Post-Doctoral positions for fast high-resolution neuroimaging

Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, USA

Project description:
Two post-doctoral positions are available at Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, USA for the following research areas:

- development of novel MRI and MRSI methods for quantitative metabolic, multiparametric and functional biomarkers of brain cancer and neurological diseases.
- improve the spatial resolution, brain coverage, acquisition time, data quality, quantification, and robustness of imaging methods for precision medicine in patients.
- non-cartesian fast trajectories, compressed sensing, model reconstruction, real-time motion correction and shim update, 1H/X-nuclei, ultra-high field
- deep learning
- 7T and 3T Siemens MR human scanners
- integration with novel MR hardware developed at Martinos Center
- clinical translation in patients with glioma and neurodegenerative diseases.


Career opportunities:
These projects are part of an Academic-Industry Partnership between Massachusetts General Hospital and Siemens Medical Solutions funded by the National Institutes of Health. The following opportunities will be available:

- excellent environment that brings together outstanding academia, clinics and industry
- the candidates will have opportunities to pursue a future career in any of these directions.
- candidates with strong engineering background and interest for industry career will establish strong connection with Siemens Medical Solutions, the leading MRI manufacturing company.
- Martinos Center is famous for its unique research infrastructure dedicated to human imaging: two 7T MR scanners, six 3T MR scanners, Connectome scanner with strongest human gradients, two MR/PET scanners, two 13C hyperpolarizers, TMS, RF lab, and high-performance GPU servers for deep learning.
- live in a vibrant city known for high quality of life and ranked first as the global hub for biomedical research, biotech industry, and healthcare.

Qualifications:
Candidates that have experience with one or more of the following:

- MR pulse sequence programming and image reconstruction (Siemens IDEA & ICE)
- non-cartesian encoding, low-rank, reconstruction of undersampled data, real-time feedback, B0/B1 shimming, RF pulses
- deep learning
- Programming skills: Matlab, C++, Python, Tensorflow, Docker, Linux
- Neuroimage software: FSL, Freesurfer, MINC, AFNI, SPM, LCModel, jMRUI
- Additional experience with RF hardware and coil building is beneficial.
- PhD degree in a related field: physics, electrical/biomedical engineering, computer science or applied mathematics.

We seek highly motivated and innovative individuals who can push the limits of imaging methods and are able to solve difficult problems to overcome technical challenges. Excellent organizational skills to handle multiple tasks to work independently and as part of a multidisciplinary team at a fast pace. The post-doctoral fellows are expected to develop new ideas and advance their own research interests.

Application:
MGH is an equal opportunity and affirmative action employer. Salary is commensurate with experience. Positions are available immediately and a minimum of two years commitment is required. Positions can be renewed up to five years based on satisfactorily yearly progress report. Interested candidates should send their CV, cover letter with research interests and 3 letters of recommendation to Dr. Ovidiu C. Andronesi, MD, PhD, Associate Professor of Radiology, Harvard Medical School (oandronesi@mgh.harvard.edu).