Xueqi Guo

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Education

Yale University — **New Haven, CT**
Ph.D. in Biomedical Engineering — *Aug 2019 - May 2024 (Expected)*

- GPA: 4.0/4.0 (All Honors); Graduate Research Assistant

Shanghai Jiao Tong University — **Shanghai, China**
B.S.E. in Biomedical Engineering; Minored in Music — *Sept 2015 - July 2019*

- GPA: 3.75/4.0 (88.15/100), Ranking: 4/56

Experiences

Siemens Healthineers — **Knoxville, TN**
AI Software Engineering Intern — *June 2023 - Aug 2023*

- Generative data harmonization of dynamic PET, clinical application research

Siemens Healthineers — **Malvern, PA**
Image Analytics Intern — *June 2022 - Aug 2022*

- Weakly supervised abnormal texture segmentation for interstitial lung diseases

Johns Hopkins University — **Baltimore, MD**
Undergraduate Research Intern — *July 2018 - June 2019*

- Low dose CT denoising and network response analyzation

Publications

Journal

- **X. Guo**, B. Zhou, X. Chen, M.-K. Chen, C. Liu, and N. C. Dvornek. MCP-Net: Introducing Patlak Loss Optimization to Whole-body Dynamic PET Inter-frame Motion Correction. *IEEE Transactions on Medical Imaging* ***(IF=11.0)***, 2023. [DOI]
- **X. Guo**, B. Zhou, D. Pigg, B. Spottiswoode, M. Casey, C. Liu, and N. C. Dvornek. Unsupervised deep learning inter-frame motion correction for whole-Body dynamic PET using convolutional long short-term memory in a convolutional neural network. *Medical Image Analysis* ***(IF=10.9)***, 2022. [DOI]
- **X. Guo**, J. Wu, M.-K. Chen, Q. Liu, J. Onofrey, Y. Pang, D. Pigg, M. Casey, N. Dvornek, and C. Liu. Inter-pass motion correction for whole-Body dynamic parametric PET imaging. *IEEE Transactions on Radiation and Plasma Medical Sciences (TRPMS),* ***(IF=4.4)***, 2022. [DOI]
- **X. Guo**, S. Tinaz, and N. C. Dvornek. Characterization of Early Stage Parkinson's Disease from Resting-state fMRI Data Using a Long Short-term Memory Network. *Frontiers in Neuroimaging,* 2022. [DOI]
- X. Chen, B. Zhou, H. Xie, **X. Guo**, J. Zhang, J. S. Duncan, E. J. Miller, A. J. Sinusas, J. A. Onofrey, and C. Liu. DuSFE: Dual-Channel Squeeze-Fusion-Excitation Co-Attention for Cross-Modality Registration of Cardiac SPECT and CT. *Medical Image Analysis* ***(IF=10.9)***, 2023.
- T. Miao, B. Zhou, J. Liu, **X. Guo**, X. Chen, M.-K. Chen, J. Wu, R. Carson, and C. Liu. Generation of Whole-Body FDG Parametric Ki Images from Static PET Images Using Deep Learning. *IEEE TRPMS* ***(IF=4.4)***, 2022. [DOI]
- B. Zhou, T. Miao, N. Mirian, X. Chen, H. Xie, Z. Feng, **X. Guo**, X. Li, S. K. Zhou, J. S. Duncan, and C. Liu. Federated Transfer Learning for Low-dose PET Denoising: A Pilot Study with Simulated Heterogeneous Data. *IEEE TRPMS* ***(IF=4.4)***, 2022. [DOI]

Conference

- **X. Guo**, B. Zhou, X. Chen, C. Liu, and N. Dvornek. MCP-Net: Inter-frame Motion Correction with Patlak Regularization for Whole-Body Dynamic PET. In the 25th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Singapore, Sept 18-22, 2022. (**Early acceptance top 13%**, Poster)
- **X. Guo**, M. Abdi, Y. Shinagawa, A. Jerebko, and S. Farhand. SEAM-STRESS: A weakly supervised framework for interstitial lung disease segmentation in chest CT. In the 20th IEEE International Symposium on Biomedical Imaging (ISBI), Cartagena de Indias, Colombia, Apr 18-21, 2023. (Virtual poster)
- **X. Guo**, L. Shi, X. Chen, Q. Liu, H. Xie, B. Zhou, Y.-H. Liu, R. Palyo, A. Liu, E. J. Miller, A. J. Sinusas, B. Spottiswoode, C. Liu, and N. C. Dvornek. Early-to-late frame conversion using a temporally informed GAN for cardiac dynamic PET motion correction. In Society of Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting, Chicago, IL, United States, June 24-27, 2023. (Oral)
- **X. Guo**, C. Liu, and N. Dvornek. A Patlak-regularized deep learning inter-frame motion correction framework for whole-body dynamic PET. In SNMMI Annual Meeting, Vancouver, BC, Canada, Jun 11-14, 2022. (Oral)
- **X. Guo**, B. Zhou, D. Pigg, B. Spottiswoode, M. Casey, C. Liu, and N. C. Dvornek. Inter-frame motion correction for whole-body parametric imaging using long short-term memory in a deep convolutional framework. In 2021 IEEE Medical Imaging Conference (MIC), Virtual, Oct 16-23, 2021. **(Mini Oral, 2nd Place Student Paper Award Poster Competition)**.
- **X. Guo**, J. Wu, M.-K. Chen, J. Onofrey, Y. Pang, D. Pigg, M. Casey, N. C. Dvornek and C. Liu. Inter-pass motion correction for whole-body dynamic parametric PET imaging. In SNMMI Annual Meeting, Virtual, Jun 11-15, 2021. (Poster)
- B. Zhou, Y.-J. Tsai, J. Zhang, **X. Guo**, H. Xie, X. Chen, T. Miao, Y. Lu, J. S. Duncan, and C. Liu. Fast-MC-PET: A Novel Deep Learning-aided Motion Correction and Reconstruction Framework for Accelerated PET. In the 28th international conference on Information Processing in Medical Imaging (IPMI), San Carlos de Bariloche, Argentina, June 18-23, 2023. (Poster)
- H. Xie, B. Zhou, X. Chen, **X. Guo**, S. Thorn, Y.-H. Liu, G. Wang, A. Sinusas, and C. Liu. Transformer-based Dual-domain Network for Few-view Dedicated Cardiac SPECT Image Reconstructions. In the 26th MICCAI, Vancouver, Canada, Oct 18-22, 2023. (**Early acceptance top 13%**)
- Q. Liu, T. Shi, P. Gravel, R. Fazzone-Chettiar, **X. Guo**, H. Xie, X. Chen, K. V. Laere, Y.-H. Liu, R. E. Carson, C. Liu, and Edward J. Miller. Dynamic Imaging and Tracer Kinetic Modeling of 18F-flutemetamol PET for ATTR Cardiac Amyloidosis Patients. In SNMMI Annual Meeting, Chicago, IL, United States, June 24-27, 2023. (Oral, 2nd Place Young Investigator Award)
- X. Chen, B. Zhou, H. Xie, **X. Guo**, Q. Liu, A. J. Sinusas, and Chi Liu. Deep Learning-Based Attenuation Map Generation for Low-Dose and Few- Angle Dedicated Cardiac SPECT. In SNMMI Annual Meeting, Chicago, IL, United States, June 24-27, 2023. (Poster)
- H. Xie, A. Velo, **X. Guo**, B. Zhou, X. Chen, Y.-J. Tsai, T. Miao, Q. Liu, A. J. Sinusas, and Chi Liu. Self-supervised Positron Range Correction for Dynamic Rubidium-82 Cardiac PET Imaging. In SNMMI Annual Meeting, Chicago, IL, United States, June 24-27, 2023. (Poster)
- X. Chen, B. Zhou, H. Xie, **X. Guo**, J. Zhang, A. Sinusas, J. Onofrey, and C. Liu. Dual-Branch Squeeze-Fusion-Excitation Module for Cross-Modality Registration of Cardiac SPECT and CT. In the 25th MICCAI, Singapore, Sept 18-22, 2022. (Poster)
- Q. Liu, Y.-J. Tsai, **X. Guo**, J.-D. Gallezot, M.-K. Chen, R. Carson, and C. Liu. Prompts-matched Deep Learning Denoising for Standard-Count and Low-Count Whole body Dynamic PET. In 2022 IEEE MIC, Milano, Italy, Nov 05-12, 2022. (Oral)
- Y.-J. Tsai, **X. Guo**, J. Onofrey, Y. Lu, K. Fontaine and C. Liu. Event-by-event non-rigid respiratory motion correction for multi-pass continuous-bed-motion whole-body parametric PET imaging. In 2021 IEEE MIC, Virtual, Oct 16-23, 2021. (Oral)
- Z. Liu, S. Thorn, J. Wu, **X. Guo**, P. G. de Rubio Cruz, R. Carson, A. Sinusas and C. Liu. Assessment

of lower extremities flow using dynamic Rb-82 PET: Acquisition protocols and quantification methods. In SNMMI Annual Meeting, Virtual, Jun 11-15, 2021. (Oral)

- G. J. Gang, **X. Guo**, J. W. Stayman. Performance analysis for nonlinear tomographic data processing. In 15th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine, Philadelphia, PA, United States, Jun 2-6, 2019. (Oral)
- G. J. Gang, K. Cheng, **X. Guo**, J. W. Stayman. Generalized prediction framework for reconstructed image properties using neural networks. In SPIE Medical Imaging, 2019: Physics of Medical Imaging, San Diego, CA, United States, Feb 16-21, 2021. (Oral)

Patent

- J. Zhao, Z. Wang, Q. Dai, **X. Guo**, H. Lin, X. Zhang, T. Xu. Preoperative auxiliary planning device based on virtual reality. China Patent CN110547869A.

Professional Activities

Journal Reviews

- IEEE TMI (IF=11.0)
- Neuropsychiatric Disease and Treatment (IF=3.2)

Conference Reviews

- MICCAI 2023
- The Workshop on Machine Learning in Clinical Neuroimaging (MLCN), in MICCAI 2022-2023
- MICCAI Educational Challenge, 2022-2023

Membership

- IEEE, MICCAI, SNMMI

Mentoring

- 2022-2023, Adam Liu, Amity High School student

Invited Talks

- *MCP-Net: Inter-frame Motion Correction with Patlak Regularization for Whole-Body Dynamic PET,* Connecticut Area Medical Physics Society Spring Meeting, May 2023.
- *MCP-Net: Inter-frame Motion Correction with Patlak Regularization for Whole-Body Dynamic PET,* Learn2Reg Workshop in MICCAI, Sept 2022.
- *MCP-Net: Inter-frame Motion Correction with Patlak Regularization for Whole-Body Dynamic PET,* Yale Department of Biomedical Engineering Seminar, Sept 2022.

Honors and Awards

- 2022 Yale Conference Travel Fellowship
- 2022 MICCAI NIH Participation Award
- 2022 Chinese American SNMMI Third Place Young Investigator Award
- 2021 IEEE MIC Fourth Place Christopher J. Thompson Best Student Paper Award
- 2021 IEEE MIC Trainee Grant
- 2021 MedHacks FastForward U Sponsor Prize; Track Prize Finalist **(Top 5)**
- 2019 Yale Ph.D. fellowship
- 2019 Outstanding Graduates of Shanghai Jiao Tong University **(Top 5%)**
- 2018 First-Class Academic Excellence Scholarship of Shanghai Jiao Tong University **(Top 2%)**

Projects

Old Timer: a polypharmacy assistant for seniors *MedHacks 2021*

- Built an integrated application to assist aged patients under polypharmacy.
- Constructed the core scheduler algorithm and the built-in drug characteristic dataset.

Adolescent Bone Age Prediction from Hand X-ray Images *Fall 2018*

- Implemented a deep learning network by Keras on TensorFlow backend including pre-trained VGG16 model and attention map generation.
- Modified the network structure by concatenating gender information with input batches and reduced the mean average prediction error from 13.70 months to 9.78 months.

Teaching

Yale BENG 352 Biomedical Signals and Images *Spring 2022; Spring 2021*
- Discussion section leader; assignment grader

Yale BENG 355L Physiological Systems Lab *Fall 2021*
- Lab leader

Skills

- Programming: Python (TensorFlow, Keras, PyTorch), Matlab, C#, C++, C, Java, JavaScript, LaTeX
- Languages: English, Mandarin Chinese, Japenese