

## Xin Xing

Email: [hannibalxing@gmail.com](mailto:hannibalxing@gmail.com)

Website: [xtrigold.github.io/](https://xtrigold.github.io/)

Google Scholar: <https://scholar.google.com/citations?user=dA-i7zQAAAAAJhl=en>

### EDUCATION

<b>University of Kentucky</b>	Lexington, KY
<i>Ph.D. Candidate, Computer Science</i>	2018 - Present
Academic advisor: Dr. Nathan Jacobs	
<b>Southern Illinois University</b>	Carbondale, IL
<i>Ph.D. Student, Electronic and Computer Engineering</i>	2016 - 2017
<b>University of Stuttgart</b>	Stuttgart, Germany
<i>Master, Communication Engineering and Media Technology (INFOTECH)</i>	2012 - 2016
<b>University of Shandong</b>	Jinan, China
<i>B.A., Communication Engineering</i>	2007 - 2011
<b>Xi'an Jiaotong University</b>	Xi'an, China
<i>Exchanging Student, Electronic Engineering</i>	2008 - 2009

### RESEARCH AND WORK EXPERIENCE

<b>University of Missouri</b>	Columbia, MO
<i>Visiting Research Assistant</i>	2022-Present
Machine learning and deep learning application on medical data analysis.	
Academic advisor: Dr. Ai-Ling Lin and Dr. Nathan Jacobs	
<b>University of Kentucky</b>	Lexington, KY
<i>Research Assistant</i>	2018-Present
Machine learning, deep learning, and computer vision, specifically multimodal learning, self-supervised learning, and medical image analysis.	
Academic advisor: Dr. Nathan Jacobs	
<b>Southern Illinois University</b>	Carbondale, IL
<i>Research Assistant</i>	9/2016 - 12/2017
Research on computer networking: Multi-path TCP and Software Defined Network (SDN).	
<b>EuTEC Sony</b>	Stuttgart, Germany
<i>Research Intern</i>	2/2015 - 7/2015
Blind Source Separation (BSS) and Machine Learning	
Project advisor: Dr. Stefan Uhlich	

## PUBLICATIONS

### Published

**X. Xing**, C. Peng, Y. Zhang, AL. Lin, and N. Jacobs. "AssocFormer: Association Transformer on Multi-label Classification", *The 33rd British Machine Vision Conference (BMVC)*, 2022

Khanal, S., Brodie, B., **Xing, X.**, Lin, A.L. and Jacobs, N., 2022. Causality for Inherently Explainable Transformers: CAT-XPLAIN. *arXiv preprint arXiv:2206.14841*.

Yanckello LM, Fanelli B, McCulloch S, **Xing X**, Sun M, Hammond TC, Colwell R, Gu Z, Ericsson AC, Chang YH, Bachstetter AD, Lin AL. "Inulin Supplementation Mitigates Gut Dysbiosis and Brain Impairment Induced by Mild Traumatic Brain Injury during Chronic Phase", *J Cell Immunol.* 2022

**X. Xing**, G. Liang, Y. Zhang, S. Khanal, AL. Lin and N. Jacobs. "ADVIT: VISION TRANSFORMER ON MULTI-MODALITY PET IMAGES FOR ALZHEIMER DISEASE DIAGNOSIS". *The IEEE International Symposium on Biomedical Imaging (ISBI)*, 2022.

G. Liang, **X. Xing**, L. Liu, Q. Ying, AL. Lin and N. Jacobs. Alzheimer's Disease Classification Using 2D Convolutional Neural Networks. *International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021.

Q. Ying, **X. Xing**, AL Lin, N. Jacobs, and G. Liang. Multi-Modal Data Analysis for Alzheimer's Disease Diagnosis: An Ensemble Model Using Imagery and Genetic Features. *International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021.

Hammond TC, **Xing X**, Yanckello LM, Stromberg A, Chang YH, Nelson PT, Lin AL. "Human Gray and White Matter Metabolomics to Differentiate APOE and Stage Dependent Changes in Alzheimer's Disease". *J Cell Immunol.* 2021.

G. Liang, C. Greenwell, Yu Zhang, **X. Xing**, X. Wang, R. Kavuluru, and N. Jacobs. "Contrastive cross-modal pre-training: A general strategy for small sample medical imaging", *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2021

**X. Xing\***, G. Liang\*, H. Blanton, MU. Rafique, C. Wang, AL. Lin, and N. Jacobs. "Dynamic Image for 3D MRI image Alzheimer's Disease Classification", *Workshop of European Conference on Computer Vision (ECCV)*, 2020. (\* first co-author)

T.C. Hammond\*, **X. Xing\***, C. Wang, D. Ma, K. Nho, P. K. Crane, F. Elahi, D. A. Ziegler, G. Liang, Q. Cheng, L. M. Yanckello, N. Jacobs, and AL. Lin. "Beta-amyloid and tau drive early Alzheimer's disease decline while glucose hypometabolism drives late decline". *Communications Biology*, vol. 3, no. 1, p. 352, Jul. 2020. (\* first co-author)

Y. Zhang, X. Wang, H. Blanton, G. Liang, **X. Xing**, and N. Jacobs. "2d convolutional neural networks for 3d digital breast tomosynthesis classification", *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2019.

G. Liang, X. Wang, Y. Zhang, **X. Xing**, H. Blanton, T. Salem, and N. Jacobs. "Joint 2d-3d breast cancer classification", *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2019.

K. Chen, **X. Xing**, M. R. Palash, J. Liu, J. Martin. "Network-Side Multipath Access Management in Wireless Networks with Software-Defined Networking", *IEEE Transactions on Vehicular Technology* 68 (10), 10030-10044, 2019

K. Chen, **X. Xing**, M. R. Palash, J. Liu, J. Martin. "Improving Wireless Network Performance under MPTCP based Multipath Access", *Proc. of the 43rd IEEE Conference on Local Computer Networks*, 2018 [Best paper award: 1 out of 45 accepted papers out of 150 submissions].

J. Liu, **X. Xing**, K. Chen, J. Martin. "On design challenges of an endpoint flow association optimization service in a multi-provider wireless heterogeneous network", *Proc. of the IEEE International Conference on Communication (ICC)*, 2018.

### In Preparation

**X. Xing**, G. Liang, S. Khanal, N. Jacobs, and AL. Lin. "Self-Supervised Learning on Covid-19 Chest X-ray Image Classification Using Masked Autoencoder", 2022

**X. Xing**, MU. Rafique, G. Liang, H. Blanton, Y. Zhang, C. Wang, N. Jacobs, and AL. Lin. "Improvement of Alzheimer's Diseases Diagnosis with Learnable Weighted Pooling for 3D Medical Image Classification", 2022.

G. Liang, **X. Xing**, and I. Alsmadi. "BENCHMARK ASSESSMENT FOR OPTIMIZATION AND ACCELERATION LIBRARIES IN DEEP LEARNING-BASED MODELS", *Computers Security*, 2022.

### ABSTRACT

Hammond, T., **Xing, X.**, Nelson, P., Ham, S., Lin, A. (2020) "Metabolite differences in vascular dementia and control human brain tissue", *Alzheimer's Association International Conference*, 2020.

Hammond, T., **Xing, X.**, Nelson, P., Ham, S., Lin, A. (2020) "Gray and white matter metabolite differences in Alzheimer's disease and normal human brain tissue", *Alzheimer's Association International Conference*, 2020.

Hammond, T., **Xing, X.**, Nelson, P., Ham, S., Lin, A. (2020) "Metabolite Differences in TDP-43 proteinopathy and control human brain tissue", *Alzheimer's Association International Conference*, 2020.

Hammond, T., **Xing, X.**, Jacobs, N., Lin, A. (2020) " $\beta$ -Amyloid and tau drive early Alzheimer's disease decline while glucose hypometabolism drives late decline ", *Alzheimer's Association International Conference*, 2020.

### SKILLS

#### Programming

Python, Matlab, C++, C

## Experience

Pytorch, Keras, Tensorflow, Pandas, scikit-learn, OpenCV, Numpy

## AWARDS

Spotlight, XAI4CV: Explainable Artificial Intelligence for Computer Vision Workshop at CVPR 2022.

Best Paper Award, Proc. of the 43rd IEEE Conference on Local Computer Networks (LCN), 2018.

## SERVICE

Reviewer for Transactions on Knowledge Discovery from Data (TKDD).

Reviewer for IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2022.

## MEMBERSHIP

Institute of Electrical and Electronics Engineers (IEEE), Student Member