Siyuan Liu

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Current Research Interests: Computer Vision and Multi-modal Learning

Education

Nanjing University, *Bachelor of Science in Computer Science and Technology* Sept. 2022 – Present

- **GPA:** 4.59/5 (91.8/100)
- **Ranking:** 5/184 (Top 2.7%)
- **Main Courses:** Probability Theory and Mathematical Statistics (100), Advanced Programming (98), Numerical Method (98), Introduction to Computer Systems (96), Elements of Cryptography (95), Big Data Processing (95), Calculus (92), Principles and Techniques of Compilers (92), Visual Representation and Recognition (92)

Research Experiences

Composed Image Retrieval July 2025 - Present

Supervisor: Prof. Kai Han *The University of Hong Kong*

- Exploring a simple but effective method for composed image retrieval from text-based perspective.

Reconciling Generalization with Specialization via Orthogonal Low-Rank Adaptation and Cross-Modal Attention Mar. 2025 - May 2025

Supervisor: Prof. Yinghuan Shi *Nanjing University*

- Designed and implemented a novel framework leveraging LoRA, orthogonal loss, and cross-modal attention to enhance generalization and specialization in video classification tasks.
- Improved parameter efficiency and feature diversity, achieving state-of-the-art performance on benchmark datasets.

Task Vector-based Domain Generalization Feb. 2024 - May 2024

Supervisor: Prof. Yinghuan Shi *Nanjing University*

- Investigated the relationships between task vectors across diverse domains, datasets, and network architectures, focusing on their applications in domain generalization.
- Proposed a novel paradigm for domain generalization by leveraging task vectors for direct model editing, reducing the need for traditional fine-tuning.

Projects

C-like Language Compiler Sept. 2024 - Dec. 2024

- Developed a small-scale C-like language compiler that translates C-like source code into MIPS assembly code.
- Implemented lexical analysis, syntax analysis, semantic analysis, intermediate code generation, and optimized target code generation using C.
- Completed as part of the course *Principles and Techniques of Compilers*.

Survivor-like Game Mar. 2023 - June. 2023

- Designed and developed a survivor-like game from scratch using C++ and Qt.
- implemented game mechanics, user interfaces, and real-time interactions.
- Completed as part of the course *Advanced Programming*.

Honors and Awards (Selected)

- **National Scholarship, twice** 2025, 2023
- **Guo Xie Birong Scholarship** 2024

- **Mobile Light Digital Intelligence Innovation Scholarship** 2024
- **Outstanding Student of Nanjing University, Model** 2024
- **Outstanding Student Leader of Nanjing University, Model** 2024

Service

- Teaching Assistant of Discrete Mathematics Feb. 2025 - June 2025
- Executive President of the Student Union, School of Computer Science Sept. 2024 - Aug. 2025

Technical Skills

- Programming Languages: Python, C/C++, SQL
- AI Frameworks: PyTorch
- Development Tools: Git, Bash, Markdown, LaTeX
- Language: English (CET-6: 608), Mandarin