

**Postdoc position: computational modeling and neuroimaging in Alzheimer's disease  
at Massachusetts General Hospital / Harvard Medical School**

The Athinoula A. Martinos Center for Biomedical Imaging, located within the Department of Radiology at Massachusetts General Hospital (MGH) and Harvard Medical School (HMS) in Boston, Massachusetts, has an opening for one or two highly qualified postdoctoral individuals to work with Dr. Heidi Jacobs. The Jacobs lab is focused on improving the early detection and early treatment of Alzheimer's disease. The lab focuses on the neuromodulatory subcortical nuclei, in particular the locus coeruleus, using a variety of approaches, including 3T MRI, 7T MRI, PET imaging, pupil measurements, physiological recordings, blood-based markers, cognitive assessments and perturbational approaches, such as non-invasive vagus nerve stimulation. We are now seeking to hire a postdoctoral fellow to investigate the neural mechanisms explaining how the noradrenergic locus coeruleus system contributes to tau progression and cognitive decline. This position is particularly well-suited for candidates interested in **linking biophysical or computational models of neural dynamics to in vivo human neuroimaging and disease processes**, and will require combining multimodal imaging (fMRI, PET,..) with pupillometry and computational modeling. In parallel, the lab also develops approaches to capture heterogeneity and temporal trajectories of disease progression, leveraging large-scale datasets and advanced modeling. The Jacobs Lab consists of a multidisciplinary team of two instructors, three postdocs, two PhD-students, two clinical research coordinators and one project manager.

The work in this project will be performed at the Athinoula A. Martinos Center for Biomedical Imaging, Charlestown Navy Yard. The candidate will be part of ongoing collaborations and work in a stimulating and inspiring environment. Our research group values open communication, motivation, optimism, mutual respect, teamwork, and innovative thinking. Dr. Jacobs is highly committed to individualized mentoring to help trainees achieve the most out of their postdoctoral candidature and to move forward in their career. At a minimum, the training environment will include professional development, one-on-one meetings, group lab meetings, frequent seminars and journal clubs, opportunities to present their work at national and international scientific conferences (i.e. Human Amyloid Imaging, Alzheimer's Association International Conference), collaborations with partners within and outside MGH, and manuscript preparation for publication in high-impact journals. In addition, Dr. Jacobs has a strong funding record and will strongly encourage and provide mentorship in grant applications.

Requirements: Candidates should hold a Ph.D. in Cognitive Neuroscience, Computational Neuroscience, Bio/medical Physics, Biomedical Engineering, Neuroimaging, or a related discipline. Essential qualifications include: strong expertise in fMRI analyses and neuroimaging methods, advanced programming skills (e.g., Python, MATLAB), experience with computational modeling (e.g. biophysical models, dynamical systems, neural mass models, or cognitive models), a solid background in signal processing, and an ability to relate neuroimaging findings within a pathobiological framework of neurodegenerative diseases. The candidate should be highly motivated, a strong communicator, possess an internal drive to learn independently, and be comfortable working as part of a larger collaborative team. A real necessity is a passion for science, strong scientific writing and organizational skills, and a positive attitude. Experience in Alzheimer's disease or aging research would be beneficial.

 Heidi Jacobs LAB

Apply: The successful candidate will have joint appointments at MGH and HMS. If interested, please send your CV, letter describing interests, background, major achievements, skills, goals and contact information for three professional references. Please send application materials to Dr. Heidi Jacobs, Associate Professor of Radiology, at [hjacobsm@mgh.harvard.edu](mailto:hjacobs@mgh.harvard.edu)  
([www.heidijacobs.org](http://www.heidijacobs.org))