**Project Scientist Position - Applications of Unified Shim-RF Technology**

**Postdoctoral Scientist Position - Applications of Unified Shim-RF Technology**

Biomedical Imaging Research Institute (BIRI) at Cedars-Sinai is recruiting two positions, one project scientist and one postdoctoral scientist. Cedars-Sinai Medical Center, affiliated with UCLA, is a world-leading hospital and is currently ranked #7 nationally on the Best Hospitals Honor Roll ([Introduction to Cedars-Sinai](https://www.cedars-sinai.org/)). BIRI is one of leading MRI research groups with a central focus on developing and applying novel imaging technologies to today’s most pressing translational research and clinical questions. BIRI has been constantly growing into a team of 70 onsite personnel including research and clinician scientists, technical and support staff, postdoctoral scientists and doctoral students. BIRI has two full-time on-site MRI scientists from Siemens Healthcare.

BIRI Research Core Facility houses a state-of-the-art 3T whole-body scanner (Siemens MAGNETOM Vida), a whole-body PET/MR system (Siemens Biograph mMR) and Bruker BioSpin 9.4T small animal scanner, all dedicated to research. A 7T MRI human scanner (Siemens Terra) is expected to be installed. Our research and clinician scientists collaborate closely with physicians to bring together technical and clinical expertise in areas such as cardiology, neurology, and oncology imaging. ([Introduction to BIRI](https://www.cedars-sinai.org/))

The candidates will join an interdisciplinary research program and work in an exciting, new growing field in MRI. You will focus on data acquisition and processing and publications about various imaging applications throughout the human body by leveraging our completed novel MR hardware platform, which enables data acquisition in new ways previously impossible. The candidate will work closely with the MR technical team led by **Dr. Debiao Li** who is the founding director of BIRI. Dr. Li is a world-renowned MR physicist and is past president of the International Society for Magnetic resonance in Medicine (ISMRM). The candidate will work synergistically with the MR Hardware team led by Dr. Hui Han who is the Director of MR Engineering. ([MRI Engineering Laboratory Research Lab | Cedars-Sinai](https://www.cedars-sinai.org/)) Dr. Han is the developer of “iPRES” MR coils for combining B0 shimming and RF detection into a single array, an impactful technology. The MRI Engineering Laboratory comprises a newly constructed lab space (2,000 sq. ft.) in the iconic Pacific Design Center in West Hollywood and...
a secondary lab space (150 sq. ft.) in Imaging Core Facility. Dr. Han is recently elected to Secretary of the Governance Committee for the ISMRM MR Engineering Study Group, who will rotate to the chair in 2023-2024 and organize the first international ISMRM Workshop on MR Engineering in 2023. Currently he also serves as the Program Chair of Overseas Chinese Society for Magnetic Resonance in Medicine (OCISMRM).

The projects are funded by NIH under a collaboration effort led by Drs. Debiao Li, Hui Han, Andrew Maudsley, and Hyunsuk Shim. Ongoing projects are highly supported and anticipated by major MRI vendors as it solves major limitations of current MRI scanners and thus advances the field.

**Desirable background and skills** may include MRI scanner experience, image acquisition and processing, MRI physics, pulse sequence development, image reconstruction, or programming. Hands-on experiences with acquisition, processing and analysis of MRI data is essential. Candidate should have a **strong motivation to publish** with a proven track of record. **Experiences in hardware development are not required.** Pulse sequence development and/or MRI reconstruction, particularly in the Siemens IDEA environment is a plus. The candidate will benefit from a large BIRI group full of MR experts in pulse sequence development, image reconstruction, motion correction and artificial intelligence.

In a larger context, MR hardware is the basis underpinning data acquisition and image processing. Historically, MRI has been advanced by major hardware improvements such as multichannel RF detection and transmission and increased magnetic field strengths. In recent a decade, B0 shimming using localized coils becomes a rising trend in the society and combined B0 shim and RF receive arrays have drawn considerable attention. Our team has made pioneering contributions in this new field and is currently supported by multiple NIH grants on applications of the coil technology to body, cardiac and brain imaging. Our major effort is directed toward creating new capabilities of the existing MRI system, through developing clinically viable tools to advance the precision, fidelity, sensitivity and resolution of imaging.

**Overview of Local B0 Shimming Hardware and Techniques** (Login is required to access 2020 ISMRM lectures)

Depending on qualifications, you will be provided with a generous compensation package. Of note, the positions have great opportunities to grow. The new research field holds multiple exciting new research opportunities. Young scientists with high ambition are especially encouraged to apply as we anticipate this position to become independent. You will be offered guidance to develop your own grants (e.g., NIH K Awards) that can benefit from our innovative MR hardware program well-funded by NIH. BIRI has a strong track of record in cultivating the next generation of leaders in biomedical imaging.

Interested applicants should forward a curriculum vitae with a brief statement of research interests & career goals to **Dr. Debiao Li** (debiao.li@cshs.org) and Dr. Hui Han (hui.han@cshs.org) and feel free to discuss about various career opportunities or directly apply on the website:
