# Xueqi Guo

✉ xueqi.guo@yale.edu     ☎ (203) 508-2857     🌐 gxq1998.github.io

## 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=13.828)*, 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=11.037)*, 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=4.44)*, 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=11.037)*, 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=4.44)*, 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=4.44)*, 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=13.828)
- 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