

# Weiye Zhang

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## EDUCATION

**Southern University of Science and Technology**

**Shenzhen, China**

**Department of Computer Science and Engineering**

**B.E. in Computer Science and Technology**

08/2022- expected 07/2026

GPA: 3.75/4.0 (89.71/100)

**National University of Singapore**

**Singapore**

**Developer, School of Computer Summer Workshop 2024**

05/2024-07/2024

Accepted into the course of Artificial Intelligence and Internet of Things, Course Grade: A

**University of California, Berkeley**

**United States**

**Extension Student, BGA Program**

08/2024-present

Accepted into the course of Intro to Computer Vision and Computational Photography and Designing(composi180),

Visualizing and Understanding Deep Neural Networks (composi182)

## RESEARCH EXPERIENCE

**Condition-Aware Diffusion Model with FiLM-based Multi-Gchannel Generation**

08/2025-present

*Carnegie Mellon University | Advisor: Professor Min Xu*

*Remote*

- Implemented a diffusion architecture to handle 4-channel conditional generation
- Integrated feature-wise modulation (FiLM) across net layers to enable dynamic condition-aware control and enhance generation fidelity
- Achieved controllable and semantically guided diffusion synthesis, improving the model's adaptability to external conditions and interpretability of generative behavior

**MLLM Knowledge Acquisition from Educational Videos**

01/2025-08/2025

*University of Nottingham Ningbo China | Advisor: Professor Jiang Liu & Professor Jianfeng Ren*

- Designed Knowledge-RAG, a plug-and-play retrieval module for precise grounding and Q&A.
- Proposed new metrics (KHD, PKAI) to evaluate MLLM knowledge acquisition and hallucination.
- Built the LVideoQA benchmark with temporal annotations linking answers to supporting segments.

**Intelligent diagnosis algorithm combining temporal eye-tracking medical knowledge**

09/2024-01/2025

*Southern University of Science and Technology | Advisor: Professor Jiang Liu*

- Explored the importance of eye movement information at different time periods, using temporal eye movement information as medical prior knowledge to guide the model's attention
- Improved the accuracy and the interpretability of the model in the task of grading diabetic retinopathy

**Research on blood vessel segmentation algorithm of retinal OCTA image**

02/2024-06/2024

*Southern University of Science and Technology | Advisor: Professor Jiang Liu*

- Proposed Resolution Restoration Assisted Segmentation (RRAS) method to enhance connectivity and accuracy
- Introduced the Weighted Vascular Dice (WVD) metric, offering enhanced expressivity for evaluating vascular segmentation performance

## PUBLICATIONS & MANUSCRIPTS

1. Jialu Zhang\*, Qingyang Sun\*, Qianyi Wang, **Weiye Zhang**, Zunjie Xiao, Xiaoqing Zhang<sup>†</sup>, Jianfeng Ren and Jiang Liu<sup>†</sup>. PEMUTA: Pedagogically-Enriched Multi-Granular Undergraduate Thesis Assessment. Under Revision of **IEEE Transactions on Learning Technologies**.

2. **Weiye Zhang**\*, Jialu Zhang\*, Jianfeng Ren, Xiaoqing Zhang<sup>†</sup>, and Jiang Liu<sup>†</sup>. Did the MLLM Learn? Rethinking the Professional Knowledge Acquisition of MLLM from Multi-Disciplinary Educational Videos. Manuscript to be submitted.

3. **Weiye Zhang**\*, Junjie Lin, Jialu Zhang\* and Jiang Liu<sup>†</sup>. Intelligent Diagnosis Algorithm For Diabetic Retinopathy Integrating Temporal Eye Movement Medical Knowledge. Manuscript to be submitted.

\* Equal contribution; † Corresponding authors

# INTERNSHIP EXPERIENCE

Beijing Swing Technology Co., LTD	Shenzhen, China
Intern	02/2025-06/2025
<ul style="list-style-type: none"><li>➤ Developed algorithms for key frame identification, joint extraction of tennis fans' batting videos</li><li>➤ Worked with a professional tennis coach to perform error correction analysis based on bone feature maps</li></ul>	

# SELECTED ACADEMIC PROJECTS

Stack Overflow Data Analysis Website	
Computer System Design and Applications, Project Score: 100	09/2024-01/2025
<ul style="list-style-type: none"><li>➤ Collected 10000+ piece of Q&amp;A data from the Stack Overflow website using api and completed four analysis tasks</li><li>➤ Developed Web applications with Spring Boot that provided data visualization and enabled users to query through RESTful apis, while ensuring data analysis and results are dynamically generated</li></ul>	
Detection and Recognition of Traffic Signs for Self-driving Applications	
Machine Learning, Project Score: 92	09/2024-01/2025
<ul style="list-style-type: none"><li>➤ Improved the accuracy of detecting small target in distance based on the yolo framework. Achieved the balance of false detection and leakage rate and real-time effect</li><li>➤ Built a real-time traffic sign detection platform, which supported local video streaming, camera remote capture</li></ul>	
User matching based on eye image Wechat mini program -- "You are in my Eyes"	
Multimedia Information Processing, Project Score: 100	02/2024-06/2024
<ul style="list-style-type: none"><li>➤ Used professional instruments to collect data and built algorithms for feature extraction and classification tasks.</li><li>➤ Developed Wechat mini programs and built a user-friendly matching platform</li></ul>	
Database design based on video barrage website	
Principles of Database Systems, Project Score: 97	09/2023-01/2024
<ul style="list-style-type: none"><li>➤ Designed a rights-managed database for a website that revolves around users constantly producing content including videos and monocular reviews. (100, 000+ data) Supported three entities related functions</li><li>➤ Provided validity check and exception handling based on application scenario, and passed benchmark test</li></ul>	

# SKILLS&LANGUAGES

Coding: Python, PyTorch, TensorFlow, JAVA, Git, Linux; Competent in LaTeX
English: Fluent, TOELF: 104 (Reading 28 / Listening 25 / Speaking 24 / Writing 27) ; Mandarin: Native

# HONORS & AWARDS

➤ First Prize in College Students' Academic Science and Technology Works Competition (Guangdong)	2025
➤ First Prize (<1%) of University Merit Student Scholarship	2023, 2024, 2025
➤ The Outstanding Student& Student Leader(<1%)	2023, 2024, 2025
➤ Second Prize in CUMCM in Guangdong Province	2023
➤ First Prize of the Guangdong Province University Taekwondo Championship	2023, 2024

# LEADERSHIP & SERVICE

➤ Director of Student Union of Southern University of Science and Technology
• Designed and organized a series of university activities, such as ancient literature knowledge competition, mystery and puzzle solving activities combined with dance, "Freshman Camp", etc
➤ SUSTech Alumni Association student assistant
• Assisted in organizing alumni Association brand activities and promoted on media platforms
➤ Tutor at the Student Academic Development Center (2 years)
➤ Volunteer service (100+ hours)
• Contributed to the coordination of competitions and conferences (venue setup and attendee guidance)
• Maintained correspondence and provided educational guidance to children in remote areas