

Weiyi Zhang

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No.1088 Xueyuan Avenue, Nanshan District, Shenzhen, China

EDUCATION

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|---|----------------------------------|
| Southern University of Science and Technology | Shenzhen, China |
| Department of Computer Science and Engineering | |
| B.E. in Computer Science and Technology | <i>08/2022- expected 07/2026</i> |
| GPA: 3.75/4.0 (89.71/100) | |
| National University of Singapore | Singapore |
| Developer, School of Computer Summer Workshop 2024 | <i>05/2024-07/2024</i> |
| Accepted into the course of Artificial Intelligence and Internet of Things, Course Grade: A | |
| University of California, Berkeley | United States |
| Extension Student, BGA Program | <i>08/2024-present</i> |
| Accepted into the course of Intro to Computer Vision and Computational Photography and Designing(composi180), Visualizing and Understanding Deep Neural Networks (composi182) | |

RESEARCH EXPERIENCE

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| Condition-Aware Diffusion Model with FiLM-based Multi-Channel Generation | <i>08/2025-present</i> |
| <i>Carnegie Mellon University Advisor: Professor Min Xu</i> | <i>Remote</i> |
| ➤ 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 | <i>01/2025-08/2025</i> |
| <i>University of Nottingham Ningbo China Advisor: Professor Jiang Liu & Professor Jianfeng Ren</i> | |
| ➤ 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 | <i>09/2024-01/2025</i> |
| <i>Southern University of Science and Technology Advisor: Professor Jiang Liu</i> | |
| ➤ 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 | <i>02/2024-06/2024</i> |
| <i>Southern University of Science and Technology Advisor: Professor Jiang Liu</i> | |
| ➤ 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, **Weiyi Zhang**, Zunjie Xiao, Xiaoqing Zhang[†], Jianfeng Ren and Jiang Liu[†]. PEMUTA: Pedagogically-Enriched Multi-Granular Undergraduate Thesis Assessment. Under Revision of **IEEE Transactions on Learning Technologies**.
2. **Weiyi Zhang**^{*}, Jialu Zhang^{*}, Jianfeng Ren, Xiaoqing Zhang[†], and Jiang Liu[†]. Did the MLLM Learn? Rethinking the Professional Knowledge Acquisition of MLLM from Multi-Disciplinary Educational Videos. Manuscript to be submitted.
3. **Weiyi Zhang**^{*}, Junjie Lin, Jialu Zhang^{*} and Jiang Liu[†]. 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

- Developed algorithms for key frame identification, joint extraction of tennis fans' batting videos
- Worked with a professional tennis coach to perform error correction analysis based on bone feature maps

SELECTED ACADEMIC PROJECTS

Stack Overflow Data Analysis Website

Computer System Design and Applications, Project Score: 100

09/2024-01/2025

- Collected 10000+ piece of Q&A data from the Stack Overflow website using api and completed four analysis tasks
- 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

Detection and Recognition of Traffic Signs for Self-driving Applications

Machine Learning, Project Score: 92

09/2024-01/2025

- 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
- Built a real-time traffic sign detection platform, which supported local video streaming, camera remote capture

User matching based on eye image Wechat mini program -- "You are in my Eyes"

Multimedia Information Processing, Project Score: 100

02/2024-06/2024

- Used professional instruments to collect data and built algorithms for feature extraction and classification tasks.
- Developed Wechat mini programs and built a user-friendly matching platform

Database design based on video barrage website

Principles of Database Systems, Project Score: 97

09/2023-01/2024

- 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
- Provided validity check and exception handling based on application scenario, and passed benchmark test

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