HIRING
NEUROBLOX

Multi-Scale Modeling/Metabolic Neuroscience/Psychiatric Neuroscience (Bipolar Disorder I)

Cycling between excess and insufficient energy, mania and depression suggest a breakdown of metabolic homeostasis. Yet how does metabolic dysregulation, at the neuronal scale, impact regulation of macro-scale neural circuits driving clinical cycles? To answer these and related questions, we are currently recruiting new members of our research team to develop multi-scale (spiking-neuron > neural mass model > local field potential > M/EEG > fMRI-scale) models to study how metabolic dysregulation impacts brain circuits in Bipolar Disorder I. In doing so, researchers will contribute to the development of the NEUROBLOX software platform. Neuroblox.jl is a Julia package designed for computational neuroscience with basic and clinical (neurology, psychiatry) applications. Our tools range from control circuit system identification to brain circuit simulations bridging scales from spiking neurons to fMRI-derived circuits, parameter-fitting models to neuroimaging data, reinforcement learning, interactions between the brain and other physiological systems, experimental optimization, and scientific machine learning.

Candidates will work as part of a highly multidisciplinary team of researchers across several institutes, including the Laufer Center for Physical and Quantitative Biology at **SUNY Stony Brook**, JuliaLab/CSAIL and the Miller Lab/Picower Institute at the **Massachusetts Institute of Technology**, the Martinos Center for Biomedical Imaging at **Massachusetts General Hospital** and **Harvard Medical School**, and the Brain Engineering Laboratory at **Dartmouth**. Options for on-site salaried positions or remote work.

Required and Preferred Qualifications
- *Required qualifications*:
    - PhD in STEM, with training in neuroscience, metabolism, and/or systems biology.
    - Strong quantitative and coding skills, with demonstrated expertise in computational modeling.
    - Demonstrated expertise in control theory and/or dynamical systems.
    - Facility with the Julia language, using toolboxes (e.g., SciML/ModelingToolkit.jl)

- *Preferred qualifications*
    - Prior research experience with human neuroimaging (fMRI) and associated tools (SPM12)
    - Prior research experience with psychiatric neuroscience (bipolar disorder).
    - Prior experience with professional software development.

Location: On-Site: Laufer Center @ SUNYSB in Stony Brook NY or CSAIL @ MIT in Cambridge MA
Remote work option available.

Salary: $80k/year (+ benefits) for salaried position; $92k/year for full-time Independent Contract

Contract: 3 years, renewable.

Contact: Interested and qualified candidates pls send CV to: jobs@lcneuro.org with **062123** in the subject line.