

Weijia Fan

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Website * GitHub * Google Scholar

Education

Master's degree in Computer Technology

Master of Engineering

Final GPA: 3.65/4.0

Shenzhen University

Sep. 2023 - Jun. 2026

Bachelor's degree in IOT, minor in Economics

Bachelor of Engineering, Bachelor of Economics

Final GPA: 3.67/4.0, Rank: 1/118

Harbin University of Commerce

Sep. 2019 - Jun. 2023

Visiting Student

Dept.Institute for Anthropomatics and Robotics

Work on Panoramic Scene Understanding

Karlsruhe Institute of Technology

Jun. 2025 - Nov. 2025

Experience

Panorama-Language Model

Visiting Student

Jun. 2025 - Nov. 2025

Karlsruhe Institute of Technology, Karlsruhe, Germany

- Curated a robust benchmark for panoramic vision across diverse scenarios, including normal, occlusions, and accident scenarios, to ensure thorough model training and evaluation.
- Pioneered the Panorama-Language Model (PanLM), a well-designed model, filling the gap of existing VLMs in panoramic scene understanding and surpassing existing VLMs.

Micro-Expression Recognition Competition at CCAC

Algorithm Developer

Jun. 2025 - Nov. 2025

Computer Vision Institute, Shenzhen, China

- We proposed a simple yet effective algorithm, bidirectional optical flow, which effectively suppresses minute noise caused by head movements.
- To compensate for information loss during downsampling caused by maxpooling operator. We proposed a wavelet-based downsampling module, surpassing the SOTA method.

Fisheye Calibration Project

Engineer

May 2022 - Jul. 2022

IOT laboratory, Harbin, China

- Developed a fisheye correction algorithm using latitude/longitude coordinates combined with edge-adaptive thresholds for curvature restoration and accurate rectification.
- Implemented and optimized the algorithm on an FPGA, achieving real-time processing (67 FPS) while maintaining high-fidelity image restoration.

Publications & Manuscripts

- **Weijia Fan**, Qiufu Li*, Jiajun Wen, Xiaoyang Peng. BCE3S: Binary Cross-Entropy-Based Tripartite Synergistic Learning for Long-Tailed Recognition. Fortieth AAAI Conference on Artificial Intelligence (AAAI-26).
- **Weijia Fan**, Jiajun Wen, Xi Jia, Linlin Shen, Jiancan Zhou, Qiufu Li*. EPL: Empirical Prototype Learning for Deep Face Recognition. arXiv.2405.12447. (Under Review).
- Qiufu Li, Huibin Xiao, **Weijia Fan**, Linlin Shen*. Classification vs. Deep Feature Learning in Normalized Spaces with Different Scaling (Submitted to CoreA).

- **Weijia Fan**, Ru Zhang*, Hao He, Siyu Hou, Yongbo Tan. A Short-Term Price Prediction-Based Trading Strategy. *PLOS ONE*, 2023.
- Shizhen Bai, Hao He, Chunjia Han*, Mu Yang, Xinrui Bi, and **Weijia Fan**. What Makes a Theme Park Experience Less Enjoyable? Evidence from Online Customer Reviews of Disneyland China. *Frontiers in Psychology*, 2023. (AJG-1, SSCI-Q1).
- Shizhen Bai, Hao He, Chunjia Han*, Mu Yang, Dingyao Yu, Xinrui Bi, Brij B. Gupta, **Weijia Fan**, and Prabin Kumar Panigrahi. Exploring Thematic Influences on Theme Park Visitors' Satisfaction: An Empirical Study on Disneyland China. *Journal of Consumer Behaviour*, 2023. (AJG-2, SSCI-Q3).

Research Statement & Interests

My research focuses on visual recognition tasks and label-effective learning paradigm. I have explored techniques ranging from contrastive learning for sample discrimination to classifier uniformity learning for balanced feature spaces.

Currently, my focus is on the practical application and evaluation of Vision-Language Models (VLMs), specifically investigating their capabilities and limitations in complex, 360-degree panoramic scenes.

In the future, I aim to bridge the gap between fundamental representation learning and the advanced capabilities of multi-model and agent through three primary research thrusts:

1. BCE-based Learning Paradigm. Developing novel loss functions and strategies focusing on intra-class compactness and inter-class separability across diverse downstream tasks, like long-tailed recognition and multi-label learning.
2. Text-Enhanced Visual Encoding. Designing visual encoders that leverage the rich, open-vocabulary knowledge of Large Language Models (LLMs) to overcome the inherent limitations of traditional closed-set vision models.
3. Advancing VLM Applications. Probing the frontiers of existing VLMs and agents in challenging domains such as complex document analysis, vision-language action, and panoramic environments to identify and solve key performance bottlenecks.

Technical Skills

Programming Languages	Shell, C/C++, Java, Matlab, Python, MatLab, L ^A T _E X
Frameworks & Libraries	PyTorch, TensorFlow, Transformers, vLLM.
Tools & Technologies	Git, Slurm, Linux Server Administration (Ubuntu, CentOS).

Language Proficiencies

Mandarin	Native
English	IELTS: 6.5 (R:6.5, L:5.5, W:6.5, S:6.5)

Selected Award

2025	Shenzhen University Overseas Exchange Study Scholarship ($\leq 0.05\%$)
2024	Academic Scholarship
2024	2nd place in the Micro-Expression Recognition Competition at the China Conference on Affective Computing (CCAC)
2023	Chinese National Scholarship ($\leq 0.02\%$)
2023	Harbin University of Commerce, School Scholarship
2023	Merit Student
2023	Outstanding Undergraduate Student