Research Assistant

VAZIRI LAB

Laboratory of Neurotechnology and Biophysics

The Rockefeller University, New York, NY

www.vaziri.rockefeller.edu

Background

Emergence of new optical technologies combined with advanced statistics and machine learning tools have led to major advances of our understanding of how the circuitry and dynamic s of neuronal population give rise to brain functions and behavior.

The Vaziri Lab of Neurotechnology and Biophysics has a major focus on the development and application of advanced optical imaging technologies with applications for systems neuroscience. Over the last few years we have developed a portfolio of optical techniques that allow near-simultaneous stimulation [1, 2] and functional imaging of neuronal activity on the whole-brain level at single-cell level in small model organisms [3, 4] and more recently in the more scattering rodent brain [5-8]. These tools are now being used to answer some of the most fundamental questions in neuroscience: How does the spatiotemporal dynamics of neuronal population activity generate behavior? How is the variability of behavior linked to the variability of neuronal dynamics? What are the neuro computational principles that facilitate cognitive brain functions?

Position

The development of our advanced neuroimaging technologies critically hinges on the use, development and application of new molecular tools, surgical procedures, and behavioral paradigms in rodent models. To support the application of our imaging technologies to rodents, we are currently looking for highly motivated candidates to join our team as a Research Assistant.

Qualifications

- Must be highly motivated, ambitious and self-motivated with a 'Whatever It Takes' attitude and thrive in a fast-paced environment with the ability to work both independently and part of a team
- Must have Bachelor's degree in **neuroscience, (molecular) biology,** or related field
- Must be detail oriented, **highly organized**, and able to manage multiple task and projects with excellent communication skills
- Must have basic knowledge of rodent neuroanatomy and previous lab experience with rodents including **cranial window surgery** and/or work with viral delivery of constructs
- Basic knowledge and hands on experience with **molecular biology** work including cloning, plasmid design and sequencing would be highly desirable
- Previous experience with rodent behavior or managing a colony would be desirable
- Experience with one or more types of optical microscopy would be desirable

Interested candidates should send their CV including any publications, copy of their transcripts and the contact information of two references vaziriadmin@rockefeller.edu. For more information and to see our list of open positions, please visit our website at www.vaziri.rockefeller.edu.

References

1. Andrasfalvy, B., et al., *Two-photon Single Cell Optogenetic Control of Neuronal Activity by Sculpted Light.* **PNAS**, (2010). 107.
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3. Schrodel, T., et al., *Brain-wide 3D imaging of neuronal activity in Caenorhabditis elegans with sculpted light.* **Nature Methods**, (2013). 10(10): p. 1013-1020.
4. Prevedel, R., et al., *Simultaneous whole-animal 3D imaging of neuronal activity using light-field microscopy.* **Nature Methods**, (2014). 11(7): p. 727-730
5. Robert, R. et al., *Fast volumetric calcium imaging across multiple cortical layers using sculpted light*. **Nature Methods,** (2016) 13, 1021-1028
6. Skocek,O., et al., *High-speed volumetric imaging of neuronal activity in freely moving rodents*. **Nature Methods,** (2018). 15, 429–432.
7. Nöbauer, T., et al., Video rate volumetric Ca2+ imaging across cortex using seeded iterative demixing (SID) microscopy. **Nature Methods**, (2017). 14, 811-81.
8. Weisenburger, S. et al., Volumetric Ca2+ Imaging in the Mouse Brain using Hybrid Multiplexed Sculpted Light (HyMS) Microscopy. **Cell** (2019), *in press*