Yu Zhang

Personal Information

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Appointments

Assistant Professor — Boise, ID
Department of Computer Science — *July 2025 - Present*
Boise State University

Bastian Solutions, a Toyota Automation Logistics company — Boise, ID
Machine Learning Engineer — *March 2023 - July 2025*

Siemens Healthineers — Philadelphia, PA
Image Analytics Intern — *May 2022 - Aug. 2022*

Education

University of Kentucky — Lexington, KY
Department of Computer Science — *Aug. 2017 - March 2023*
Ph.D. in Computer Science
Advisor : Nathan Jacobs (now w/ Washington University in St. Louis)

Northeastern University — Shenyang, China
School of Computer Science and Engineering — *Sept. 2013 - June 2017*
B.E. in Telecommunications

Research Areas

Computer Vision, Domain Adaptation, Adaptive Foundation Models, Training Efficiency, Robotics, Medical Imaging, Remote Sensing, AI for Interdisciplinary Sciences

Ph.D. Dissertation

Yu Zhang. "'Multi-Domain Adaptation for Image Classification, Depth Estimation, and Semantic Segmentation" (2023). Theses and Dissertations–Computer Science, University of Kentucky.

Conference Publications

(See Google Scholar for the full list.)

[1] Z. Xiong, F. Qiao, **Yu Zhang**, N. Jacobs. "StereoFlowGAN : Co-training for Stereo and Flow with Unsupervised Domain Adaptation". In *British Machine Vision Conference (BMVC)*, 2023. arXiv

[2] **Yu Zhang**, M. Rafique, G. Christie, N. Jacobs. "CrossAdapt : Cross-Scene Adaptation for Multi-Domain Depth Estimation". In *International Geoscience and Remote Sensing Symposium (IGARSS)*, 2023. Link

[3] **Yu Zhang**, M. Rafique, N. Jacobs. "CrossSeg : Cross-Scene Few-Shot Aerial Segmentation using Probabilistic Prototypes". In *International Geoscience and Remote Sensing Symposium (IGARSS)*, 2023. Link

[4] X. Xing, G. Liang, **Yu Zhang**, S. Khanal, A. Lin, N. Jacobs. "ADVIT : Vision Transformer on Multi-modality PET Images for Alzheimer Disease Diagnosis". In *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2022. Link

[5] X. Xing, C. Peng, **Yu Zhang**, A. Lin, N. Jacobs. "AssocFormer : Association Transformer for Multi-label Classification". In *British Machine Vision Conference (BMVC)*, 2022. Link

[6] **Yu Zhang**, G. Liang, N. Jacobs. "Dynamic Feature Alignment for Semi-supervised Domain Adaptation". In *British Machine Vision Conference (BMVC)*, 2021. arXiv

[7] G. Liang, X. Xing, L. Liu, **Yu Zhang**, Q. Ying, A. Lin, and N. Jacobs. "Alzheimer's Disease Classification Using 2D Convolutional Neural Networks". In *IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021. Link

[8] **Yu Zhang**, G. Liang, Y. Su, N. Jacobs. "Multi-Branch Attention Networks for Classifying Galaxy Clusters". In *International Conference on Pattern Recognition (ICPR)*, 2020. Link

[9] G. Liang, **Yu Zhang**, X. Wang, N. Jacobs. "Improved Trainable Calibration Method for Neural Networks on Medical Imaging Classification". In to *British Machine Vision Conference (BMVC)*, 2020. arXiv

[10] G. Liang, X. Wang, **Yu Zhang**, N. Jacobs. "Weakly-Supervised Self-Training for Breast Cancer Localization". In *IEEE Engineering in Medicine & Biology Society (EMBC)*, 2020. Link

[11] **Yu Zhang**, X. Wang, H. Blanton, G. Liang, X. Xing, N. Jacobs. "2D Convolutional Neural Networks for 3D Digital Breast Tomosynthesis Classification". In *IEEE International Conference of Bioinformatics and Biomedicine (BIBM)*, 2019. arXiv

[12] G. Liang, X. Wang, **Yu Zhang**, X. Xing, H. Blanton, T. Salem, N. Jacobs. "Joint 2D-3D Breast Cancer Classification". In *IEEE International Conference of Bioinformatics and Biomedicine (BIBM)*, 2019. arXiv

[13] **Yu Zhang**, G. Liang, T. Salem, N. Jacobs. "Defense-PointNet : Protecting PointNet Against Adversarial Attacks". In *IEEE International Conference on Big Data (BigData)*, 2019. link

Journal Publications

[14] X. Xing, M. Rafique, G. Liang, H. Blanton, **Yu Zhang**, C. Wang, N. Jacobs, A. Lin. "Efficient Training on Alzheimerâs Disease Diagnosis with Learnable Weighted Pooling for 3D PET Brain Image Classification". In *Electronics*, 2023. link

[15] S. Lin, Y. Su, G. Liang, Y. Zhang, N. Jacobs, **Yu Zhang**. "Estimating Cluster Masses from SDSS Multi-band Images with Transfer Learning". In *Monthly Notices of the Royal Astronomical Society (MNRAS)*, 2022. link

[16] G. Liang, C. Greenwell, **Yu Zhang**, X. Wang, R. Kavuluru, N. Jacobs. "Contrastive Cross-Modal Pre-Training : A General Strategy for Small Sample Medical Imaging". In *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2021. arXiv

[17] Y. Su, **Yu Zhang**, G. Liang, J. A. ZuHone, D. J. Barnes, N. B. Jacobs, M. Ntampaka, W. R. Forman, R. P. Kraft, P. E. J. Nulsen, C. Jones, E. Roediger. "A deep learning view of the census of galaxy clusters in IllustrisTNG". In *Monthly Notices of the Royal Astronomical Society (MNRAS)*, 2020. arXiv

[18] X. Wang, G. Liang, **Yu Zhang**, H. Blanton, Z. Bessinger, N. Jacobs. "Inconsistent Performance of Deep Learning Models on Mammogram Classification". In *Journal of the American College of Radiology (JACR)*, 2020. Link

Workshop Publications

[19] U. Rafique, **Yu Zhang**, B. Brodie, N. Jacobs. "Unifying Guided and Unguided Outdoor Image Synthesis". In *CVPR Workshop* : NTIRE 2021. Link

[20] G. Liang, S. Lin, **Yu Zhang**, Y. Su, Nathan Jacobs. "Optical Wavelength Guided Self-Supervised Feature Learning For Galaxy Cluster Richness Estimate". In *NeurIPS Workshop : Machine Learning and Physical Sciences*, 2020. arXiv

[21] G. Liang, **Yu Zhang**, N. Jacobs. "Neural Network Calibration for Medical Imaging Classification Using DCA Regularization". In *ICML Workshop : Uncertainty and Robustness in Deep Learning*, 2020. Link

Abstracts

[22] G. Liang, X. Xing, **Yu Zhang** "Addressing trust and safety challenges in neural network-powered modern AI : A call for broader awareness and action". In *CAE in Cybersecurity Symposium*, 2025. Link

[23] **Yu Zhang**, G. Liang, N. Jacobs, X. Wang. "Unsupervised Domain Adaptation for Mammogram Image Classification : A Promising Tool for Model Generalization". In *Conference on Machine Intelligence in Medical Imaging*, 2019. arXiv

[24] G. Liang, **Yu Zhang**, J. Liu, N. Jacobs, X. Wang. "Training Deep Learning Models as Radiologists : Breast Cancer Classification Using Combined Whole 2D Mammography and Full Volume Digital Breast Tomosynthesis". In *Radiological Society of North America 105th Scientific Assembly and Annual Meeting*, 2019.

Teaching

Boise State University

Instructor

- CS 233 : Essentials of Data Science — *Fall 2025*

University of Kentucky

Teaching Assistant — *Jan. 2018 - Dec. 2022*

- CS215 : Introduction to Program Design, Abstraction and Problem Solving ×2
- CS216 : Introduction to Software Engineering Techniques ×2
- CS371 : Introduction to Computer Networking ×1

Talks

- "CrossSeg : Cross-Scene Few-Shot Aerial Segmentation using Probabilistic Prototypes", July 2023, IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Pasadena, CA
- "Defense-PointNet : Protecting PointNet Against Adversarial Attacks", Dec. 2019, IEEE BigData LiDAR Workshop, Los Angeles, CA
- "Unsupervised Domain Adaptation for Mammogram Image Classification : A Promising Tool for Model Generalization", Sep. 2019, C-MIMI, Austin, TX

Media Coverage

- Washington University in St. Louis: Co-learning to improve autonomous driving. *2023*
- HealthExec: Inconsistent AI for breast cancer fail to deliver after closer inspection. *2020*
- UKNow: UK Physics, Engineering Team uses AI to study galaxy clusters. *2020*

Awards

- Conference Travel Grant, University of Kentucky, 2019
- ATS Fellowship, University of Kentucky, 2017-2018

Service

- Reviewer for Asian Conference on Computer Vision (ACCV), 2024
- Reviewer for European Conference on Computer Vision (ECCV), 2024
- Program Committee Member for ACM SIGSPATIAL -GeoAI, 2023
- Reviewer for IEEE International Conference on Computer Vision (ICCV), 2023
- Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- Reviewer for IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- Reviewer for IEEE Winter Conference on Applications of Computer Vision 2020, 2022, 2023
- Reviewer for The British Machine Vision Conference 2020, 2021, 2022, 2023
- Reviewer for IEEE Conference on Artificial Intelligence (CAI), 2023
- Reviewer for Imaging Science Journal 2022