Open Human MRI Postdoctoral position, faculty mentor
John W. Day

Important Info
Faculty Sponsor (Last, First Name):
Day, John West
Stanford Departments and Centers:
Neurology & Neurological Sci
Appointment Start Date:
ASAP. Preferred start date is before summer of 2023 but flexible.
Group or Departmental Website:

How to Submit Application Materials:
Apply by sending materials
Human Imaging Postdoctoral Scholar

The Neuromuscular and Neurogenetics Clinical Research Laboratory directed by Dr. John Day, part of the Innovative Genetic Neurological Investigation and Treatment Evaluation (IGNITE) program within the Department of Neurology and Neurological Sciences at Stanford University’s School of Medicine, is seeking a distinguished postdoctoral fellow experienced in the performance and analysis of MRI imaging methods applicable to brain and muscle investigations to work alongside experts in radiology, neurology, rehabilitation, clinical trials, bioinformatics specialists and engineers.

The goal of the research is to develop novel outcome measures and biomarkers of CNS and muscle involvement in Mendelian neuromuscular disorders such as muscular dystrophies and metabolic disorders that directly affect both brain and muscle function. These outcome measures will then be used in upcoming clinical trials in which these disorders will be genetically corrected, allowing determination and quantification of disease elements responsive to genetic correction, shedding light on the underlying pathophysiological processes. Methods currently employed include diffusion tensor imaging, tractography, brain resting state fMRI, whole body PET/MRI including DTI of all skeletal muscles. Patients being studied include those with genetic disorders directly affecting both brain and muscle structure and function, such as myotonic dystrophy, Duchenne muscular dystrophy, spinal muscular atrophy, ALS and GNE myopathy. Genetic treatments for these disorders are clinically available, or in late-stage development, allowing patients to be tested before and after genetic correction.

The MRI post-doc fellowship will primarily focus on development of MRI acquisition/reconstruction methods using 3T, 7T and PET/MRI devices, in addition to image processing/machine learning, and clinical applications. Other desirable skills include experience with image processing, understanding MRI physics, pulse sequence development, or image reconstruction. Experiences in hardware development is not required. Pulse sequence development and/or MRI reconstruction is a plus. You will work on improving image quality and accuracy throughout the human body using advanced MRI techniques such as diffusion, spectroscopic, susceptibility and functional imaging. You will also work on applications of these techniques.
to various clinical applications in muscle. These advanced techniques provide information beyond macroscopic morphology on tissue microstructure, metabolism and function, offering unique information associated with various pathological states, which will be characterized by others in the laboratory investigating novel histological evaluations of tissue biopsied after MRI characterization.

**Required Qualifications:**
- PhD in Neuroscience, Biomedical Engineering, Magnetic Resonance Imaging or a related field
- Interest and experience in human MRI investigations
- Demonstrated ability to analyze data in MatLab, Python or related methods
- Experience with analytical, computational, and quantitative methods analyzing large noisy datasets
- Ability to work well in a diverse team
- Effective oral and written communication skills, with proficiency writing manuscripts and other data science methods
- Excellent organization skills and demonstrated ability to complete detailed work accurately
- Excellent problem-solving strength and able to take initiative and work independently

**Preferred:**
- Experience with DTI and tractography analyses
- Experience with resting state fMRI and analyses
- Experience with machine-learning analysis of large datasets
- Experience with Deep Learning models and frameworks (Pytorch or TensorFlow)

**Required Application Materials:**
- CV
- Cover letter describing interest and relevant experience for the project
- Three references from graduate school or subsequent positions

Please send the above in an email with the title “Postdoctoral Fellowship Application” to NeuromuscularResearch@stanford.edu. The review of applications will begin immediately and continue until the position is filled.

*Stanford is an affirmative action and equal opportunity employer and all qualified applicants will receive consideration without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, veteran status, or any other characteristic protected by law.*