Zhiran (Minerva) Zhang

minervazhang1117@gmail.com
minervazz.github.io

Education

University of Science and Technology of China — Hefei, Anhui, China
B.E. in Computer Science — 2021.09 - 2025.07
- Class of Honors Scholarship
- Bronze Academic Scholarship

Publications

1. **Zhiran Zhang**. RadWorld: A World Foundation Model For Radiology. In preparation for submission to *Nature Biomedicine*.

2. **Zhiran Zhang**, et al. Research on Image Classification Enhancement Method Based on K-means++ Clustering and CNN. *IEEE 6th International Conference on Artificial Intelligence and Computer Applications (ICAICA 2024)*.

Academic Experience

Research Intern | *Stony Brook University* — 2025.01 - present
- Advisor: Chenyu You
- Foundation models in radiology.

Research Intern | *Intelligent Multimedia Content Computing Lab* — 2023.05 - 2025.06
- Advisor: Hongtao Xie
- Talking head and digital human synthesis.

Teaching Assistant | *University of Science and Technology of China* — 2023.09 - 2025.01
- Mathematical Logic and Graph Theory, 2023 fall.
- Graph Theory, 2024 fall.

Journal Reviewer | IEEE TNNLS — 2025.06 - present
- Reviewed papers for the journal IEEE Transactions on Neural Networks and Learning Systems.

Internships

Software Engineer Intern | *iFlytek* — 2024.07 - 2024.10
- Key contributions to an LLM-based software utilizing retrieval augmented generation (RAG): developed a novel input file parsing model, and optimized the retrieval model to achieve a 30% increase in processing speed.
- Fine-tuned a BERT-based intent recognition language model with a precision of 99% to be deployed on wearable smart glasses.

Projects

Comprehensive Multimodal Retrieval and Generation System — 2025.04 - 2025.06
- Developed an end-to-end platform integrating text-to-image generation (VQ-VAE + diffusion), image captioning (CLIP + GPT-2), and text-to-image retrieval (CLIP + Faiss). Achieved high-fidelity synthesis, improved caption accuracy via joint fine-tuning, and sub-second large-scale retrieval, all deployed in a Gradio web UI.

Talking Head Synthesis — 2024.05 - 2025.05
- Compared 4 existing baseline methods for generating talking heads and improved upon a 3D Gaussian splatting model by implementing a loss function from another lip-sync baseline. The resulting model significantly mitigates lip-syncing issues by 20% compared to the Gaussian Talker baseline while maintaining high rendering speed.

Bike ReID — 2023.07 - 2023.10
- Adopted the YOLOx and ReID algorithms to develop a novel AI model that learns bike-person pairs in real-time surveillance scenarios. Input of a bike picture returns its recent locations and warning is sent if abnormal pairing is detected within only 0.24s, making it ideal to alert user if their bike is stolen. Achieved an accuracy of 74% after training with less than 3,000 images.

Awards

- **Outstanding Project**, National University Student Innovation Program — 2025.06
- **Bronze Award**, Yuqin Cup Software Design Competition — 2023.10
- **9th Place**, Robogame Robot Competition — 2023.09

- **7 University Records**, Swimming — present
- **Anhui Province Records**, Swimming — present
- **2 Gold Medals**, Swimming. University Athletic Meet — 2024.05
- **2 Gold Medals**, Swimming. University Athletic Meet — 2023.06
- **7th**, Women's 50m Breaststroke, China University Swimming Championships — 2023.03
- **4 Gold Medals**, Swimming. Anhui Province Sports Games — 2022.07

- **Gold Medal** etc., Track and Field, University Athletic Meet — 2024.10
- **Gold Medal** etc., Track and Field, University Athletic Meet — 2023.10
- **Second Place**, Women's 10km, University Short Distance Marathon — 2021.11
- **Gold Medal** etc., Track and Field, University Athletic Meet — 2021.10

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