# Postdoctoral Position in Computational 4D Flow MRI Image Analysis
Northwestern University

Overview: The Laboratory for Personalized and Integrative Computational Cardiovascular Imaging (PIC-CVI) of Dr. Mohammed Elbaz, Ph.D. in the Radiology Department of Northwestern University, seeks a full-time, postdoctoral researcher with expertise in medical image analysis and 4D Flow MRI. The laboratory research focuses on developing novel advanced computational MRI analysis techniques to enable personalized & integrative comprehensive assessment of complex cardiovascular diseases. This is achieved by employing advanced interdisciplinary computational imaging techniques spanning computer science, cardiovascular imaging, image analysis, applied fluid dynamics, and translational cardiovascular clinical research. The lab's developed methods are utilized to help develop novel diagnostic & predictive markers for better risk stratification in adult and congenital cardiovascular disease. Primary research interest for this position is developing novel computational analysis techniques for cardiovascular 4D Flow MRI. This position will include, but not be limited to, working on an NIH-funded project for the further developments and large patient-cohort utilization of the 4D virtual catheter (vCath) technology invented in the lab (See: https://www.piccvilab.northwestern.edu/4d-vcath/).

4D vCath: Personalized Virtual Catheter
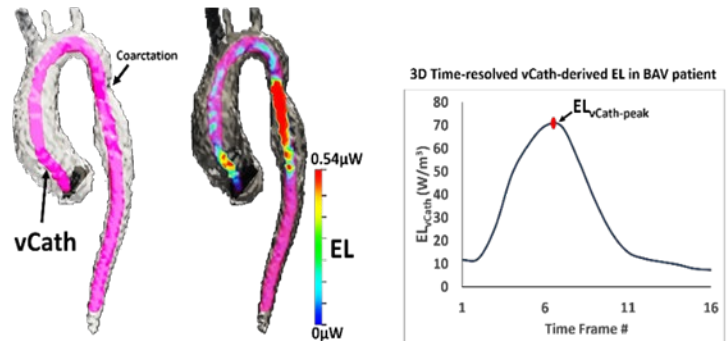
NIH-Funded

Qualifications: We are seeking a talented and enthusiastic postdoctoral researcher with a Ph.D. in computer science, medical image analysis, physics, mechanical/electrical engineering, or a closely related field. Prior working experience in 4D Flow MRI, medical image analysis, and interdisciplinary translational cardiovascular imaging research is highly desirable. A strong background in fluid dynamics, mathematical modeling, multi-dimensional medical image analysis, and advanced dimensionality reduction techniques is a plus. The applicant should be highly motivated, demonstrate excellent interpersonal and communication skills, track record of high-quality publications (journal articles, conference papers, abstracts), and scientific programming skills, including Matlab. The projects strongly emphasize method development but also require subsequent clinical application/translation in patient data. The position calls for interaction with clinical collaborators, taking the lead in writing papers, involvement in grant writing, and mentoring students.

Recent Ph.D. graduates are encouraged to apply. The position is initially for one year with possible extensions upon satisfactory performance.

To apply: Qualified applicants should send an email with an attached CV, cover letter explaining their interest and qualifications for the position to Dr. Elbaz to mohammed.elbaz@northwestern.edu.

Lab website: https://www.piccvilab.northwestern.edu

Environment: The MRI research group at Northwestern University is multidisciplinary, including MR physicists, computer scientists, engineers, and cardiovascular diagnostic and interventional radiologists. Additional expertise spans the fields of informatics, biostatistics, cardiology, neuroradiology, and cardiac surgery, among others. The Center for Translational Imaging, an imaging core facility at Northwestern University's Chicago campus, houses two MR systems (1.5T Aera and 1.5T Sola) entirely dedicated to cardiovascular imaging research. Further, >15 clinical MR scanners located within Northwestern Memorial Hospital and Lurie Children's Hospital and close research collaboration with Siemens Cardiovascular MR Research and Development provide the unique opportunity to translate novel cardiovascular imaging techniques into clinical applications.

Northwestern University is an Equal Opportunity, Affirmative Action Employer of all protected classes, including veterans and individuals with disabilities. Women, racial and ethnic minorities, individuals with disabilities, and veterans are encouraged to apply. Hiring is contingent upon eligibility to work in the United States.