



# Optical Engineer

Vaziri Laboratory of Neurotechnology and Biophysics  
The Rockefeller University, New York, NY  
<https://vaziri.rockefeller.edu/>

Are you interested in bringing your expertise in advanced optics to design and build new microscopy systems and neurotechnologies that will help the understanding of the brain? This is an exciting long-term opportunity for a creative, highly-motivated, and ambitious candidate interested in working at the interface of optical systems engineering and neuroscience. The successful candidate will critically contribute to the mission of the department for Neurotechnology and Biophysics and the broader imaging efforts at the university by designing, building, and applying new types of multi-photon and other microscopy systems for recording neuroactivity at unprecedented scale, speed, and resolution within a highly interdisciplinary and collaborative academic environment that includes joint projects with industrial partners. The ideal candidate must be both conceptually and technically strong, self-driven, highly-organized, and be able to own and spearhead multiple projects.

## Responsibilities

- Conceptualization, design, development, characterization, and application of new types of high-speed large scale multi-photon optical systems for recording and manipulation of neuronal population activity in scattering tissue
- Redesign and optimization of existing platforms and co-development of precommercial prototypes in close coordination with industrial partners
- Documentation, development of SOPs, and training of more junior scientists
- Support of collaborative project and ongoing technology dissemination efforts

## Qualifications and Experience

The ideal candidate has the following profile:

- Self-driven, highly result-oriented, excellent communication skills and time management, the ability to effectively work in a team environment involving academics and industry, and motivated by enabling engineering innovations with lasting practical impact
- Ph.D. or master's degree in physics, optical engineering, electrical engineering, or related field
- A minimum of 2 years of relevant hands-on work experience in a scientific or industrial research environment involving microscopy, ultrafast optics, non-linear optics, or opto-electronic hardware
- Track-record as the lead experimental scientist or engineer for construction of complex (electro) optical and optomechanical systems or instruments
- Experience in at least one, ideally multiple of these areas would be highly desired: optical modeling and simulations (e.g., ZEMAX), ultra-fast laser systems, fiber optics, mechanical design, mechanical fabrication skills, RF electronics and electronics design, optomechanical hardware control (LabView, FPGA, experience with large-scale data processing and cluster computing)
- Basic programming skills (e.g., Matlab, Python, LabView, SolidWorks, CAD)

Interested candidates should send their application material, including a cover letter, CV/resume, list of publications, and the contact information of at least two references to [vaziriadmin@rockefeller.edu](mailto:vaziriadmin@rockefeller.edu). For more information on our work, please visit our website at <https://vaziri.rockefeller.edu/>.

## Background about the Laboratory of Neurotechnology and Biophysics

The emergence of new optical technologies combined with computational and molecular tools have led to major advances of our understanding of how the circuitry and dynamics of neuronal populations give rise to brain functions and behavior. The Laboratory of Neurotechnology and Biophysics at the Rockefeller University is focused on the development and application of advanced optical imaging technologies to advance neuroscience. Over the years, we have developed a portfolio of optical technologies that allow for large-scale and whole-brain optical recording and manipulation of neuroactivity at high spatiotemporal resolution across model systems while our emphasis in the recent years has been on the development of such tools for highly scattering brain tissues. In our most recent imaging technology, we have demonstrated that up to 1 million neurons distributed across different depths of both hemispheres of the mouse cortex can be recorded at single cell resolution. In the coming years, we plan to further expand on these tools and apply them in different biological systems.

## Salary

Commensurate with education and experience. Rockefeller university offers a competitive salary and comprehensive benefits package that includes amongst others generous employer contribution towards health insurance and a retirement package.

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