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| PERSONAL<br>INFORMATION    | <p>Ph.D. Candidate (ABD)<br/> Department of Computer Science<br/> University of Kentucky<br/> 329 Rose Street, Lexington, KY 40506 USA</p>   | <p>Homepage : <a href="https://yuzhang03.github.io">yuzhang03.github.io</a><br/> Phone : +1(859)420-1076<br/> Email : <a href="mailto:y.zhang@uky.edu">y.zhang@uky.edu</a></p> |
| EDUCATION                  | <p><b>University of Kentucky</b><br/> Ph.D. in Computer Science<br/> Advisor : Nathan Jacobs</p> <p><b>Northeastern University (CN)</b><br/> School of Computer Science and Engineering<br/> B.E. in Telecommunications</p>  | <p>Aug. 2017 - Present</p> <p>Sept. 2013 - June 2017</p>   |
| SKILLS                     | <p><b>Experience</b> : deep learning, computer vision, domain adaptation, multi-modal data analysis<br/> <b>Programming</b> : Python, PyTorch, MATLAB, C, C++</p>  |  |
| PROFESSIONAL<br>EXPERIENCE | <p><b>Research Assistant</b>, University of Kentucky, Lexington, KY</p> <ul style="list-style-type: none"> <li>Multi-domain semantic segmentation and depth estimation for unmanned aerial systems.</li> <li>Explored deep learning on astrophysics using imbalanced multi-modal data.</li> <li>Classification, detection, segmentation, and calibration on 2D and 3D medical images.</li> </ul> <p><b>Teaching Assistant</b>, University of Kentucky, Lexington, KY</p> <ul style="list-style-type: none"> <li>CS215 : Introduction to Program Design, Abstraction and Problem Solving</li> <li>CS216 : Introduction to Software Engineering Techniques</li> <li>CS371 : Introduction to Computer Networking</li> </ul>   | <p>Jan. 2020 - Present</p> <p>Jan. 2018 - Dec. 2019</p>  |
| JOURNAL<br>PUBLICATIONS    | <ol style="list-style-type: none"> <li>Gongbo Liang, Connor Greenwell, <b>Yu Zhang</b>, Xiaoqin Wang, Ramakanth Kavuluru, Nathan Jacobs. "Contrastive Cross-Modal Pre-Training : A General Strategy for Small Sample Medical Imaging". In <i>IEEE Journal of Biomedical and Health Informatics (JBHI)</i>, 2021. <a href="https://arxiv.org/abs/2010.03060">arXiv:2010.03060</a></li> <li>Y. Su, <b>Yu Zhang</b>, 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. <a href="https://arxiv.org/abs/2007.05144">arXiv:2007.05144</a></li> <li>Xiaoqin Wang, Gongbo Liang, <b>Yu Zhang</b>, 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. <a href="#">Link</a></li> </ol>   |  |
| CONFERENCE<br>PUBLICATIONS | <ol style="list-style-type: none"> <li>Gongbo Liang, Xin Xing, Liangliang Liu, <b>Yu Zhang</b>, Qi Ying, Ailing Lin, and Nathan Jacobs. "2D Convolutional Neural Networks for Alzheimer's Disease MRI Classification.". In <i>Annual International Conference of the IEEE Engineering in Medicine &amp; Biology Society (EMBC)</i>, 2021.</li> <li><b>Yu Zhang</b>, Gongbo Liang, Yuanyuan Su, Nathan Jacobs. "Multi-Branch Attention Networks for Classifying Galaxy Clusters". In <i>International Conference on Pattern Recognition (ICPR)</i>, 2020. <a href="#">Link</a></li> <li>Gongbo Liang, <b>Yu Zhang</b>, Xiaoqin Wang, Nathan Jacobs. "Improved Trainable Calibration Method for Neural Networks on Medical Imaging Classification". In <i>British Machine Vision Conference (BMVC)</i>, 2020. <a href="https://arxiv.org/abs/2009.04057">arxiv:2009.04057</a></li> <li>Gongbo Liang, Xiaoqin Wang, <b>Yu Zhang</b>, 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. <a href="#">Link</a></li> <li><b>Yu Zhang</b>, Xiaoqin Wang, Hunter Blanton, Gongbo Liang, Xin Xing, Nathan Jacobs. "2D Convolutional Neural Networks for 3D Digital Breast Tomosynthesis Classification".</li> </ol> |  |

In *IEEE International Conference of Bioinformatics and Biomedicine (BIBM)*, 2019. [arXiv:2002.12314](#)

9. 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

10. Usman Rafique, **Yu Zhang**, Benjamin Brodie, Nathan Jacobs. "Unifying Guided and Un-guided Outdoor Image Synthesis". In *IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW) : NTIRE 2021*. [Link](#)
11. Gongbo Liang, Sheng-Chieh Lin, **Yu Zhang**, Yuanyuan Su, Nathan Jacobs. "Optical Wavelength Guided Self-Supervised Feature Learning For Galaxy Cluster Richness Estimate". In *Conference on Neural Information Processing Systems (NeurIPS) Workshop : Machine Learning and Physical Sciences*, 2020. [arXiv:2012.02368](#)
12. 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. [Link](#)
13. **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

14. 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.
15. **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

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

#### MEMBERSHIPS

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