

PostDoctoral position opening in dynamic PET reconstruction

Department of Radiology, University of Pennsylvania

We have an opening for a postdoctoral researcher with experience and skills in the area of PET image reconstruction and data quantification. We have several exciting new projects involving novel PET reconstruction techniques and approaches, including dynamic and 4D TOF PET reconstructions for scanners with a variety of geometries for both clinical and specialized research applications. Funding is available immediately for the postdoctoral position.

Duties: The postdoctoral researcher will work together with our team on research projects involving image reconstruction and data-correction problems in Positron Emission Tomography. Specific tasks will include development, implementation, investigation, and evaluations of novel dynamic and 4D TOF reconstruction approaches within the DIRECT (Direct Image Reconstruction for TOF data) framework, including direct and multi-frame approaches. This may include resolution modeling, spatial and temporal regularization, and motion and other data corrections of dynamic whole-body data. Duties in general will include implementation, optimization and evaluation of new methods, performing studies using simulated and experimental data, and writing computer programs for testing new methods and their application into clinical practice. The postdoctoral researcher is expected to work in a team of several faculty members with other postdocs and students, write papers, present results at conferences, and participate in the research seminars within our group.

Required skills: Ph.D in medical physics, computer science, or related field, with solid mathematical background for the development of image reconstruction and analysis algorithms. Research experience in PET image reconstruction, data corrections, and data analysis is desirable. The candidate should be able to work independently within a team environment, and have outstanding programming and algorithm implementation skills in lower level languages (such as C++) and higher level tools (such as Matlab). Good command of English is required.

Group: Our Physics Instrumentation lab has extensive experience and track record (40 years) in development of state-of-the-art PET instrumentation including detectors, electronics, and novel data correction and reconstruction tools. Our lab is within a clinical department facilitating collaborations with clinical and research staff as well as opportunities to apply our techniques in both clinical and research settings. We have also a long history of industry collaborations enabling transfer of developed technology and tools into commercial scanners. Our group is part of the EXPLORER consortium in which we are developing a very long axial field-of-view PET scanner that we expect to be operational in a year. The prototype scanner will be sited in clinical research space at Penn, thereby enabling translation to human studies. This project in particular offers many exciting challenges and opportunities for implementing and evaluating new reconstruction methodologies.

Interested individuals should send a CV, letter of interest, and a list of three references to Samuel Matej; please send me an email if you would like to arrange a meeting at the conference.

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