Ye (Gary) Li

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Education

Johns Hopkins University — **Baltimore, MD**
Ph.D., Electrical and Computer Engineering — *Aug. 2014 - Dec. 2020 (exp.)*
Thesis fields: AI for medical imaging, Medical image analysis, Task-based image quality assessment

Johns Hopkins University — **Baltimore, MD**
M.S.E., Electrical and Computer Engineering — *May 2016*

University of Illinois at Urbana-Champaign — **Urbana, IL**
B.S., Radiological Engineering — *May. 2014*
Minor: Physics

Work Experience

Johns Hopkins University — **Baltimore, MD**
Graduate Research Assistant — *Aug. 2014 - present*

- Developed a deep learning-based anthropomorphic model observer for image quality evaluation of multi-orientation, multi-slice image sets with respect to a clinically realistic 3D defect detection task
- Co-developed a deep learning-based image registration method for creating highly anatomically detailed anthropomorphic phantoms
- Co-developed a deep learning-based segmentation method for quantitative bone SPECT
- Developed an image database to investigate factors affecting image quality in pediatric molecular imaging
- Generated the data needed by standards bodies to develop next-generation dosing guidelines for pediatric molecular imaging

IBM Research - Almaden — **San Jose, CA**
Deep learning Research Intern — *May 2018 - Aug. 2018*

- Developed a local image similarity evaluation algorithm for chest X-ray images using Siamese network
- Developed a nodule detection algorithm for chest X-ray images using organ-ROI-confined attention map
- Conducted experiments for comparing classification performance by using one multi-label classifier vs. multiple binary classifiers for chest X-ray images
- Work resulted a patent filed within IBM

Brigham and Women's Hospital — **Boston, MA**
Deep learning Research Intern — *June 2017 - Aug. 2017*

- Applied U-net and FusionNet to segment cross-sections of muscle fibers in histopathology image
- Work published in a journal paper

Oak Ridge National Laboratory — **Oak Ridge, TN**
Software Development Intern — *June 2013 - Aug. 2013*

- Developed a virtual reality software that allows users to virtually visit a laboratory using Unity3D, C#, and Javascript

Journal Publications

Preprints

1. **Y. Li**, J. Chen, J. Brown, S.T. Treves, X. Cao, F.H. Fahey, G. Sgouros, W.E. Bolch, and E.C. Frey. "DeepAMO: A Multi-slice, Multi-view Anthropomorphic Model Observer for Visual Detection Tasks Performed on Volume Images", Under review JMI's special section: Perspectives in Human and Model Observer Performance
2. J. Chen, **Y. Li**, Y. Du, and E.C. Frey. "Generating Anthropomorphic Phantoms Using Fully Unsupervised Deformable Image Registration with Convolutional Neural Networks", Under review Medical Physics

3. J. Chen, **Y. Li**, S.P. Rowe, H.W. Chung, Y. Du, L.B. Solnes, M.A. Jacobs, and E.C. Frey. "Learning Fuzzy Clustering for SPECT Segmentation via Convolutional Neural Networks", Under review IEEE RPMS

Articles in Press

1. J. Brown, B. Sexton-Stallone, **Y. Li**, E.C. Frey, S.T. Treves, F.H. Fahey, D. Plyku, X. Cao, G. Sgouros, and W.E. Bolch. "Body Morphometry Appropriate Computational Phantoms for Dose and Risk Optimization in Pediatric Renal Imaging with Tc-99m DMSA and Tc-99m MAG3", Physics in Biology and Medicine, 2020
2. J. Brown, B. Sexton-Stallone, **Y. Li**, E.C. Frey, S.T. Treves, F.H. Fahey, D. Plyku, X. Cao, C.H. Choi, C. Kim, G. Sgouros, J. P. Aris, and W.E. Bolch. "Dosimetric considertations of 99mTc-MDP uptake within the epiphseal plates of the long bones of pediatric patients", Physics in Biology and Medicine, 2020
3. **Y. Li**, S. O'Reilly, D. Plyku, S.T. Treves, F.H. Fahey, Y. Du, X. Cao, J. Brown, G. Sgouros, W.E. Bolch, and E.C. Frey. "Current Pediatric Administered Activity Guidelines for 99mTc-DMSA SPECT Based on Patient Weight Do Not Provide the Same Task-based Image Quality", Medical Physics, 2019
4. **Y. Li**, Z. Yang, Y. Wang, X. Cao, X. Xu. "A Neural Network Approach to Analyze Cross-sections of Muscle Fibers in pathological images," Computers in Biology and Medicine", Computers in Biology and Medicine, 2018
5. **Y. Li**, S. O'Reilly, D. Plyku, S.T. Treves, Y. Du, F.H. Fahey, X. Cao, A.K. Jha, G. Sgouros, W.E. Bolch, and E.C. Frey . "A Projection Image Database to Investigate Factors Affecting Image Quality in Weight-based Dosing: Application to Pediatric Renal SPECT", Physics in Medicine and Biology, 2018
6. E. Ghodoosi, C. D'Alessandria, **Y. Li**, A. Bartel, M. Köhner, V. Höllriegl, N. Navab, M. Eiber, W. Li, E.C. Frey, S. Ziegler. "The Effect of Attenuation Map, Scatter Energy Window Width, and Volume of Interest on the Calibration Factor Calculation in Quantitative 177Lu SPECT Imaging: Simulation and Phantom Study", Medica Physica, 2018
7. F.H. Fahey, A.B. Goodkind, D. Plyku, K. Khamwan, S.E. O'Reilly, X. Cao, E.C. Frey, **Y. Li**, W.E. Bolch, G.Sgouros, S.T. Treves. "Dose Estimation in Pediatric Nuclear Medicine", Seminars in Nuclear Medicine, 2017

Coursework

ECE 651: Random Signal Analysis
ECE 435: Digital Signal Processing
ECE 433: Medical Image Analysis
ECE 414: Image Processing and Analysis
ECE 432: Medical Imaging Systems
CS 476: Machine Learning
CS 485: Probabilistic Models of the Visual Cortex
ECE 434: Modern Biomedical Imaging Instrumentation and Techniques
ECE 648: Compressed Sensing and Sparse Recovery
AMS 431: Introduction to Statistics

Fellowships & Awards

Fully Funded Graduate Assistantship 2014 - Present
Division of Medical Imaging Physics, JHU SOM

ECE Graduate Fellowship 2014 - Present
ECE, JHU

Outstanding Undergraduate Research Award 2013
NPRE, UIUC

Teaching Experiences

Medical Image Analysis Fall 2017
Teaching Assistant (Prof. Jerry Prince)
Developed the course final project that covers inter-modality registration, segmentation, and visualization.

Image Processing and Analysis Fall 2015
Teaching Assistant (Prof. John Goutsias)

Skills

Programming Languages: C/C++, Python
Scripting Language: Bash, Matlab, LaTeX
Libraries: Tensorflow, Keras