Advanced Image Processing & Biomedical Engineering to Improve Outcomes in Pediatric Cardiology

A postdoctoral position is available in the Pediatric Cardiology MRI Imaging Lab of the Department of Pediatrics located in Children’s Medical Centre at UT Southwestern Medical Center to undertake research related to advanced image processing of cardiac magnetic resonance. In particular, we will fuse hemodynamic measurement and multimodality imaging techniques & implement 3-d printing techniques to simulate material properties to give the highest fidelity simulations of anatomy in order to plan cardiac surgery and interventions. Once informed by this, the natural extension of this work will be to develop closed silicon systems with mechanical simulation of flow, which can be used for planning new techniques, delivering devices and training. We will also work with advanced MRI sequence design to allow more intricate geometric computational analyses. In particular, we will interrogate the ability of principal component analysis of ventricular geometry with the aim of developing more sensitive biomarkers of cardiac function. This would allow early intervention to avoid heart failure in a variety of conditions.

The ideal candidate must have an advanced degree (Ph.D. or equivalent), skills in advanced imaging processes and MATLAB/IDL. Experience in surgical simulation, cardiac imaging or additive manufacturing techniques may be helpful. Primary investigations will use state-of-the art dual-transmit, whole-body, digital 1.5T MRI scanner, a variety of additive manufacturing resources and further support from the Department of Radiology and the Advanced Imaging Research Center at UT Southwestern Medical Center. There will be opportunities to develop additional research initiatives related to pediatric cardiology imaging sciences at other 3T scanners and multimodality imaging techniques. Competitive benefits and salary are on the NIH pay scale. Qualified applicants should send a current CV and three references to:

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