Postdoctoral Associate - Systems Neuroscience

Vaziri Laboratory of Neurotechnology and Biophysics

The Rockefeller University, New York, NY

https://vaziri.rockefeller.edu/

Neurobiological discoveries have been fueled in recent years by rapid development of optical imaging tools. Over the last decade the Laboratory for Neurotechnology and Biophysics has developed a wide portfolio of advanced optical neurotechnologies that allow for large-scale optical interrogation of neuronal population activity at high spatiotemporal resolution across model systems with our most recent neuro-imaging technology capable of recording the activity of up to 1 million neurons distributed across different depths of both hemispheres of the mouse cortex at single cell resolution.

Using this data we have provided new insights into the nature of cortex-wide dynamics and scaling of dimensionality of the information represented by the brain. This in-turn constrains and provides insights into neuro-computations performed by such large-scale neuronal populations and how they relate to functional circuits underlying multi-timescale generation of behavior. Thus, these datasets and new technical capabilities have opened up new opportunities for understanding the fundamental principles of how brain-wide neurocomputation emerges from dynamic interaction of vast and highly distributed neuronal populations in the mammalian brain. The systematic analysis of data generated by current and future neurotechnologies towards these questions represents a major focus of the lab in the coming years. These efforts have the potential to transform our understanding of how cognitive functions emerge from the connectivity and of neuroactivity as well as provide new avenues for the development of new class of biologically inspired AI algorithms and architectures.

Position Summary

We are looking for an experienced and fearless, creative and ambitious experimental or theoretical systems neuroscientist interested in pursuing projects at the interface of experimental and computational system neuroscience that effectively take advantage of the currently existing and planned neurotechnology portfolio of the lab. In this context while the lab has established several lines of work and specific research project, we also welcome candidates who can make a compelling case for their own high impact ideas and how these would uniquely benefit from the lab's neurotechnologies.

The successful candidate must be both conceptually and technically strong and have demonstrated experience with recording and/or analyzing neuronal imaging data while being proficient in at least either Python or MatLab. Additional experience in context of multi-photon *in vivo* microscopy including experience working with rodents and performing rodent behavioral training would be desirable. This role presents an ideal opportunity for mature and semi-independent experimental or theoretical systems neuroscientist with a clear vision and interested in having access to unpresented datasets while working at the forefront of the field within a dynamic and collaborative research environment.

Responsibilities

- Contribute to conceptualization and design of new experiments
- Independently or in collaboration with lab members record large-scale cellar or sub-cellular resolution neuronal population activity data.
- Using existing and/or developing new appropriate data analysis pipelines
- Depending on background experience and interest rodent behavioral work including design and co-development of behavioral setups, animal training and/or stereotactic surgeries
- Large scale neuronal and behavioral data analysis using statistical and various machine learning tools and methods and computational modeling
- Preparing reports and presentations, maintaining a detailed database and documentation and writing manuscript drafts.
- Supporting collaborative projects within the lab

Qualifications and experience

- Ph.D. in (systems) neuroscience, physics, computer science or related field
- Prior experimental work in one and more of these areas: statistical analysis of data, computational modeling, machine leaning, multi-photon microscopy, rodent behavioral experiments

- Self-driven, creative, highly result oriented, excellent communication, time management and organizational skills
- Basic programming skills (e.g., Matlab, Python)
- The ability to effectively work in an interdisciplinary team environment and willingness and interest to work outside of own core expertise

How to apply
Interested candidates should submit their application material, including a cover letter, CV/resume including list of publications and the contact information of at least two references to vaziri[at]rockefeller[dot]edu and in parallel apply via https://careers.rockefeller.edu/jobs/2039?lang=en-us For more information on our work please visit our website at https://vaziri.rockefeller.edu/

Salary
The salary of the finalist selected for this role will be set based on various factors, including but not limited to organizational budgets, qualifications, experience, education, licenses, specialty, and training. The hiring range provided represents The Rockefeller University's good faith and reasonable estimate of the range of possible compensation at the time of posting.

Compensation Range: Min
USD $72,100.00/Yr.
Compensation Range: Max
USD $72,100.00/Yr.

The Rockefeller University is an equal opportunity employer – veterans/individuals with disabilities. Qualified applicants will receive consideration for employment without regard to characteristics protected by applicable local, state, or federal law, including but not limited to disability and protected veteran status.