



**Postdoctoral Research Associates in Neuroscience and Neuroprosthetics**  
Brown University – Massachusetts General Hospital – Providence VAMC  
**Neural Interface Systems/BrainGate Research Team**

As part of our ongoing pilot clinical trials of an intracortically-based neural interface system (BrainGate), we seek highly motivated individuals with expertise in intracortical neurophysiology and/or neuroengineering to join our research team. The goal of our multi-faceted research effort is to develop powerful restorative neural interfaces for people with paralysis or limb loss.

The work is highly collaborative and multidisciplinary, including regular interaction with neuroscientists, engineers, computer scientists, and clinicians. Opportunities are available to interact directly with clinical trial participants. Research projects include, but are not limited to:

- \* The analysis of neuronal ensemble activity (including how kinematics and dynamics of intended movement are embedded in single units, multi-unit activity, and local field potentials from motor cortex) toward the development of neuroprosthetics for use by persons with tetraplegia.
- \* Harnessing intracortical signals for the development of communication interfaces for persons with locked-in syndrome.
- \* Studying how the activity of single neurons and neuronal ensembles can be voluntarily modulated, and how human neuronal activity changes with learning novel motor or neuroprosthetic skills.
- \* Developing real-time, multi-state adaptive decoding approaches to decode intended, multi-dimensional movement from persons with tetraplegia.
- \* Developing the interfaces for converting cortical neuronal activity into the real-time movement of a multi-articulated prosthetic limb or robotic limb/assistive device. Highly advanced prosthetic and robotic limbs will be available for use.

Candidates should have strong neuroscientific, mathematical, and/or computational skills. Preferred educational background is a Ph.D. in neuroscience, bioengineering, electrical engineering, computer science, robotics, or applied mathematics. Depending upon research interests, previous experience with adaptive filter design, signal processing and statistical analysis or modeling of neuronal action potential and local field potential data, as well as proficiency in Matlab, in addition to C, C++, or Simulink, are required.

Inquiries should be directed to the laboratories of John P. Donoghue, Ph.D. and Leigh R. Hochberg, M.D., Ph.D., c/o Ms. Beth Travers (Beth\_Travers@brown.edu).