

## **Post-Doctoral Fellow – MRI Development**

### **University of Missouri, Roy Blunt NextGen Precision Center**

Our laboratory is focusing on cardiopulmonary magnetic resonance imaging (MRI) through innovative deep learning-based MRI development. Our current developments include new technologies such as self-supervised learning and generative models. This exciting work will take place at the NextGen center, featuring state-of-the-art imaging facilities, including 3T Vida and 7T Terra MRI scanners, located at the University of Missouri-Columbia campus. We are in search of a highly motivated candidate with expertise in MRI development, particularly in image reconstruction and analysis, as well as sequence development. The ideal candidate will be driven by a passion for contributing novel ideas and directions, both to our ongoing projects and the broader field of MRI research.

#### **Research and Development Responsibilities:**

- Conduct innovative research in cardiopulmonary MRI, focusing on rapid MRI using deep learning reconstruction and enhancement methods for coronary microvascular dysfunction and related disorders.
- Develop and optimize MRI pulse sequences for cardiac and pulmonary imaging using Siemens IDEA.
- Implement image reconstruction algorithms using MATLAB and Python.
- Apply machine learning and deep learning methods using Python and PyTorch to MRI data for improved diagnosis and understanding of cardiac diseases.
- Investigate new techniques in physics-guided MRI reconstruction, self-supervised learning approaches and deep learning-based image processing.

#### **Data Analysis Responsibilities:**

- Perform image post-processing and analysis for human and swine studies using conventional methods, machine learning and deep learning approaches of 2D/3D images and time-series data.
- Interpret cardiac MRI data, such as assessment of cardiac function, perfusion, etc. Collaboration and

#### **Communication Responsibilities:**

- Work collaboratively with our multidisciplinary team including MRI physicists, Siemens onsite scientists, 7T high-field MRI researchers, cardiologists, and Swine model researchers.
- Present findings at scientific conferences and contribute to manuscript preparation for publication in peer reviewed journals.
- Engage in regular meetings and discussions with the research team to ensure alignment with project goals.

**Mentoring and Supervision:** Assist in the supervision and mentoring of junior researchers, graduate students, or interns.

**Minimum Qualifications:** PhD in Biomedical Engineering, Medical Physics, Computer Science, Electrical and Electronics Engineering, or a related field.

To be considered for this position, please copy the link into your browser to apply:

[https://erecruit.umsystem.edu/psp/tamext/COLUM/HRMS/c/HRS\\_HRAM\\_FL.HRS\\_CG\\_SEARCH\\_FL.GBL?Page=HRS\\_APP\\_JBPST\\_FL&Action=U&SiteId=9&FOCUS=Applicant&JobOpeningId=50202&PostingSeq=1](https://erecruit.umsystem.edu/psp/tamext/COLUM/HRMS/c/HRS_HRAM_FL.HRS_CG_SEARCH_FL.GBL?Page=HRS_APP_JBPST_FL&Action=U&SiteId=9&FOCUS=Applicant&JobOpeningId=50202&PostingSeq=1)