

POSTDOCTORAL RESEARCH FELLOW

ADVANCED NEUROIMAGING OF BRAIN CLEARANCE, NEUROVASCULAR DYNAMICS, AND ALZHEIMER'S DISEASE

A postdoctoral research fellow position is available in the BRAVE Lab (Brain Rejuvenation and Vitality Empowerment Lab) at the Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital and Harvard Medical School.

Our laboratory develops and applies advanced neuroimaging and multimodal neuroscience approaches to understand brain fluid dynamics, neurovascular function, and perivascular clearance in aging and Alzheimer's disease. Current research integrates ultra-high-field MRI/fMRI with optical imaging, physiological recordings, and disease models to investigate how vascular, neuronal, and cerebrospinal fluid (CSF) dynamics interact to regulate brain function and clearance.

The position is supported by NIH-funded research investigating mechanisms of perivascular transport and clearance in the brain. The successful candidate will work under the supervision of Dr. Xiaoqing Alice Zhou and collaborate closely with investigators across the Martinos Center, Massachusetts General Hospital, and Harvard Medical School. The candidate will have opportunities to work on projects involving:

- Ultra-high-field MRI and fMRI, including awake small-animal imaging
- Perivascular and glymphatic transport and clearance
- CSF dynamics and neurovascular-CSF coupling
- Advanced cerebrovascular and microvascular imaging
- Alzheimer's disease and aging models
- Multimodal integration of MRI with optical imaging and physiological measurements
- Advanced image processing, quantitative analysis, and computational approaches

Depending on the candidate's background, research interests, and career goals, the fellow will have substantial flexibility to develop an independent research direction. The Martinos Center provides an exceptionally rich environment for advanced biomedical imaging, with access to state-of-the-art MRI, optical imaging, computational resources, and extensive collaborations spanning basic neuroscience, engineering, and clinical research.

QUALIFICATIONS

We are seeking a highly motivated researcher interested in developing an independent career in advanced neuroimaging, neuroscience, brain clearance, cerebrovascular physiology, aging, or Alzheimer's disease research.

The ideal candidate will hold a Ph.D. or equivalent degree in Neuroscience, Biomedical Engineering, Medical Physics, Electrical Engineering, Biology, Computer Science, or a related

field. Strong candidates from other quantitative or biomedical backgrounds will also be considered. Experience in one or more of the following areas is highly desirable:

- MRI/fMRI acquisition or analysis
- Small-animal imaging or experimental neuroscience
- Neurovascular or cerebrovascular imaging
- Optical imaging or multimodal physiological measurements
- Image processing and quantitative data analysis
- MATLAB, Python, or related computational methods

Candidates are not expected to have expertise in all of these areas. Applicants with a strong background in either experimental neuroscience/imaging or computational neuroimaging who are interested in expanding into multimodal research are encouraged to apply. Strong analytical skills, scientific curiosity, independence, and written and oral communication skills are required.

APPLICATION

Interested applicants should send a cover letter describing their research experience, research interests, and future career goals, an up-to-date curriculum vitae, and contact information for three references to xzhou27@mgh.harvard.edu

This is a full-time postdoctoral position with benefits. The position is available now, with some flexibility in the start date. Salary will be commensurate with experience and institutional guidelines.