

Xiaoyan Zhang

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EDUCATION

Anhui University

Bachelor of Engineering in Artificial Intelligence

Hefei, China

2021 - 2025(expected)

- GPA: 4.33/5.0, Rank: 1/251
- Coursework: Advanced Mathematics A(97), Linear Algebra A(95), Probability Theory and Mathematical Statistics A(99), Discrete Mathematics(94), Java Technology and Its Applications (Practice)(100), Python Programming(99), Machine Learning(99), Digital Image Processing (bilingual)(98), Natural Language Processing(97), Experiments in Computer Vision(97), Software Project(96)

Purdue University

Intern in Electrical and Computer Engineering

West Lafayette, USA

May. 2024 - Present

- Laboratory: Video and Image Processing Laboratory (VIPER)
- Advisor: Fengqing Zhu and Edward J. Delp

Nanyang Technological University

2023 Summer School Program

Singapore, Singapore

Jun. 2023 - Aug. 2023

- Theme: Machine Learning & Deep Learning Methodologies
- Advisor: Chew Soon Beng

PUBLICATIONS

- [1] **Learning Frequency and Structure in UDA for Medical Object Detection**
Zhang Xiaoyan*, Liwen Wang*, Guannan He, Ying Tan, Shengli Li, Bin Pu, Zhe Jin, Wen Sha, Xingbo Dong.
Chinese Conference on Pattern Recognition and Computer Vision (PRCV), 2024.
- [2] **Validating Privacy-Preserving Face Recognition under a Minimum Assumption**
Zhang Hui, Dong Xingbo, Lai YenLung, Zhou Ying, **Zhang Xiaoyan**, Lv Xingguo, Jin Zhe, Li Xuejun.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024.
- [3] **Single Source Domain Generalization for Palm Biometrics**
Congcong Jia, Xingbo Dong, Yen Lung Lai, Andrew Beng Jin Teoh, Ziyuan Yang, **Xiaoyan Zhang**, Liwen Wang, Zhe Jin, Lianqiang Yang. *Pattern Recognition*, 2024.
- [4] **MFP3D: Monocular Food Portion Estimation Leveraging 3D Point Clouds (Oral)**
Jinge Ma, **Xiaoyan Zhang**, Gautham Vinod, Siddeshwar Raghavan, Jiangpeng He, Fengqing Zhu.
International Conference on Pattern Recognition (ICPR) MADiMa workshop, 2024.
- [5] **On the Duality of Luminance: A Direct Perception Approach for Low-Light Image Enhancement**
(Under review) Xingguo Lv, Xingbo Dong, **Xiaoyan Zhang**, Jiewen Yang, Zhe Jin, Xuejun Li, Jean-Luc Dugelay.
IEEE Transactions on Multimedia (TMM), 2024.
- [6] **Long-Tailed Continual Learning For Visual Food Recognition** (Under review)
Jiangpeng He, **Xiaoyan Zhang**, Luotao Lin, Jack Ma, Heather A. Eicher-Miller, Fengqing Zhu.
IEEE Transactions on Multimedia (TMM), 2024.

SELECTED PROJECTS

Long-tail Continual Learning in Food Classification, PU

Research Intern

Aug. 2024 – Sep. 2024

Advisor: Fengqing Zhu, Edward J. Delp

- Introduce three new long-tailed benchmark datasets based on VFN186, which reflect the food consumption patterns of different populations.
- Conducted extensive experiments on all long-tailed continual learning benchmarks for food recognition.

Food Portion Estimation, PU

Research Intern

Jun. 2024 – Jul. 2024

Advisor: Fengqing Zhu, Edward J. Delp

- Designed a Feature Extraction Module that extracts and concatenates features from both 3D point cloud data and 2D RGB images.
- Developed MFP3D, an integrated system for food portion estimation, including a 3D Reconstruction Module, a Feature Extraction Module, and a Portion Regression Module.
- Applied MFP3D to the MetaFood3D dataset for accurate estimation of food volume and energy content.

Unsupervised Domain Adaptation for Medical Object Detection, AHU

Jan. 2024 – Apr. 2024

Research Assistant

Advisor: Zhe Jin, Xingbo Dong

- Synchronized detection in source and target domains by aligning topological representation.
- Employed ResNet-101 as the feature extractor and FCOS as the detector. Implemented our model FS-UDA on two datasets of cardiac standard views, each of which includes data from two hospitals.
- Validated the effectiveness of FDA and OSA. Performed t-SNE visualization of ResNet-101-based features, and clear separation of similar categories demonstrated the effectiveness of FS-UDA to distinguish organs.

Validation of Privacy-Preserving Face Recognition, AHU

Jun. 2023 – Nov. 2023

Research Assistant

Advisor: Zhe Jin, Xingbo Dong

- Constructed the query-efficient reconstruction model, and used it for PPFR evaluation.
- Evaluated the result by developing a privacy leakage evaluation scale, including reconstruction visual quality analysis, visual privacy analysis, and identity privacy analysis.
- Conducted ablation experiments to obtain privacy validation results. Found that PSC and REI modules significantly contribute to the similarity between our results and targets.

Applications of Machine Learning and Deep Learning, NTU

Jul. 2023 - Aug. 2023

Undergraduate Visitor

Advisor: Chew Soon Beng, Kuicai Dong

- Learned the basic concepts and algorithms of machine learning, and classic methods of deep learning, including data processing and mining, computer vision, natural language processing, etc.
- Participated in the data processing and analysis project, analyzed the public bicycle dispatching situation of BikeShare, found the influencing factors of vehicle use, and formulated the optimal vehicle allocation strategy.

EXPERIENCE

Teaching Assistant of Introduction to Artificial Intelligence, Anhui University	2024 Fall
Teaching Assistant of Java Technology and Its Application (Practice), Anhui University	2024 Fall
Academic Peer Mentor, Anhui University	May. 2023 – May. 2024

AWARDS AND HONORS

National Scholarship, Ministry of Education of the People's Republic of China	2024
Honorable Mentioned in the Interdisciplinary Contest in Modeling, the Consortium for Mathematics and Application	2024
Outstanding Mentioned in the Second "Huashu Cup" International Mathematical Contest in Modeling, Big Data and Mathematical Modeling Committee of China Society for Future Studies	2024
Song Qingling Future Grant for Discipline Focus Students, The China Song Qingling Foundation	2024
Provincial Second Prize in China Undergraduate Mathematical Contest in Modeling, China Society for Industrial and Applied Mathematics	2023
Excellent Student Scholarship, Anhui University	2023
Academic Science and Technology Scholarship, Anhui University	2023
Pacemaker to Merit Student, Anhui University	2023
Merit Student, Anhui University	2023
Provincial Silver Award in China International College Students' Innovation Competition, Ministry of Education of Anhui Province	2023
Pacemaker to Merit Student, Anhui University	2022
Merit Student, Anhui University	2022
National Encouragement Scholarship, Ministry of Education of Anhui Province	2022