Mootaz Eldib

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EDUCATION

City College of New York — **New York, NY**
PhD in Biomedical Engineering — **01/13 – current**

University of Rochester — **Rochester, NY**
MS in Biomedical Engineering — **08/08 – 10/10**

Louisiana Tech University — **Ruston, LA**
BS Biomedical Engineering-Electrical Engineering Concentration — **08/06 – 05/08**

WORK EXPERIENCE

Mount Sinai Medical Center (supervisor: Zahi A. Fayad, PhD) — **New York, NY**
Sr. Associate Researcher — **07/12 – Present**

My research is focused on the clinical translation of the recently introduced PET/MR scanner. In particular, I am currently working on the development, implantation, and evaluation of attenuation, motion, and image reconstruction algorithms that would set this novel technology apart and accelerate its clinical acceptance. I have hands on experience with both the Siemens Biograph mMR and Philips Ingenuity TF PET/MR systems in clinical and research settings. My research is focused on cardiovascular (e.g. carotid and coronary imaging) and Yttrium-90 liver imaging applications.

Siemens Healthcare - Molecular Imaging (supervisor: David Faul, PhD) — **Knoxville, TN**
Intern/co-op Systems Engineering — **03/11 – 06/12**

I was part of an international team that launched the first simultaneous PET/MRI scanner. My duty was to develop, implement, and test technical improvements to the image quality of the PET component of the scanner. Specifically, I worked on the development of methods for PET attenuation correction for MR surface coils.

University of Rochester - Dean Lab (supervisor: David Dean, PhD) — **Rochester, NY**
Research Assistant — **08/08 – 03/11**

For my Master thesis, I studied the rheological and biomechanical properties of lung cells when subjected to stretch. This work entailed various wet lab experiments (e.g. tissue culture, Western blots, etc.), fluorescent microscopy, and implementation of image processing algorithms (particle tracking in time-lapse microscopy images).

PUBLICATIONS

- *Feasibility of 18F-FDG Radiotracer Dose Reduction in Simultaneous Carotid PET/MR Imaging*
  Mootaz Eldib, Jason Bini, Olivier Lairez, David Faul, Niels Oesingmann, Zahi Fayad, Venkatesh Mani
  American Journal of Nuclear Medicine and Molecular Imaging, 2015. In Press
- *Markerless Attenuation Correction for Carotid MRI Surface Receiver Coils in Combined PET/MR Imaging*
  Mootaz Eldib, Jason Bini, Philip Robson, Claudia Calcagno, David Faul, Charalampos Tsoumpas, Zahi Fayad
  Physics In Medicine and Biology, 2015
- *Quantitative Carotid PET/MR imaging: Clinical Evaluation of MR-Attenuation Correction Versus CT-Attenuation Correction in 18F-FDG PET/MR Emission Data and Comparison to PET/CT*
  Jason Bini, Philip Robson, Claudia Calcagno, **Mootaz Eldib**, Zahi Fayad
  American Journal of Nuclear Medicine and Molecular Imaging, 2015
- *Simultaneous Carotid PET/MR: Feasibility and Improvement of MR-based Attenuation Correction*
  Jason Bini, **Mootaz Eldib**, Philip M. Robson, Claudia Calcagno, Zahi Fayad
  The International Journal of Cardiovascular Imaging, 2015
- *Inflammation, Atherosclerosis, and Coronary Artery Disease: PET/CT for the Evaluation of Atherosclerosis*
  Nadia Ali, **Mootaz Eldib**, Zahi Fayad, and Vankatesh Mani
  Clinical Medicine Insights: Cardiology, 2015
- *Attenuation Correction for Flexible MR Coils in Combined MRI/PET Imaging*
  Mootaz Eldib, Jason Bini, Claudia Calcagno, Philip Robson, Vankatesh Mani, and Zahi Fayad
  Investigative Radiology, 2014
- *Cyclic Stretch of Alveolar Epithelial Cells Alters Cytoskeletal Micromechanics*
  Mootaz Eldib and David Dean
  Biotechnology and Bioengineering, 2011
- *Kinetics and Thermodynamics of Salt Dependent T7 Gene 2.5 Protein binding to Single- and Double-Stranded DNA*
  Leila Shorki, Boriana Marintcheva, **Mootaz Eldib**, Andreas Hanke, Charles Richardson, and Mark Williams
  Nucleic Acids Research, 2008

SELECTED PRESENTATIONS

- *MR Guided Motion Correction for ^{90}Y Imaging Using a Simultaneous PET/MRI Scanner*
  Mootaz Eldib, Niels Oesingmann, David Faul, Jason Bini, Lale Kostakoglu, Karin Knesaurek, Zahi Fayad
  IEEE-MIC, Submitted, 2015
- *Feasibility of 18F-FDG Radiotracer Dose Reduction in Simultaneous Carotid PET/MR Imaging*
  Mootaz Eldib, Jason Bini, Olivier Lairez, David Faul, Niels Oesingmann, Zahi Fayad, Venkatesh Mani
  SNMMI, 2015
- *Optimizing PET/MRI ^{90}Y Post-Therapy Imaging Using PET/CT as a Standard*
  Karin Knesaurek**, Mootaz Eldib**, Zahi Fayad, Lale Kostakoglu
  SNMMI, 2015
- *Comparison of PET/MRI and PET/CT Studies in Liver Selective Internal Radiation Therapy with ^{90}Y Microspheres*
  Karin Knesaurek, **Mootaz Eldib**, Zhuangyu Zhang, Jason Bini, Sherif Heiba, Zahi Fayad and Lale Kostakoglu
  SNMMI, 2014
- *Attenuation Correction for Flexible MRI Coils Using the Ultra-short Echo Time Sequence in MR/PET Imaging*
  Mootaz Eldib, Jason Bini, Philip Robson, David Faul, and Zahi Fayad.
  ISMRM, 2014
- *Attenuation Correction for Flexible MR Coils in Combined MRI/PET Imaging*
  Mootaz Eldib, Jason Bini, Claudia Calcagno, Philip Robson, Vankatesh Mani, and Zahi Fayad.
  PET SPECT MR Conference, 2013
- *UTE- and Dixon-based MR-Attenuation Correction for MR/PET Quantification in Animal Abdomen Imaging*
  Jason Bini, Wouter Nijhof, Phil Robson, Mark Lobatto, **Mootaz Eldib**, Willem Mulder, Zahi A. Fayad.
  PET SPECT MR Conference, 2013
- *Verification of the MR Components Attenuation Maps for an PET/MRI Scanner with Simultaneous Acquisition*
  Mootaz Eldib, David Faul, John Pawlak, and Niraj Doshi
  SNMMI 2012
- *A Method for Estimating the Attenuation Correction for the MR Hardware of an MR/PET Scanner*
  Mootaz Eldib, David Faul, Ralf Ladebeck, John Pawlak, and Niraj Doshi
  SNMMI, 2012
- *Cyclic Stretch-Induced Gene Delivery May Result from Decreased Cytoplasmic Stiffness*
  Mootaz Eldib and David Dean
  American Society of Gene Therapy, 2009
- *Thermodynamics and Kinetics of DNA Binding Proteins Probed by DNA Overstretching*
  Mootaz Eldib and Andreas Hanke
  SPRING Meeting, 2005

QUALIFICATIONS AND SKILLS

- **PROGRAMMING SKILLS:** Matlab, C++, ITK, VTK, Mathematica, IDL
- **LAB SKILLS:** tissue culture, light and confocal microscopy, gene transfection/electroporation, siRNA, gel electrophoresis, PCR, microinjection, and DNA/RNA extraction

RESEARCH INTERESTS

- Development and validation of biomedical image processing algorithms to solve clinical problems
- Clinical translation of technical developments using state-of-the-art radiological tools and scanners (e.g. PET/MR)
- Machine learning algorithms and their use in biomedical research
- Development and implementation of image reconstruction algorithms
- Statistical data analysis and processing

HONORS & AWARDS

- Best poster award MRA Club
- Research Enhancement Scholarship
- DNA Structure Study Scholarship
- Dean's Honor Role (5 semesters)
- President's Honor Role (2 semesters)
- National Dean's List