Staff Scientist
Acquisition Methods for Quantitative Magnetic Resonance Imaging

National Institute of Biomedical Imaging and Bioengineering
at the National Institutes of Health, in the Department of Health and Human Services
Bethesda, MD

BACKGROUND:
The laboratory on Quantitative Medical Imaging (QMI), NIBIB, NIH [https://www.nibib.nih.gov/labs-at-nibib/quantitative-medical-imaging](https://www.nibib.nih.gov/labs-at-nibib/quantitative-medical-imaging) aims to discover new MRI biomarkers and to overcome obstacles to the clinical translation of existing potential biomarkers for characterizing organ anatomy and physiology across the lifespan in health and diseases. We have a long history of methodological contributions, primarily in diffusion MRI and we continue to research integrated strategies for acquisition, reconstruction, and post-processing of quantitative MRI data to be used for personalized medicine.

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 3 T and 7 T human scanners and 4.7 T, 7 T, 9.4 T and 11.7 T animal scanners.

POSITION DESCRIPTION:
We are seeking an innovative and results-oriented MR physicist or engineer to join our team as a Staff Scientist to take forward QMI’s MRI research for the development of improved and novel MRI acquisition approaches. We have procured a high-performance head gradient insert coil which provides significantly higher slew rates and gradient amplitudes than can be achieved with a standard clinical MRI system. We are currently operating a prototype gradient coil unit which has been successfully integrated into a General Electric MR750 3T MRI scanner and is fully operational with the system, and we are expecting to receive a finished production version of the coil in the near future. We have also procured a field camera to dynamically measure the in-bore magnetic fields and eddy currents arising from the use of diffusion and imaging gradients during MRI. The field camera will operate on both GE and Philips scanners. The successful candidate will be the primary leader for the research programs involving image acquisition tasks using this gradient insert coil, the field camera, and other scanners available at NIH, including Siemens scanners. She/He will be encouraged to conduct innovative research, including proposing self-initiated projects that will be consistent with the overarching goals of QMI.

DESIRABLE QUALIFICATIONS:
We are looking for a candidate with MR Physics and/or MR Systems Engineering skills with a minimum of 3 years post-doctoral experience in academia or industry
to develop the optimized pulse sequences and image reconstruction software needed to exploit the opportunities provided by the head gradient coil and field camera. Tasks may include design of pulse sequences, pulse sequence programming including design and implementation of custom gradient waveforms; development of image reconstruction code; and project management. Strong MR Physics knowledge and expertise in pulse sequence development is essential. Experience with signal processing, image reconstruction, and system control is highly desirable.

Other important qualifications include: Ability to work independently proposing creative solutions to problems, a record of first-authored or senior-authored peer reviewed publications in the field of expertise, ability and interest to interact effectively with colleagues with very different expertise and backgrounds, as well as good verbal and written communication skills.

**BENEFITS:** Full federal benefits, including salary, leave, health and life insurance, long-term care insurance, retirement, and savings plan (401(k) equivalent), will be provided. Salary is competitive and commensurate with research experience and accomplishments.

**POSITION LOCATION:** NIH Campus, Bethesda, MD, USA

**TO APPLY:**
Interested individuals should send a cover letter, curriculum vitae and bibliography, a brief summary of research interests and accomplishments, and the names and addresses of three references to: Dr. Carlo Pierpaoli pierpaoc@nih.gov. The position will be open until filled.

Additional information about the position can be found at: https://hr.nih.gov/jobs/search/scientific/job-52061