Post-Doctoral Research Position
Acquisition methods for diffusion MRI
Quantitative Medical Imaging Section (QMI)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
National Institutes of Health (NIH)

The Section on Quantitative Medical Imaging (QMI) in the Intramural Research Program of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) in the National Institutes of Health (NIH) is soliciting applications from post-doctoral level scientists with a strong background in Magnetic Resonance Imaging (MRI) physics and pulse-sequence programming who are interested in developing novel MRI acquisition methods that would increase accuracy and reproducibility of quantitative structural MRI studies with the goal of developing robust MRI-based biomarkers for both neurological and non-neurological clinical applications. For a general overview about QMI’s research projects and publications, please refer to https://www.nibib.nih.gov/labs-at-nibib/quantitative-medical-imaging.

**Resources:** QMI is part of the larger MRI research community at NIH, which has active programs in clinical and preclinical research. Equipment available in the NIH MRI Research Facility includes a number of 3T and 7T human scanners and 4.7T, 7T, 9.4T and 11.7T animal scanners. In particular, we procured a high-performance gradient insert coil that is interfaced with a GE 3T MRI system. A field camera will be available soon to monitor real k-space trajectories. We are developing a number of human brain imaging applications on this system. QMI’s primary research focus lies in the field of diffusion MRI, but integration of other quantitative MRI techniques for multimodality assessment of tissue structure/architecture is of great interest to our program. The optimization of MRI data acquisition using this high-performance gradient insert coil in conjunction with information obtained from the dynamic field camera will lead to the availability of data of unprecedented quality that will open new avenues for the investigation of tissue structure, architecture, perfusion dynamics, morphology, and physiology.

**Qualifications:** The successful candidate will be working in a multidisciplinary environment, coordinating his/her research effort in MRI acquisition and reconstruction with other team members involved in the development of post-processing and analysis methods, as well as with
neuroscientists and clinicians, with the goal of building reliable acquisition and post-processing tools for clinically translatable applications.

- We are looking for a creative postdoctoral fellow aiming to work on original interdisciplinary research projects.
- The candidate must have or must be in the final stages of achieving a Ph.D. in a relevant area such as physics, electrical engineering, biomedical engineering or a related discipline.
- Expertise in MRI pulse sequence programming, with preference for GE and Philips systems, is required.
- Prior experience with diffusion MRI pulse sequences is desirable, and interest to learn about less conventional diffusion MRI acquisitions is important.
- Familiarity with at least one programming or scripting language such as C/C++, Matlab and Python is desirable, as well as familiarity with Linux.
- Previous work experience with common quantitative structural MRI techniques, such as diffusion MRI, perfusion MRI, and relaxometry is desirable.

Position includes salary and benefits commensurate with NIH guidelines for post-doctoral fellows. NIH is an equal opportunity employer.
Location: Building 13, NIH main campus, Bethesda, MD.

For more information, please contact Dr. Carlo Pierpaoli (pierpaoc@nih.gov) with a statement of interest, current CV, and the contact information of three references. Applications will be reviewed as they are received and the position will be open until filled.