

YU ZHANG

PERSONAL INFORMATION	Ph.D. Student Department of Computer Science University of Kentucky 329 Rose Street, Lexington, KY 40506 USA	Homepage : yuzhang03.github.io Phone : +1(859)420-1076 Email : y.zhang@uky.edu
EDUCATION	University of Kentucky Ph.D. in Computer Science Advisor : Nathan Jacobs GPA : 3.89/4.00 Northeastern University (CN) <i>School of Computer Science and Engineering</i> B.E. in Communication Engineering	Aug. 2017 - Present Sept. 2013 - June 2017
SKILLS	Experience : Deep Learning, Machine Learning, Computer Vision, Unsupervised Domain Adaptation, Weakly Supervised Learning, Unsupervised Learning, Adversarial Attacks, Point Clouds, Astrophysics Data Analysis, Medical Image Analysis Programming : Python, PyTorch, MATLAB, C, C++, Shell, SQL	
PROFESSIONAL EXPERIENCE	Research Assistant , University of Kentucky, Lexington, KY <ul style="list-style-type: none">Developed data augmentation, weakly supervised learning, network calibration, and adversarial attack methods on multiple datasets.Applied deep learning on unbalanced astrophysics data to explore the relations between galaxy cluster images and magnetic field, mass, and cooling time.Classification, detection, and segmentation on 2D and 3D medical images. Teaching Assistant , University of Kentucky, Lexington, KY <ul style="list-style-type: none">CS216 : Introduction to Software Engineering TechniquesCS215 : Introduction to Program Design, Abstraction and Problem SolvingCS371 : Introduction to Computer Networking	Summer 2019 - Present Fall 2018, Fall 2019 Spring 2019 Spring 2018
MANUSCRIPTS	1. Gongbo Liang, Connor Greenwell, Yu Zhang , Xiaoqin Wang, Ramakanth Kavuluru, Nathan Jacobs. "Weakly-Supervised Feature Learning Using a Text and Image Matching Network for Medical Image Analysis". Submitted to <i>IEEE Journal of Biomedical and Health Informatics (JBHI)</i> , 2020. arXiv:2010.03060	
JOURNAL PUBLICATIONS	2. 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 <i>Monthly Notices of the Royal Astronomical Society (MNRAS)</i> , 2020. arXiv:2007.05144 3. Xiaoqin Wang, Gongbo Liang, Yu Zhang , Hunter Blanton, Zachary Bessinger, Nathan Jacobs. "Inconsistent Performance of Deep Learning Models on Mammogram Classification". In <i>Journal of the American College of Radiology (JACR)</i> , 2020.	
CONFERENCE PUBLICATIONS	4. Yu Zhang , Gongbo Liang, Yuanyuan Su, Nathan Jacobs. "Multi-Branch Attention Networks for Classifying Galaxy Clusters". In <i>International Conference on Pattern Recognition (ICPR)</i> , 2020. 5. Gongbo Liang, Yu Zhang , Xiaoqin Wang, Nathan Jacobs. "Improved Trainable Calibration Method for Neural Networks on Medical Imaging Classification". In <i>British Machine Vision Conference (BMVC)</i> , 2020. arxiv:2009.04057 6. Gongbo Liang, Xiaoqin Wang, Yu Zhang , Nathan Jacobs. "Weakly-Supervised Self-Training for Breast Cancer Localization". In <i>Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)</i> , 2020.	

7. **Yu Zhang**, Xiaoqin Wang, Hunter Blanton, Gongbo Liang, Xin Xing, Nathan Jacobs. “2D Convolutional Neural Networks for 3D Digital Breast Tomosynthesis Classification”. In *IEEE International Conference of Bioinformatics and Biomedicine (BIBM)*, 2019. [arXiv:2002.12314](#)
8. Gongbo Liang, Xiaoqin Wang, **Yu Zhang**, Xin Xing, Hunter Blanton, Tawfiq Salem, Nathan Jacobs. “Joint 2D-3D Breast Cancer Classification”. In *IEEE International Conference of Bioinformatics and Biomedicine (BIBM)*, 2019. [arXiv:2002.12392](#)

WORKSHOP PUBLICATIONS

9. Gongbo Liang, **Yu Zhang**, Nathan Jacobs. “Neural Network Calibration for Medical Imaging Classification Using DCA Regularization”. In *International Conference on Machine Learning (ICML) Workshop : Uncertainty and Robustness in Deep Learning*, 2020.
10. **Yu Zhang**, Gongbo Liang, Tawfiq Salem, Nathan Jacobs. “Defense-PointNet : Protecting PointNet Against Adversarial Attacks”. In *IEEE International Conference on Big Data (BigData) Workshop : The Next Frontier of Big Data From LiDAR*, 2019. [arXiv:2002.11881](#)

ABSTRACTS

11. Gongbo Liang, **Yu Zhang**, Jinze Liu, Nathan Jacobs, Xiaoqin 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 (RSNA)*, 2019.
12. **Yu Zhang**, Gongbo Liang, Nathan Jacobs, Xiaoqin Wang. “Unsupervised Domain Adaptation for Mammogram Image Classification : A Promising Tool for Model Generalization”. In *Conference on Machine Intelligence in Medical Imaging (C-MIMI)*, 2019. [arXiv:2003.01111](#)

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

- Reviewing for IEEE Winter Conference on Applications of Computer Vision (WACV 2020)
- Reviewing for The British Machine Vision Conference (BMVC 2020)

MEMBERSHIPS

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