STANFORD UNIVERSITY
N·P·T·L Neural Prosthetics Translational Laboratory

hhmi
Howard Hughes Medical Institute

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Re: Postdoctoral Scholar opening 30 September 2019

The Neural Prosthetics Translational Laboratory (NPTL) at Stanford University is a joint effort between the School of Medicine and the School of Engineering, and is part of the Howard Hughes Medical Institute (HHMI) at Stanford. The NPTL is an interdisciplinary research group pursuing basic neuroscience (electrophysiology of populations of individual neurons[1]) and neuroengineering (real-time closed-loop applications of decoded neural populations) with the goal of understanding neural control of movement and creating/advancing brain-computer interfaces (BCIs). A major aim of NPTL is to create BCIs to help people with paralysis by restoring the ability to move[2] and speak[3].

NPTL is seeking a postdoctoral scholar to design and conduct research with human clinical trial participants, and to design and conduct computational data analyses. Special emphasis is placed on creative and fundamental new approaches to both neuroscience and applied BCIs conceived of and led by the postdoctoral scholar. The scholar will work on the human BrainGate2 intracortical BCI clinical trial, and will design experiments, attend clinical trial research sessions, interact with research participants, and analyze collected data. They will be embedded in a collaborative community of clinicians, systems/computational neuroscientists, and engineers.

Qualifications required include: (1) a PhD in Neuroscience, EE, CS, BioE or related field with experience with computer systems, (2) experience conducting systems neuroscience studies with human subjects or in an animal model, (3) experience applying signal processing and machine learning (ML) techniques, (4) experience programming in Python, MATLAB, and (5) a strong independent and collaborative research and publication track record. Preferred but optional qualifications include: (1) experience with applying machine learning (including dimensionality reduction and deep learning) to neural signals, (2) experience programming in C/C^{++}, and (3) experience with real-time / embedded systems.

For further information, please e-mail Professors Henderson and/or Shenoy along with a CV.

Sincerely,

Jaimie Henderson

Krishna Shenoy

[1] E.g., Pandarinath et al. (2018) Inferring single-trial neural population dynamics using sequential auto-encoders. *Nature Methods*.

[2] E.g., Willett*, Deo* et al. (2019) Hand knob area of motor cortex in people with tetraplegia represents the whole body in a modular way. *bioRxiv*. Nuyujukian*, Sanabria*, Saab*, et al. (2018) Cortical control of a tablet computer by people with paralysis. *PLoS One*. Pandarinath*, Nuyujukian*, et al. (2017) High performance communication by people with paralysis using an intracortical brain-computer interface. *eLife*.

[3] E.g., Stavisky et al. (2018) Neural ensemble dynamics in dorsal motor cortex during speech in people with paralysis. *bioRxiv*