Postdoctoral Research Fellow on Brain-Body Interactions

How to apply

Please send your queries or application (cover letter, CV, and names of potential references) to Dr. Zhongming Liu (zmliu@umich.edu). Alternatively, apply through the U-M career website.

Job Summary

The Department of Biomedical Engineering at the University of Michigan is seeking applications for a postdoctoral research fellow position under the guidance of Professor Zhongming Liu. This position offers an exciting opportunity to join a multi-disciplinary and collaborative team on using multimodal technologies to study brain-body interactions in both animal and human subjects.

The primary goals of our research are to map and characterize the functional neural circuits that underlie dynamic and bi-directional communications between the brain and visceral organs, such as the gut, heart, and lung, and to further investigate how brain-body interactions influence cognition and emotion. To achieve these goals, we employ a wide range of experimental and computational techniques, including magnetic resonance imaging (MRI), neurophysiology, neural tracing, chemogenetics, immunohistochemistry, gastric electrical stimulation, vagus nerve stimulation, and behavioral training and assessment, as well as advanced methods in signal processing, image processing, machine learning, and biophysical modeling.

As a postdoctoral research fellow, your responsibilities will involve conducting experiments, analyzing data, preparing manuscripts for publication in journals or conference proceedings, and providing mentorship to graduate and undergraduate students.

This position is available immediately and will remain open until filled. The initial appointment will be for a minimum of two years, with the potential for extension in subsequent years. The salary offered will be commensurate with experience, typically ranging from $55,000 to $75,000 per year.

Facilities, Resource, Environment

Our research team benefits from excellent facilities and resources to support cutting-edge investigations. We have direct access to three MRI systems dedicated to research purposes, including two 3-Tesla MRI systems tailored for human studies and one 7-Tesla MRI system specifically designed for small animal research.
Within our lab, we have established capabilities for human electroencephalography (EEG) and physiological recordings, including electrogastrogram (EGG), electrocardiogram (ECG), respiration, skin conductance, eye tracking, and pupillometry. For small-animal studies, we have dedicated wet-lab spaces equipped for brain and abdominal surgical procedures, high-density neurophysiology, behavioral assessments, histology, contrast agents, and device fabrication.

To support our computational needs, we have in-house high-performance computing platforms. Additionally, we have access to institutionally supported community clusters, providing us with extensive computational resources for data processing and analysis.

As a research fellow, you will be immersed in a vibrant and collaborative research environment. Our team consists of established MRI scientists, neuroscientists, physiologists, engineers, and gastroenterologists, fostering interdisciplinary collaborations and knowledge exchange. This research-active environment offers valuable opportunities for engaging in collaborative projects and benefiting from a diverse range of expertise.

**Required Qualifications**

- A Ph.D. in engineering, neuroscience, or physiology.
- Prior experience in MRI, neurophysiology, or neuromodulation is required.
- Publication record, written communication abilities and interpersonal skills.
- Prior experience in animal studies is highly desirable.
- Prior experience in neural signal processing and analysis is desirable.

**Additional Information (DEI)**

Michigan Engineering’s vision is to be the world’s preeminent college of engineering serving the common good. This global outlook, leadership focus and service commitment permeate our culture. Our vision is supported by a mission and values that, together, provide the framework for all that we do. Information about our vision, mission and values can be found at: [http://strategicvision.engin.umich.edu/](http://strategicvision.engin.umich.edu/).

The University of Michigan has a storied legacy of commitment to Diversity, Equity and Inclusion (DEI). The Michigan Engineering component of the University’s comprehensive, five-year, DEI strategic plan—along with updates on our programs and resources dedicated to ensuring a welcoming, fair and inclusive environment—can be found at: [http://www.engin.umich.edu/college/about/diversity](http://www.engin.umich.edu/college/about/diversity)

**Background Check**

The University of Michigan conducts background checks on all job candidates upon acceptance of a contingent offer and may use a third party administrator to conduct background checks. Background checks are performed in compliance with the Fair Credit Reporting Act.
U-M EEO/AA Statement

The University of Michigan is an equal opportunity/affirmative action employer.

Application Deadline

Job openings are posted for a minimum of seven calendar days. The review and selection process may begin as early as the eighth day after posting. This opening may be removed from posting boards and filled anytime after the minimum posting period has ended.