Postdoctoral researcher in multimodal MRI

Dr. Garth Thompson’s Lab at ShanghaiTech University is seeking a postdoctoral researcher in multimodal MRI. Our research focuses on understanding how neuromodulation and brain metabolism impact the whole brain’s function. However to understand this, we must integrate studies both between animals and human subjects, and also between MRI and other modalities such as positron emission tomography (PET), multi-frequency electrophysiology, optical imaging, etc.

Successful candidates will develop novel experimental protocols and data analysis techniques which can allow scientists to link molecular and cellular knowledge to measurements on a whole-brain level. In addition, working with collaborators at the iHuman Institute and local hospitals, we can guide drug and treatment development through a better understanding of disease mechanisms.

This position is open-ended based on the interests of qualified candidates. A high degree of independence is expected and encouraged.

The systems we are currently using include the Bruker 9.4T MRI at the Shanghai Institute of Neuroscience and the 11.7T MRI at Fudan Zhangjiang Campus in collaboration with local professors, and the 3T Siemens Biograph mMR PET/fMRI at Ruijin hospital in collaboration with a local doctor. By the end of 2019, one human MRI and one animal PET/MRI will be installed on the ShanghaiTech campus as well.

Roles:

1. Design and conduct rodent MRI experiments including multi-modal (e.g. PET, electrophysiology, two-photon, optical imaging, and histology) components.
2. Link rodent MRI results to human clinical MRI results. This will also include human multimodal MRI (especially MRI+PET).
3. Data analysis on both self-collected and shared database data.
4. Present results in scientific papers and conferences.

Requirements:

1. PhD with graduate-level experience relevant to MRI
2. Publication record in peer-reviewed journals is required. Published work in preclinical MRI will be preferred. Candidates with strong evidence of collaboration across multiple fields will be preferred.
3. Successful candidates must be proficient in English communication, and are expected to author, co-author, review, and edit English-language research manuscripts.

Please send (1) Resume or Curriculum Vitae, (2) Three references, and (3) One-paragraph description of expected research to gthompson@shanghaitech.edu.cn and copy contact@garththompson.com
Postdoctoral researcher in emerging technologies in whole-brain imaging.

Dr. Garth Thompson’s lab at ShanghaiTech University is seeking a postdoctoral researcher to focus on emerging technologies in whole-brain imaging, primarily of rodents. While much outstanding work has been done using brain imaging techniques such as magnetic resonance imaging (MRI), positron emission tomography (PET), many new technologies have emerged in recent years which are still underutilized. Our lab has been working with PET and MRI data, but both us, and the iHuman Institute, would like to further develop our strength in imaging by incorporating some of the new techniques that have emerged in recent years.

Examples of the new technologies for whole-brain imaging being considered include: 1. TeraHertz (THz) imaging, which can non-destructively image structure and also report currently poorly understood biological properties. 2. Magnetic particle imaging (MPI) which can track the movement of drugs at high temporal resolution and can potentially also hypothetically move metal objects within a subject. 3. Simultaneous integration of in-vivo sensing techniques such as microbiosensors, microdialysis, and in-vivo mass-spectrometry with whole-brain imaging, e.g. simultaneous microdialysis and MRI. Most of these new technologies are focused on rodent (rat and mouse) imaging. However, the potential for translation should be considered as well.

This position is open-ended based on the interests of qualified candidates. A high degree of independence is expected and encouraged.

We are currently using several rodent and human MRI and PET systems installed in Shanghai. The budget is already available, and space will be available to install new systems beginning in mid-2019 through 2020. We are in contact with providers of THz and MPI imaging technologies and have discussed installation with them already.

Roles:
1. Help install, set up, and master usage of new brain imaging techniques.
2. Design and conduct experiments with these technologies.
3. Link these new techniques to our existing data and projects including most-importantly MRI and PET.
4. Present results in scientific papers and conferences.

Requirements:
1. PhD with graduate-level experience relevant to computational neuroscience, cognitive neuroscience, integrative neuroscience, or systems neuroscience

2. Publication record in peer-reviewed journals is required. Published work in one of the new technologies will be preferred. Candidates with strong evidence of collaboration across multiple fields will be preferred.

3. Successful candidates must be proficient in English communication, and are expected to author, co-author, review, and edit English-language research manuscripts.

Please send (1) Resume or Curriculum Vitae, (2) Three references, and (3) One-paragraph description of expected research (highlighting new technologies of interest) to gthompson@shanghaitech.edu.cn and copy contact@garththompson.com