Summary
The High-Resolution Brain Imaging Lab is dedicated to better understanding and use of functional magnetic resonance imaging (fMRI). We use a combination of human experiments and computational modeling. Experiments make use of sophisticated methods in visual cortex and subcortical structures that enabled detailed measurements of the physics and physiology of human brain function. We believe that fMRI provides an extremely informative window into brain function when interpreted as a quantitative metric of metabolic substrates, blood flow and oxygen metabolism, rather than as a rough correlate of neuronal electrical activity. The lab has immediate access to two top-of-the-line Siemens Prisma 3T scanners, as well as a Siemens Terra 7T scanner two blocks away at Methodist Hospital. All scanners are equipped with advanced research sequences for BOLD fMRI and ASL measurements. We have ongoing collaborations with Siemens and the University of Southern California (Danny Wang's lab) to develop novel sequences. Computational work makes use of a local cluster of high-performance compute and file servers owned exclusively by our lab.

Purpose
Postdoctoral Associates are trainees working in an apprenticeship mode in preparation for a career as a scientific professional.

Duties
• Code new computational models of brain blood flow and oxygen metabolism
• Exercise these models over parameter ranges and apply results to experiments
• Make use of in-house developed models, linear network analysis, and computational fluid dynamics
• A strong background in computational modeling is required

Preferred qualifications
• Ph.D. in engineering (e.g., electrical, biomedical, mechanical), physics, or related field
• Detailed understanding of linear network modeling, analytical and numerical solutions of partial differential equations, and/or computational fluid dynamics are desirable
• Basic understanding of MRI physics

Minimum qualifications
• MD or Ph.D. in Basic Science, Health Science, or a related field.