Meng Xu

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Assistant Professor, Department of Computer Science and Technology
College of Science, Mathematics and Technology, Kean University

Education

Utah State University — Logan, UT
Ph.D. in Computer Science — *Aug. 2017 – May 2023*

Tianjin University of Technology — Tianjin, China
B.S. in Management Information Systems — *Sep. 2013 – June 2017*

Research Interests

Computer Vision, Deep Learning, and Medical Image Analysis.

Work Experience

Assistant Professor — **Kean University**
CPS1231: Foundation of Computer Science — *Fall 2023 - Present*
CPS 4841/TECH 4982: Computer Vision — *Fall 2024, Fall 2025*
TECH3740: IT Database Management Systems — *Fall 2023 - Spring 2024*

Research Assistant — **Utah State University**
Medical Image Segmentation with Deep Learning — *Summer 2020*
Multi-task Learning in Medical Image Classification and Segmentation — *Summer 2022*

Teaching Assistant — **Utah State University**
CS1030: Foundations of Computer Science — *Fall 2017 - Spring 2023*
CS5890: Practical Natural Language Processing — *Summer 2021*
CS1400: Introduction to Computer Science (Python) — *Summer 2021*
CS1410: Introduction to C++ — *Summer 2021*
CS2420: Algorithms and Data Structures — *Summer 2021*

Research Experience

External Grants:

- **2025 received:** AIM-AHEAD Research Fellowship Program Cohort 4, "Deep Learning Applications for Early Detection of Breast Cancer in Mammography." $51,840, Principal Investigator.
- **2025 received:** Oak Ridge Leadership Computing Facility (OLCF) computational resource, "Large Language Models for Breast Cancer Detection." Frontier: 20,000 node hours and Andes: 2,500 node hours, Co-Principal Investigator.
- **2024 received:** NSF 24-536 Computer and Information Science and Engineering Research Expansion Program, "Collaborative Research: CISE MSI: RCBP: SCH: Advancing Breast-Cancer Detection in Ultrasound Imaging through Active- and Weakly-Supervised Learning", $203,981, Co-Principal Investigator.
- **2024 received:** CAHSI-Google Institutional Research Program Awards, "Building a Trustworthy Deep Learning Model for Urban-Scene Image Segmentation: Robustness and Uncertainty Analysis", $80,000 and $20,000 Google Cloud Platform credits, Principal Investigator.

Internal Grants:

- **2025 received:** Kean IST Fellowship, "Building a Trustworthy Deep Learning Model for UrbanScene Image Segmentation", $10,000, Principal Investigator.
- **2024 received:** WKU-KU Special Programs (International Collaborative Research Programs), "Investigation of Deep Learning-Generated Images as Data Source for Robust Medical Image Segmentation", $42,159, Collaborator.
- **2024 received:** Students Partnering with Faculty (SpF) at Kean University, "Trustworthy Weakly Supervised Breast Cancer Detection in Ultrasound Imaging", $17,000, Principal Investigator.
- **2021 received:** Graduate Research and Creative Opportunities Grant at Utah State University, "A Regional-Attentive Multi-Task Learning Framework for Breast Ultrasound Image Segmentation and Classification", $1,000, Principal Investigator.

Peer Reviewed Journal Publications:

1. (Q1) K. Huang, **M. Xu**, Y. Wang, Using Adversarial Training to Improve Uncertainty Quantification, published in IEEE Transactions on Artificial Intelligence, 2025.
2. (Q1) B. Hu, J. You, K. Huang, **M. Xu** (Corresponding Author), Dan Liu, Sugang Ma, EffTEE: Efficient Image Classification and Object Detection on Mobile Devices using Trusted Execution Environments, published in IEEE Access, 2025.
3. (Q1) T. Wang, K. Huang, **M. Xu** (Corresponding Author), J. Huang, Weakly Supervised Chest X-ray Abnormality Localization with Non-Linear Modulation and Foreground Control, published in Scientific Reports, 2024.
4. (Q1) **M. Xu**, J. Huang, K. Huang, and F. Liu, Incorporating Tumor Edge Information for Fine-Grained BI-RADS Classification of Breast Ultrasound Images, published in IEEE Access, 2024.
5. (Q1) **M. Xu**, K. Huang, X. Qi, A Regional-Attentive Multi-Task Learning Framework for Breast Ultrasound Image Classification and Segmentation, published in IEEE Access, 2023.

Peer Reviewed Conference Publications:

1. K. Huang, N. Sahel, D. Karki, **M. Xu** and Y. Wang, One Pixel Can Change the Diagnosis: Adversarial and Non-Adversarial Robustness and Uncertainty in Breast Ultrasound Classification Model, accepted by the AAAI 2025 Fall Symposium Series (FSS-25).
2. **M. Xu**, Y. Wang, K. Huang, AnatoSegNet: Anatomy Based CNN-Transformer Network for Enhanced Breast Ultrasound Image Segmentation, published in IEEE International Symposium on Biomedical Imaging 2025 (ISBI 2025).
3. K. Huang, Y. Wang, **M. Xu**, Investigating the Fairness of Deep Learning Models in Breast Cancer Diagnosis Based on Race and Ethnicity, published in AAAI 2024 Fall Symposium on Machine Intelligence for Equitable Global Health (MI4EGH 2024).
4. J. Huang, K. Huang, **M. Xu** and F. Liu, CFAB: An Online Data Augmentation to Alleviate the Spuriousness of Classification on Medical Ultrasound Images, published in the 14th International Conference on Computer Vision Systems (ICVS 2023).
5. K. Huang, J. Huang, W. Wang, **M. Xu**, F. Liu, A Deep Active Learning Framework with Information Guided Label Generation for Medical Image Segmentation, published in IEEE International Conference on Bioinformatics and Biomedicine 2022 (BIBM 2022).
6. **M. Xu**, K. Huang, X. Qi, Multi-Task Learning with Context-Oriented Self-Attention for Breast Ultrasound Image Classification and Segmentation, published in IEEE International Symposium on Biomedical Imaging 2021 (ISBI 2022).

7. K. Huang, **M. Xu**, X. Qi, NGMMs: Neutrosophic Gaussian Mixture Models for Breast Ultrasound Image Classification, published in International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2021).
8. Q. Chen, P. Li, **M. Xu**, X. Qi, Sparse Activation Maps for Interpreting 3D Object Detection, published in IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2021.
9. **M. Xu**, K. Huang, Q. Chen, X. Qi, MSSA-Net: Multi-scale Self-attention Network for Breast Ultrasound Image Segmentation, published in IEEE International Symposium on Biomedical Imaging 2021 (ISBI 2021).

Mentored Student Research Publications:

1. M. Ahmed, J. Loja, K. Huang, and **M. Xu**, Benchmarking the Robustness of Segmentation Methods Against Adversarial Attacks in Breast Ultrasound Segmentation, published in the 2024 International Conference on Computational Science and Computational Intelligence (CSCI 2024).
2. A. Mendez, **M. Xu**, and K. Huang, Multimodal Breast Ultrasound Segmentation: Combining Visual and Clinical Data, published in the 2024 International Conference on Computational Science and Computational Intelligence (CSCI 2024).
3. C. Marte, **M. Xu**, and K. Huang, Text-Guided Weakly Supervised Segmentation for COVID-19 Detection in X-Ray Images, published in the 2024 International Conference on Computational Science and Computational Intelligence (CSCI 2024).
4. J. Rodriguez, K. Huang, and **M. Xu**: Multi-Task Breast Ultrasound Image Classification and Segmentation Using Swin Transformer and VMamba Models, published in the International Conference on Pattern Recognition and Artificial Intelligence (PRAI 2024).
5. S. Ali, **M. Xu**, and D. Kwak: Smart Roadway Monitoring: Pothole Detection and Mapping via Google Streetview, published in the World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE 2024).

Services

Professional Service:

- NSF Reviewer, 2025.
- Conference Reviewer for IEEE International Symposium on Biomedical Imaging (ISBI), IEEE International Conference on Multimedia and Expo (ICME), and The British Machine Vision Conference (BMVC).
- Journal Reviewer for IEEE Transactions on Medical Imaging, Neurocomputing, Medical Physics, BMC Medical Informatics and Decision Making, and Clinical Breast Cancer.

University and Department Service:

- College Curriculum Committee, AY 2024-2026.
- Department Curriculum Committee, AY 2024-2026.
- Student Outcomes Committee, AY 2024-2025.
- Contributor to the Development of the Ph.D. in Computer Science Program, Spring 2024.
- Contributor to the Development of the B.S. in Artificial Intelligence Program, Spring 2024.
- Faculty Search Committee for Wenzhou-Kean University, Fall 2023.

Academic Advising and Mentoring:

- Undergraduate Academic Advisor, ongoing.
- Faculty Mentor for Local REU Program, ongoing.
- Faculty Mentor for Independent Study, ongoing.

- Faculty Mentor for Senior Research, ongoing.
- Referee for Student Job and Academic Applications, ongoing.

Community and Outreach:

- Participant, Undergraduate Open House, AY 2023-2025.
- Participant, Graduate Open House, AY 2023-2025.
- Session Moderator and Presenter, Second Annual Kean University End-of-Year Faculty Research Conference, Spring 2024.
- Presenter, Career Services Major Fair, Spring 2024.
- Presenter, Major & Minor Exploration Fair, Fall 2023.

Honors and Awards

Presidential Doctoral Research Fellowship, Utah State University	2017 - 2021
Outstanding Graduate Award, Tianjin University of Technology	2017
Second Place Outstanding Undergraduate Thesis Award, Tianjin University of Technology	2017
Tianjin Municipal Government Scholarship, Tianjin University of Technology	2015 - 2016
First Prize Scholarship and Outstanding Student Award, Tianjin University of Technology	2015 - 2016
First Prize Scholarship and Outstanding Student Award, Tianjin University of Technology	2014 - 2015
Third Prize Scholarship and Outstanding Student Award, Tianjin University of Technology	2013 - 2014

Professional Development

- NSF Reviewer Training, 2024.
- ARG Creating and Maintaining Effective Research Groups Course, 2024.
- Kean University's SESMag faculty development workshops, 2024.
- Mentoring & Dossier Planning Day at Kean University, 2024.
- NSF Proposal Preparation workshop, 2023.
- Explore College Teaching Certificate, Utah State University, 2022.
- Graduate Student Proposal Writing Seminars, Utah State University, 2021.