Yu Zhang

Personal Information

Ph.D. Candidate (ABD)
Department of Computer Science
University of Kentucky
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Education

University of Kentucky *Aug. 2017 - Present*
Ph.D. in Computer Science
Advisor : Nathan Jacobs

Northeastern University (CN) *Sept. 2013 - June 2017*
School of Computer Science and Engineering
B.E. in Telecommunications

Skills

Experience : deep learning, computer vision, domain adaptation, multi-modal data modeling
Programming : Python, PyTorch, MATLAB, C, C++

Appointments

Research Assistant, University of Kentucky, Lexington, KY *Jan. 2020 - Present*
- Multi-domain semantic segmentation and depth estimation for unmanned aerial systems.
- Explored deep learning on astrophysics using imbalanced multi-modal data.
- Classification, detection, segmentation, and calibration on 2D and 3D medical images.

Teaching Assistant, University of Kentucky, Lexington, KY *Jan. 2018 - Dec. 2019*
- CS215 : Introduction to Program Design, Abstraction and Problem Solving
- CS216 : Introduction to Software Engineering Techniques
- CS371 : Introduction to Computer Networking

Conference Publications

1. **Yu Zhang**, G. Liang, N. Jacobs. "Dynamic Feature Alignment for Semi-supervised Domain Adaptation". In *British Machine Vision Conference (BMVC)*, 2021. arXiv
2. G. Liang, X. Xing, L. Liu, **Yu Zhang**, Q. Ying, A. Lin, and N. Jacobs. "2D Convolutional Neural Networks for Alzheimer's Disease MRI Classification.". In *IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021.
3. **Yu Zhang**, G. Liang, Y. Su, N. Jacobs. "Multi-Branch Attention Networks for Classifying Galaxy Cluters". In *International Conference on Pattern Recognition (ICPR)*, 2020. Link
4. 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
5. 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
6. **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
7. 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

Journal Publications

8. 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*, 2021. arXiv
9. 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*, 2020. arXiv

10. 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*, 2020. Link

Workshop Publications

11. U. Rafique, **Yu Zhang**, B. Brodie, N. Jacobs. "Unifying Guided and Unguided Outdoor Image Synthesis". In *CVPR Workshop* : NTIRE 2021. Link
12. 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
13. 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
14. **Yu Zhang**, G. Liang, T. Salem, N. Jacobs. "Defense-PointNet : Protecting PointNet Against Adversarial Attacks". In *IEEE BigData Workshop : The Next Frontier of Big Data From LiDAR*, 2019. arXiv

Abstracts

15. 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.
16. **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

Talks

- "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

Awards

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

Service

- Reviewer for IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- Reviewer for IEEE Winter Conference on Applications of Computer Vision 2020, 2022
- Reviewer for The British Machine Vision Conference 2020, 2021

Memberships

- Institute of Electrical and Electronics Engineers (IEEE), Student Member
- Society for Imaging Informatics in Medicine (SIIM), Student Member