

UT Southwestern Medical Center
Advanced Imaging
Research Center

Two faculty positions (open rank) in Neuroimaging methods development

The Advanced Imaging Research Center (AIRC) at the UT Southwestern Medical Center in Dallas / Texas / US invites applications for two faculty positions in neuroimaging

Head of neuroimaging (tenured Associate or Full Professor)
Junior faculty position (tenure-track Assistant Professor)

in the field of methodological development for human neuroimaging exploiting existing resources such as ultra-high-field MRI and a state-of-the-art neuroimaging 3T with strong gradients. The global aim is to fully develop 3T and especially 7T human MRI for neuroscientific applications as part of a larger neuroscience initiative at UTSW.

Potential topics include but are not limited to the development of innovative acquisition and analysis methods for human 3T and 7T neuroimaging application in the area of (I) functional MRI (i.e. ultra-high resolution/layer specific, novel analysis algorithms, distortion free acquisition); (II) diffusion weighted MRI (i.e. advanced modelling, model validation, spinal cord / heart); (III) susceptibility weighted (SWI), quantitative (T1/T2/MT) and anatomical (morphometry) MRI (i.e. processing and quantification, motion correction, parallel transmission); (IV) perfusion and angiography MRI and (V) machine-learning based reconstruction and analysis approaches. Integration of neuro MRI with complementary functional neuroimaging methods such as simultaneous EEG or PET or cross-validation against invasive methods to enhance the physiological interpretation of neuroimaging contrasts is also a topic of great interest.

Since its creation in 2005, the AIRC has established a track record of excellence in metabolic imaging including the development of MRI contrast agents, a hyperpolarization program, magnetic resonance spectroscopy as well as the investigation of tissue extracts by NMR after ¹³C labelled isotope infusion. Due to the recent establishment of the O'Donnell Brain Institute at UTSW and to better support an active clinical and basic science neuroimaging community at UTSW, UTD and UTA we aim to develop a strong MRI neuroimaging methodology expertise to complement the existing focus. UTSW has an international reputation in clinical and basic science excellence. There have been six Nobel Prize recipients since 1985.

AIRC has provided access to imaging equipment for faculty and students at the three University of Texas academic institutions in north Texas to advance human imaging studies and translational research in animals. The AIRC currently consists of 10 core faculty and more than 20 adjunct faculty and is expanded by about 5 core faculty in near future. AIRC is equipped with three small animal MR scanners (4.7T, 7T, 9.4T), three human research-only 3T MR scanners (Philips Ingenia, Siemens Prisma, GE 750w), one human 7T MR scanner (Philips), two hyperpolarization setups (HyperSense for preclinical and SpinLab for human application), 7 NMR spectrometers and a MRI contrast agent chemistry lab. The instrumentation inside the AIRC is undergoing a major upgrade that includes the installation

of a parallel transmission system, a major upgrade of the spectrometer, receive channels and B₀ shimming hardware and extended multi-nuclear capability at the human 7T. In the nearby Radiology Department, there is access to a cyclotron for producing radiotracers, small animal and human PET/CT and SPECT/CT scanners, bioluminescence and fluorescence imaging for rodents and to a highly focused ultra-sound (HIFU) system integrated small animal MRI. The installation of a new generation UHF human MRI possibly > 7T (AIRC), integrated human PET-MRI and MRI-HIFU systems (Radiology) and an integrated MR-LINAC (Radiation Oncology) are foreseen in future.

Applicants for these positions should have a strong scientific record of accomplishment in neuroimaging methods development including novel acquisition and analysis approaches and/or innovative approaches to validate neuroimaging contrasts supported by respective publications and grants. Experience in supervising graduate students and/or postdoctoral researchers is preferred. Applicants should have a degree in electrical engineering, physics, computational science, biomedical engineering or applied mathematics. Experience in either MRI sequence development or the development of comprehensive data analysis pipelines is required. Faculty are expected to develop an independent, externally-funded research program and actively engage with clinical and basic research faculty across campus to apply the latest neuroimaging technologies to probe human brain function in health and diseases.

The positions are available immediately and the search is going to continue until suitable candidates are found. The rank (assistant/associate/full) is subject to negotiation and depends on the previous experience and track record of accomplishment of the candidate. The offer will include an internationally competitive start-up package and an attractive salary. Ideally, one tenured full or associate professor and one tenure-track assistant professor with complementary research programs will be selected.

UT Southwestern Medical Center is an Equal Opportunity/Affirmative Action Employer. Women, minorities, veterans and individuals with disabilities are encouraged to apply.

Applications should include a letter of interest, a curriculum vitae, a list of publications (peer-reviewed original articles; review articles; book chapters; conference contributions; patents; other), a list of grants (please clearly distinguish grants as PI, as Co-PI and as person funded by the grant); a list of supervised students (Bachelor, Master, PhD) and PostDocs; a comprehensive summary of past research experience and future research interests (max 4 pages); PhD and Master certificates and respective transcripts; PDF copies of 5 most important publications and three references (contact details only).

All materials should be sent **electronically as a single PDF** file to Anke Henning, Director, Advanced Imaging Research Center, UT Southwestern Medical Center, Dallas, Texas, US: Anke.Henning@UTSouthwestern.edu.