

# Weijia Fan

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Website \* GitHub \* Google Scholar

## Education

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### 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

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### 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

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- **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

<b>Programming Languages</b>	Shell, C/C++, Java, Matlab, Python, MatLab, L <sup>A</sup> T <sub>E</sub> X
<b>Frameworks &amp; Libraries</b>	PyTorch, TensorFlow, Transformers, vLLM.
<b>Tools &amp; Technologies</b>	Git, Slurm, Linux Server Administration (Ubuntu, CentOS).

## Language Proficiencies

<b>Mandarin</b>	Native
<b>English</b>	IELTS: 6.5 (R:6.5, L:5.5, W:6.5, S:6.5)

## Selected Award

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