Research Associate or Postdoc of Image reconstruction, machine learning, and/or fMRI processing

**Location:** Inner Harbor Area in Baltimore, Maryland.

**Hosting Institute:** University of Maryland Baltimore (UMB). UMB and UMD are the two flagship research campuses of the University of Maryland and have become a joint research entity since 2016 which has been ranked among top 10 research institutions in the National Science Foundation’s (NSF) Higher Education Research and Development Survey. UMB locates in the Inner Harbor Area, which is the most beautiful and the safest part of Baltimore. University of Maryland School of Medicine (UMSOM) is consistently growing in US News ranking (nearly one step up per year from #42 in 2006 to #27 in 2020). The total funding increased by 74%. Our center: Center for Advanced Imaging Research (CAIR) was newly launched in 2018. The number of faculty and the total amount of fundings both nearly doubled in the past two years.

**Hosting lab:** Professor Ze Wang’s imaging computing laboratory. [https://www.medschool.umd.edu/pi/Ze-Wang-PhD/](https://www.medschool.umd.edu/pi/Ze-Wang-PhD/). We started in UMB since 2019 and have been rapidly expanding with a more than 2x increase of total funding since I started here 2.5 years ago.

**Benefit:** **very highly competitive salary**; position can be either a junior faculty or a postdoc depending on CV and candidate’s potential; great opportunities to work on the frontiers in machine learning, image reconstruction, advanced fMRI signal processing, and fun brain development and cognitive neuroscience; great opportunities to build academic careers.

**Position 1: MR image reconstruction.** This project is supported by an NIH R01 for up to four years. The project is a joint effort between UMSOM, University of Pennsylvania, and Siemens Healthineers for developing advanced Arterial Spin Labeling (ASL) Perfusion MRI sequence and post processing packages. The position in UMSOM will focus on image reconstruction using deep learning and ASL image processing. The ideal candidate should have background in one or more of the following fields: image reconstruction, machine learning, MR physics, electrical engineering, computer science, or applied mathematics. Research experience of MR image reconstruction is highly preferred. Programming experience in ICE/IDEA will be preferred but not a necessary condition.

**Position 2: fMRI processing.** This position is supported by a new R01 for up to 4 years or
longer. Our overarching goals are to develop and evaluate deep learning-based methods and new resting state fMRI processing strategies. We are particularly interested in data mining (auto-clustering and classification, signal detection etc), machine learning (including deep learning), time series analysis, and graph analysis (graph network and graph spectral processing). Related projects ongoing in the lab include deep learning-based ASL perfusion MRI processing, brain entropy and coherence mapping. The ideal candidates should have method development experience in fMRI or neuroimaging signal processing. Background in electrical engineering, computer science, or mathematics is highly preferred. Python or Matlab programming skills are required. Experience on multi-band fMRI data processing is considered a plus.

**Position 3:** neuroimaging-based aging and development research. This position will be supported by a R21 grant. This project can either focus on aging/AD or brain development. The major research vehicle is cerebral blood flow and resting state BOLD fMRI. Candidates should have publication experience in related topics. Experience of longitudinal analysis is preferred.

Candidates for the three positions will have opportunities to learn new skills from MRI, signal processing, machine learning, and translational research, and will have lots of opportunities to build an academic career toward independence.

Interested candidates should send CV, personal statement (including research statement), and future plan to Dr. Ze Wang: ze.wang@som.umaryland.edu.