

EDUCATION

- **Yale University** New Haven, CT, USA
• *Ph.D. in Biomedical Engineering* Sep 2020 - Present
Thesis Committee: Professors [Chi Liu](#), [Albert Sinusas](#), [Richard Carson](#), [Xenophon Papademetris](#)
- **Yale University** New Haven, CT, USA
• *Master of Philosophy in Biomedical Engineering (awarded en route to Ph.D.)* Sep 2020 - May 2023
- **Yale University** New Haven, CT, USA
• *Master of Science in Biomedical Engineering (awarded en route to Ph.D.)* Sep 2020 - May 2023
- **Rensselaer Polytechnic Institute (RPI)** Troy, NY, USA
• *Bachelor of Science in Biomedical Engineering with Magna Cum Laude Honor* Sep 2016 - May 2020
GPA: 3.81/4.00; **Concentration:** Medical Imaging/Instrumentation; **Minor:** Psychology

EXPERIENCE

- **Yale Positron Emission Tomography (PET) Center, Yale** New Haven, CT, USA
• *Graduate Research Assistant* Sep 2020 - Present
 - SPECT/PET image reconstruction/analysis and cardiology. Advisor: [Chi Liu](#).
- **PET Physics Group, Siemens Healthineers** Knoxville, TN, USA
• *Summer Research Intern* Jun 2023 - Sep 2023
 - PET image physics and reconstruction. Monte-Carlo Simulation. Respiratory motion correction. Advisor: [Maurizio Conti](#).
- **AI-based X-ray Imaging System (AXIS) Lab, RPI** Troy, NY, USA
• *Undergraduate Research Intern* May 2018 - Sep 2020
 - CT image reconstruction/analysis. Few-view breast CT with [Koning Health](#) Advisor: [Ge Wang](#).

JOURNAL PUBLICATIONS

[\[Google Scholar Profile\]](#)

1. Bo Zhou, **Huidong Xie**, Qiong Liu, Xiongchao Chen, Xueqi Guo, Zhicheng Feng, S. Kevin Zhou, Biao Li, Axel Rominger, Kuangyu Shi, James S. Duncan and Chi Liu. FedFTN: Personalized Federated Learning with Deep Feature Transformation Network for Multi-institutional Low-count PET Denoising. **Medical Image Analysis**, 2023. [\[DOI\]](#)
2. Alexandre Velo, Peng Fan, **Huidong Xie**, Xiongchao Chen, Boutagy Nabil, Feher Attila, Albert Sinusas, Michael Ljungberg, and Chi Liu. $^{99m}\text{Tc}/^{123}\text{I}$ Dual-Isotope Correction for Self-Scatter, Down-Scatter, and Tailing Effect for a CZT SPECT with Varying Tracer Distributions. **IEEE Transactions on Radiation and Plasma Medical Sciences**, 2023. [\[DOI\]](#)
3. Xiongchao Chen*, Bo Zhou*, **Huidong Xie**, Xueqi Guo, Jiazhen Zhang, James S. Duncan, Edward J. Miller, Albert J. Sinusas, John A. Onofrey, and Chi Liu. DuSFE: Dual-Channel Squeeze-Fusion-Excitation Co-Attention for Cross-Modality Registration of Cardiac SPECT and CT. **Medical Image Analysis**, 2023. [\[DOI\]](#)
4. Tianshun Miao, Bo Zhou, Juan Liu, Xueqi Guo, Qiong Liu, **Huidong Xie**, Xiongchao Chen, Ming-Kai Chen, Jing Wu, Richard E. Carson, and Chi Liu. Generation of Whole-Body FDG Parametric Ki Images from Static PET Images Using Deep Learning. **IEEE Transactions on Radiation and Plasma Medical Sciences**, 2023. [\[DOI\]](#)
5. **Huidong Xie**, Zhao Liu, Luyao Shi, Kathleen Greco, Xiongchao Chen, Bo Zhou, Attila Feher, John C. Stendahl, Nabil Boutagy, Tassos C. Kyriakides, Ge Wang, Albert J. Sinusas, and Chi Liu. Segmentation-free PVC for Cardiac SPECT using a Densely-connected Multi-dimensional Dynamic Network. **IEEE Transactions on Medical Imaging**, 2022. [\[DOI\]](#)
6. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Tianshun Miao, Hui Liu, Wolfgang Holler, MingDe Lin, Edward Miller, Richard Carson, Albert J. Sinusas, and Chi Liu. DuDoSS: Deep-Learning-Based Dual-Domain Sinogram Synthesis from Sparsely-Sampled Projections of Cardiac SPECT. **Medical Physics**, 2022. [\[DOI\]](#)
7. Bo Zhou, Tianshun Miao, Niloofar Mirian, Xiongchao Chen, **Huidong Xie**, Zhicheng Feng, Xueqi Guo, Xiaoxiao Li, S. Kevin Zhou, James S. Duncan, and Chi Liu. Federated Transfer Learning for Low-dose PET Denoising: A Pilot Study with Simulated Heterogeneous Data. **IEEE Transactions on Radiation and Plasma Medical Sciences**, 2022. [\[DOI\]](#)
8. Bo Zhou, Xiongchao Chen, **Huidong Xie**, S. Kevin Zhou, James S. Duncan, and Chi Liu. DuDoUFNet: Dual-domain under-to-fully-complete progressive restoration network for simultaneous metal artifact reduction and low-dose CT reconstruction. **IEEE Transactions on Medical Imaging**, 2022. [\[DOI\]](#)

9. **Huidong Xie**, Stephanie Thorn, Yi-Hwa Liu, Supum Lee, Zhao Liu, Ge Wang, Albert J. Sinusas, and Chi Liu. Deep Learning Based Few-Angle Cardiac SPECT Reconstruction using Transformer. **IEEE Transactions on Radiation and Plasma Medical Sciences**, 2022. [\[DOI\]](#)
10. **Huidong Xie**, Stephanie Thorn, Xiongchao Chen, Bo Zhou, Hui Liu, Zhao Liu, Supum Lee, Ge Wang, Yi-Hwa Liu, Albert J. Sinusas, and Chi Liu. Increasing Angular Sampling Through Deep Learning for Stationary Cardiac SPECT Image Reconstruction. **Journal of Nuclear Cardiology**, 2022. [\[DOI\]](#)
11. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Luyao Shi, Hui Liu, Wolfgang Holler, MingDe Lin, Yi-Hwa Liu, Edward J. Miller, Albert J. Sinusas, and Chi Liu. Direct and indirect strategies of deep-learning-based attenuation correction for general purpose and dedicated cardiac SPECT. **European Journal of Nuclear Medicine and Molecular Imaging**, 2022. [\[DOI\]](#)
12. Christopher Wiedeman, **Huidong Xie**, Xuanqin Mou, and Ge Wang. Innovating the Medical Imaging Course. **Technology and Innovation**, 2020. [\[DOI\]](#)
13. **Huidong Xie**, Hongming Shan, Wenxiang Cong, Chi Liu, Xiaohua Zhang, Shaohua Liu, Ruola Ning, and Ge Wang. Deep Efficient End-to-End Reconstruction (DEER) Network for Few-View Breast CT Image Reconstruction. **IEEE Access**, 2020. [\[DOI\]](#) [\[Code\]](#)
14. **Huidong Xie**, Hongming Shan, and Ge Wang. Deep Encoder-Decoder Adversarial Reconstruction (DEAR) Network for 3D CT from Few-View Data. **Bioengineering**, 2019. [\[DOI\]](#)

CONFERENCE (PEER-REVIEWED FULL-LENGTH PROCEEDINGS)

1. **Huidong Xie**, Bo Zhou, Xiongchao Chen, Xueqi Guo, Stephanie Thorn, Yi-Hwa Liu, Ge Wang, Albert J. Sinusas, and Chi Liu. Transformer-based Dual-domain Network for Few-view Dedicated Cardiac SPECT Image Reconstructions. In **MICCAI 2023**, Vancouver, Canada, Oct 8-12, 2023. **Early Accept (Top 13.6%)**. [\[DOI\]](#)
2. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Xueqi Guo, Qiong Liu, Albert J Sinusas, and Chi Liu. Dual-domain Iterative Network with Adaptive Data Consistency for Joint Denoising and Few-angle Reconstruction of Low-dose Cardiac SPECT. In **2nd Workshop of Medical Image Learning with Limited & Noisy Data, MICCAI 2023**, Vancouver, Canada, Oct 8-12, 2023. [\[DOI\]](#)
3. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Xueqi Guo, Qiong Liu, Albert J Sinusas, and Chi Liu. Cross-Domain Iterative Network for Simultaneous Denoising, Limited-angle Reconstruction, and Attenuation Correction of Cardiac SPECT. In **Workshop of Machine Learning in Medical Imaging, MICCAI 2023**, Vancouver, Canada, Oct 8-12, 2023. [\[DOI\]](#)
4. Xueqi Guo, Luyao Shi, Xiongchao Chen, Bo Zhou, Qiong Liu, **Huidong Xie**, Yi-Hwa Liu, Richard Palyo, Adam Liu, Edward J. Miller, Albert Sinusas, Bruce Spottiswoode, Chi Liu, Nicha Dvornek. TAI-GAN: Temporally and Anatomically Informed GAN for early-to-late frame conversion in dynamic cardiac PET motion correction. **Workshop of Simulation and Synthesis in Medical Imaging, MICCAI 2023**, Vancouver, Canada, Oct 8-12, 2023. [\[DOI\]](#)
5. Bo Zhou, Yu-Jung Tsai, Jiazhen Zhang, Xueqi Guo, **Huidong Xie**, Xiongchao Chen, Tianshun Miao, Yihuan Lu, James S. Duncan, and Chi Liu. Fast-MC-PET: A Novel Deep Learning-aided Motion Correction and Reconstruction Framework for Accelerated PET. In **2023 Information Processing in Medical Imaging (IPMI)**, San Carlos De Bariloche, Argentina, June 19-23, 2023. [\[DOI\]](#)
6. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Xueqi Guo, Jiazhen Zhang, Albert J. Sinusas, John Onofrey, and Chi Liu. Dual-Branch Squeeze-Fusion-Excitation Module for Cross-Modality Registration of Cardiac SPECT and CT. In **MICCAI 2022**, Singapore, Sept 18-22, 2022. [\[DOI\]](#)
7. **Huidong Xie**, Hongming Shan, Wenxiang Cong, Xiaohua Zhang, Shaohua Liu, Ruola Ning, and Ge Wang. Dual Network Architecture for Few-View CT - Trained on ImageNet Data and Transferred for Medical Imaging. In **Developments in X-Ray Tomography XII, SPIE 11113**, San Diego, California, United States, Aug 11-15, 2019. (Oral) [\[DOI\]](#)

CONFERENCE (ABSTRACTS AND SUMMARIES)

1. **Huidong Xie**, Weijie Gan. Introduction to Diffusion Models. In **MICCAI 2023 Educational Challenge**. [\[Link\]](#)
2. **Huidong Xie**, Liang Guo, Xueqi Guo, Qiong Liu, Bo Zhou, Xiongchao Chen, Ge Wang, Albert J. Sinusas, and Chi Liu. Self-supervised Noise-aware Network for Dynamic Rubidium-82 Cardiac PET Image Denoising. In **2023 IEEE Medical Imaging Conference (MIC)**, Vancouver, Canada, Nov 4-11, 2023. (Oral)
3. Bo Zhou, **Huidong Xie**, Qiong Liu, Xiongchao Chen, Xueqi Guo, S. Kevin Zhou, Biao Li, Axel Rominger, Kuangyu Shi, James S. Duncan, and Chi Liu. FedFTN: Personalized Federated Learning with Deep Feature Transformation Network for Multi-institutional Low-count PET Denoising. In **2023 IEEE Medical Imaging Conference (MIC)**, Vancouver, Canada, Nov 4-11, 2023. (Oral)

4. Qiong Liu, Yu-Jung Tsai, Jean-Dominique Gallezot, Xueqi Guo, Ming-Kai Chen, Darko Pucar, Colin Young, Vladimir Panin, Tianshun Miao, **Huidong Xie**, Xiongchao Chen, Bo Zhou, Richard Carson, and Chi Liu. Population-based Deep Image Prior for Dynamic PET Denoising. **In 2023 IEEE Medical Imaging Conference (MIC)**, Vancouver, Canada, Nov 4-11, 2023. **(Oral)**
5. **Huidong Xie**, Alexandre Velo, Xueqi Guo, Bo Zhou, Xiongchao Chen, Yu-jung Tsai, Tianshun Miao, Qiong Liu, Albert J. Sinusas, and Chi Liu. Self-supervised Positron Range Correction for Dynamic Rubidium-82 Cardiac PET Imaging. **In SNMMI 2023 Annual Meeting**, Chicago, Illinois, USA, June 24-27, 2023. **(Poster)** [[Abstract](#)]
6. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Xueqi Guo, Qiong Liu, Albert J. Sinusas, Chi Liu. Deep Learning-Based Attenuation Map Generation for Low-Dose and Few-Angle Dedicated Cardiac SPECT. **In SNMMI 2023 Annual Meeting**, Chicago, Illinois, USA, June 24-27, 2023. **(Poster)** [[Abstract](#)]
7. Xueqi Guo, Luyao Shi, Xiongchao Chen, Qiong Liu, **Huidong Xie**, Yi-Hwa Liu, Richard Palyo, Adam Liu, Bruce Spottiswoode, Chi Liu, and Nicha C. Dvornek. Early-to-late frame conversion using temporal feature informed GAN for cardiac dynamic PET motion correction. **In SNMMI 2023 Annual Meeting**, Chicago, Illinois, USA, June 24-27, 2023. **(Oral)** [[Abstract](#)]
8. Qiong Liu, Tiantian Shi, Paul Gravel, Ramesh Fazzzone-Chettiar, Koen Van Laere, Xueqi Guo, **Huidong Xie**, Xiongchao Chen, Yi-Hwa Liu, Richard Carson, Chi Liu, and Edward Miller. Dynamic Imaging and Tracer Kinetic Modeling of 18F-flutemetamol PET for Cardiac Amyloidosis Patients. **In SNMMI 2023 Annual Meeting**, Chicago, Illinois, USA, June 24-27, 2023. **(Oral)** [[Abstract](#)]
9. **Huidong Xie**, Qiong Liu, Bo Zhou, and Chi Liu. Noise-aware Network for Low-dose PET Denoising. **In 2022 IEEE Medical Imaging Conference (MIC) Low dose PET Imaging Challenge Workshop**, Milano, Italy, Nov 12, 2022. [[Link](#)]
10. **Huidong Xie**, Zhao Liu, Luyao Shi, Kathleen Greco, Xiongchao Chen, Bo Zhou, Attila Feher, John C. Stendahl, Nabil Boutagy, Albert J. Sinusas, and Chi Liu. Segmentation-free Partial Volume Correction for Cardiac SPECT using Deep Learning. **In SNMMI 2022 Annual Meeting**, Vancouver, British Columbia, Canada, Jun 11-14, 2022. **(Oral)** [[Abstract](#)]
11. Alexandre Velo, Peng Fan, **Huidong Xie**, Xiongchao Chen, Michael Ljungberg, and Chi Liu. 99mTc/123I Dual-Isotope Scatter and Crosstalk Correction for a CZT SPECT with Varying Tracer Distributions: A Monte Carlo Simulation Study. **In SNMMI 2022 Annual Meeting**, Vancouver, British Columbia, Canada, Jun 11-14, 2022. **(Poster)** [[Abstract](#)]
12. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Tianshun Miao, Edward J. Miller, Albert J. Sinusas, and Chi Liu. DuDoSS: Deep-Learning-Based Dual-Domain Sinogram Synthesis from Sparsely Sampled Projections of Cardiac SPECT. **In SNMMI 2022 Annual Meeting**, Vancouver, British Columbia, Canada, Jun 11-14, 2022. **(Oral, third place young investigator award)** [[Abstract](#)]
13. **Huidong Xie**, Stephanie Thorn, Yi-Hwa Liu, Supum Lee, Zhao Liu, Ge Wang, Albert J. Sinusas, and Chi Liu. Improvement of Few-Angle Dedicated Cardiac SPECT Reconstruction using Transformer. **In 2021 IEEE Medical Imaging Conference (MIC)**, Virtual, Oct 16-23, 2021. **(Oral, selected for the student paper award competition (8/141))**
14. Sijin Ren, Juan Liu, **Huidong Xie**, Takuya Toyonaga, Niloufarsadat Mirian, Ming-Kai Chen, Mariam Aboian, Richard Carson, and Chi Liu. Super-resolution PET Brain Imaging using Deep Learning. **In 2021 IEEE Medical Imaging Conference (MIC)**, Virtual, Oct 16-23, 2021. **(Poster)** [[DOI](#)]
15. Xiongchao Chen, Bo Zhou, **Huidong Xie**, Luyao Shi, Hui Liu, and Chi Liu. Investigation of Direct and Indirect Approaches of Deep-Learning-Based Attenuation Correction for General Purpose and Dedicated Cardiac SPECT Scanners. **In 2021 IEEE Medical Imaging Conference (MIC)**, Virtual, Oct 16-23, 2021. **(Oral)** [[DOI](#)]
16. **Huidong Xie**, Stephanie Thorn, Hui Liu, Zhao Liu, Xiongchao Chen, Supum Lee, Ge Wang, Albert J. Sinusas, and Chi Liu. Increasing angular sampling through deep learning for GE Aleyone dedicated cardiac SPECT. **In SNMMI 2021 Annual Meeting**, Virtual, Jun 11-15, 2021. **(Poster)** [[Abstract](#)]
17. **Huidong Xie**, Hongming Shan, and Ge Wang. 3D Few-View CT Image Reconstruction with Deep Learning. **In IEEE 17th International Symposium on Biomedical Imaging Workshops (ISBI Workshops)**, Iowa City, Iowa, United States, Apr 3-7, 2020. **(Oral)** [[DOI](#)]

PATENT

1. **Huidong Xie**, Ge Wang, Hongming Shan, and Wenxiang Cong. Few-view CT Image Reconstruction System. WO2021051049A1, US20220375142A1. **(Pending)** [[Google Patents](#)]

UNDER REVIEW PAPERS

1. **Huidong Xie**, Qiong Liu, Bo Zhou, Xiongchao Chen, Xueqi Guo, and Chi Liu. Unified Noise-aware Network for Low-count PET Denoising. **Under review at IEEE Transactions on Radiation and Plasma Medical Sciences.**
2. Xiongchao Chen, Bo Zhou, Xueqi Guo, **Huidong Xie**, Qiong Liu, James S. Duncan, Albert J. Sinusas, and Chi Liu. DuDoCFNet: Dual-Domain Coarse-to-Fine Progressive Network for Simultaneous Denoising, Limited-View Reconstruction, and Attenuation Correction of Cardiac SPECT. **Under review at IEEE Transactions on Medical Imaging.**
3. Xueqi Guo, Luyao Shi, Xiongchao Chen, Qiong Liu, Bo Zhou, **Huidong Xie**, Yi-Hwa Liu, Richard Palyo, Edward J. Miller, Albert J. Sinusas, Lawrence Staib, Bruce Spottiswoode, Chi Liu, and Nicha C. Dvornek. TAI-GAN: A Temporally and Anatomically Informed Generative Adversarial Network for early-to-late frame conversion in dynamic cardiac PET inter-frame motion correction. **Under review at Medical Image Analysis.**
4. Qiong Liu, Yu-Jung Tsai, Jean-Dominique Gallezot, Xueqi Guo, Ming-Kai Chen, Darko Pucar, Colin Young, Vladimir Panin, Michael Casey, Tianshun Miao, **Huidong Xie**, Xiongchao Chen, Bo Zhou, Richard Carson, and Chi Liu. Population-based Deep Image Prior for Dynamic PET Denoising: A Data-driven Approach to Improve Parametric Quantification. **Under review at Medical Image Analysis.**

TEACHING EXPERIENCE

- **BENG 280, Sophomore Seminar in Biomedical Engineering, Yale** Fall 2021
This undergraduate-level course introduces different fields in biomedical engineering.
- **BMED 6590, Medical Imaging, RPI** Fall 2019
This graduate-level course introduces some of the most popular imaging modalities (CT, PET/SPECT, MRI, Ultrasound, Optical), and some deep learning methods for different medical imaging applications.
- **CSCI 1190, Beginning Programming for Engineers, RPI** Fall 2019
This undergraduate-level course introduces elementary programming concepts using MATLAB for different engineering problems.
- **Research Advisor in The STEP Program, RPI** Spring 2019
Supervised a group of high-school students for a low-dose CT denoising project using iterative methods. Their work was presented in the STEP state conference in 2019.

PROFESSIONAL ACTIVITIES

- **Journal Reviewer:**
IEEE Journal of Selected Topics in Signal Processing
British Journal of Radiology
IEEE Access
Visual Computing for Industry, Biomedicine, and Art
IEEE Transactions on Medical Imaging
Journal of Medical Systems
- **Conference Reviewer:**
MICCAI Educational Challenge 2022
MICCAI 2023
MED-NeurIPS 2023 (NeurIPS 2023 workshop)
- **Memberships:**
IEEE (Since 2018); SPIE (Since 2019); MICCAI (Since 2020); SNMMI (Since 2021)
- **Other:**
Administrator of 2 Linux servers, [AXIS Lab](#), RPI. Dec 2018 – Jun 2020

SELECTED AWARDS

- IEEE TMI Distinguished Reviewer. 2023
- Second-place Young Investigator Award in the CAMPS (a chapter of the AAPM) Spring Meeting. 2023
- Yale Conference Travel Fellowship. 2023
- 2021 IEEE NSS MIC Trainee Grant. 2021
- Yale Ph.D. fellowship, Yale. 2020
- Class of 1902 Research Prize, RPI. (1/110) 2020
- Magna Cum Laude Honor, RPI. 2020
- Dean's Honor List, RPI. 2016 – 2020
- Academic Citation Nominations for my work in BMED 4941, Deep Learning - Medical Imaging, RPI. 2019

SKILLS SUMMARY

- **Technical skills:** Python; MATLAB; TensorFlow; PyTorch; \LaTeX ; Linux; Medical Imaging Modalities (CT, SPECT, PET, MRI, Ultrasound); Deep Learning; Machine Learning; R; C; C++
- **Software:** GraphPad Prism; Adobe Illustrator; Siemens E7 Reconstruction Tools; Solidworks; Siemens NX
- **Languages:** Chinese (Mandarin, Cantonese); English