Post-doctoral position in brainstem atlasing and connectomics at the A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Boston

Responsibilities:

A post-doctoral position in the field of brainstem imaging by high-field and ultra-high field MRI is available at the Athinoula A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital (MGH), Boston, MA. The successful candidate will join the Brainstem Imaging lab (https://brainstemimaginglab.martinos.org/) lead by Dr. Marta Bianciardi, PhD.

The central research program seeks to expand the Brainstem Navigator toolkit (https://www.nitrc.org/projects/brainstemnavigator/) by developing the next generation: (i) brainstem nuclei atlasing tools in living humans, including automatic segmentation methods of 31 brainstem nuclei already manually segmented by our team, and automatic coregistration routines; (ii) functional and structural brainstem nuclei connectomes, by applying cutting-edge connectivity methods able to better deal with artifacts and biases, with the goal of enhancing the similarity of the functional and structural connectivity results; (iii) structural and connectivity biomarkers of neurodegeneration in prodromal Parkinson’s disease. This research will be carried out using human 7 Tesla and 3 Tesla scanners at the Martinos Center, as well as MRI from public data repositories to demonstrate the wider applicability of the developed tools.

The responsibilities of this position are varied, and involve all phases of human neuroimaging research. Specifically, main responsibilities involve data collection, management and analysis, including image segmentation for nuclei delineation, functional connectivity and tractography analysis, and the translational application of the developed tools to study patients. Administrative coordination may also be required.

The Martinos Center is home to a large multidisciplinary community of experts who develop and apply a wide range of imaging technologies and methods. As a member of the Martinos Center team, the post-doctoral fellow will have access to state-of-the-art research facilities, and have full access to the training and educational programs (e.g. “BrainMap” and “WhyAndHow” seminars), offered at the Martinos Center.

Requirements:

Candidates should have a Ph.D. degree in Engineering, Computer Science, Physics, or a related field; however, strong candidates with other scientific backgrounds will also be considered. Experience with MR image segmentation methods (e.g. deep learning, clustering, region growing), computer programming (e.g. Python, Matlab, shell scripting) and functional/structural MRI processing (e.g. FSL, AFNI, FreeSurfer, MRtrix, ANTs), including image coregistration, is desired. The successful candidate will have a proven track record of publications in image acquisition and analysis, and be highly motivated with excellent analytical and interpersonal skills. Strong written and oral English communication skills are required. Attention to detail, organizational capability, and the ability to handle multiple concurrent tasks are essential. The post-doctoral fellow is expected to be able to work independently as well as part of a team in a fast paced environment.

Application:

Interested applicants should send a cover letter (describing their research experience, interests and goals), a curriculum vitae, and contact names/details of at least three references to Marta Bianciardi, Ph.D., by e-mail: martab@mgh.harvard.edu. The position is full time with benefits and is available immediately. A two-year time commitment is requested.

The Massachusetts General Hospital is an equal opportunity employer; all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, gender identity, sexual orientation, pregnancy and pregnancy-related conditions or any other characteristic protected by law.