team includes a tight-knit collaborative group of neuroscientists, engineers, computer scientists, mathematicians, and clinicians. Opportunities are available for each team member to interact directly with clinical trial participants. Multiple available research projects, shaped to the researcher's skills and interests, include (but are not limited to):

- * Analyzing neuronal ensemble activity (including how kinematics and dynamics of intended movement are encoded in single units, multi-unit activity, and local field potentials recorded from motor cortex) toward the improvement of decoding intended movement.
- * Harnessing intracortical signals for the development of communication interfaces for persons who are locked-in.
- * Developing new real-time decoding strategies, signal processing, and post-processing algorithms that will improve the decoding of intended multidimensional movement in the face of changes in neural signals over time and across different contexts.
- * Developing the interfaces for converting cortical neuronal activity into the real-time movement of a multi-articulated prosthetic limb, robotic limb/assistive device, or functional electrical stimulation system. Highly advanced prosthetic and robotic limbs are available for use.

Candidates must have strong neuroscientific, mathematical, and computational skills, including proficiency in Matlab, C, C++, and/or Simulink, as well as strong writing skills. Preferred educational background is a PhD in neuroscience, biomedical engineering, electrical engineering, computer science, applied mathematics, or other closely related fields. Depending upon research interests, candidates should have previous experience with single or multi-unit recordings (e.g., intracortical recordings in awake non-human primates), neuronal ensemble analysis, adaptive filter design, signal processing, and statistical analysis or modeling of neuronal action potential and local field potential data.

Inquiries should be directed to the laboratory of Leigh R. Hochberg, MD, PhD, c/o Ms. Beth Travers (Beth_Travers@brown.edu).