Job Summary

Dr. Chadi Calarge's laboratory in Child and Adolescent Psychiatry at Baylor College of Medicine and Texas Children's Hospital, in collaboration with Dr. Junqian Xu's neuroimaging laboratory at BCM, is seeking a highly motivated individual as a full-time post-doctoral scholar. The focus of this position will be on developing and applying advanced neuroimaging analysis strategies for quantitative brain iron distribution, tailored to the adolescent population, to characterize both healthy and abnormal development in children and adolescents.

The imaging center at Baylor College of Medicine is equipped with cutting-edge Siemens instruments dedicated to research. The equipment involved in this project includes 3T scanners with 32ch head coil. The candidate is expected to participate in data acquisition at the imaging center and be trained to gain working knowledge of MRI scanner operation and image quality assessment. A dedicated Linux server is available for algorithm development and neuroimaging data analysis.

The postdoctoral associate will be co-mentored by Drs. Calarge and Xu in clinical and technical aspects, respectively, of neuroimaging in adolescents. Mentoring is a strong focus in Dr. Calarge and Dr. Xu's laboratories as demonstrated by prior successful pre-/post-doctoral fellowships awarded to members in the laboratories. All trainees are encouraged to pursue competitive fellowships with hands-on guidance and dedicated mentoring. Typically, a fellowship proposal submission is expected by the end of the second year after a trainee joins the team.

Job Duties

- Specific neuroimaging analysis tasks include:
  - Subcortical susceptibility source separation into iron and myelin, especially in areas with low to medium iron content (e.g. caudate and putamen)
  - Quantifying subcortical spatial gradients or subregional features of iron-related contrasts, such as quantitative susceptibility mapping (QSM), R2*, or T1w/T2w ratio
  - Calibrating MRI-derived quantitative iron metrics in different subcortical regions from age-dependent in vivo reproducibility datasets with ex vivo literature (“ground truth”) values of subcortical iron concentrations
  - Characterizing developmental trajectory of subcortical distribution of brain iron, after separating the confounding myelin and iron concentration calibration
  - Identifying subcortical (sub)regions or spatial patterns of brain iron that are sensitive to iron deficiency in adolescents

Minimum Qualifications

- MD or Ph.D. in Basic Science, Health Science, or a related field.
- No experience required.

Preferred Qualifications

- PhD in Psychiatry, Psychology, Neuroscience, Biomedical Engineering, or a related field.
- Background in neuroimaging data analysis.
- Proficient with neuroimaging analysis software (e.g., FSL, AFNI, SPM, FreeSurfer, Connectome workbench, etc.) and Shell Scripting.
- Experience with Python or R language.
- Experience conducting reproducibility neuroimaging studies.
All applicants should apply directly through the Baylor College of Medicine career site at https://jobs.bcm.edu/job/Houston-Postdoctoral-Associate-Texas/1010073500/.

Baylor College of Medicine requires employees to be fully vaccinated -subject to approved exemptions- against vaccine-preventable diseases including, but not limited to, COVID-19 and influenza.

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