Zian Zhou

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Education

Zhejiang University — Hangzhou, China
B.Eng. in Software Engineering, College of Computer Science and Technology — *Sep 2023 – Jun 2027*

- Honors: **National Scholarship**, Zhejiang University First-Class Scholarship, New Oriental Scholarship, Top 10 Students of Yunfeng College.
- Competitions: Gold Award, Zhejiang Provincial International College Students' Innovation Competition; **First Prize, National College Students Mathematics Competition (Zhejiang)**; First Prize, Zhejiang Higher Mathematics Competition; Third Prize, Zhejiang University Mathematical Modeling Competition; Third Prize, Zhejiang Physics Competition.

National University of Singapore — Singapore
Summer Research Program, Computer Science — *Jun 2025 – Jul 2025*

- Final project ranked #2 in its track; received A+ (highest grade) individually.

Research & Experience

China International Capital Corporation (CICC) — Beijing / China
Quantitative Strategy Intern, Machine Learning Research — *Mar 2026 – Jul 2026*

- Developed a multi-agent reinforcement learning framework for option delta hedging. The OP Agent inferred directional positioning from implied volatility surfaces and Greeks, while the HR Agent routed hedging decisions across pre-trained hedgers with different risk preferences.
- Built an end-to-end machine learning CTA pipeline for rebar options, independently covering raw data cleaning, Alpha158-based feature engineering, factor screening and synthesis, model training, and the underlying event-driven backtesting framework.
- Validated nonlinear alpha signals in RB options and improved strategy robustness through feature-importance analysis and systematic stress testing.

Hangzhou Yuanzhoufang Co., Ltd. (founded by former Alibaba executives) — Hangzhou, China
Algorithm Intern — *Aug 2025 – Dec 2025*

- Contributed to the development of a multimodal large model for spinal disease, leading to one **ICLR 2026** paper submission.
- Constructed **SpineMed-450k**, a clinically grounded multimodal dataset with 400K+ samples from textbooks, guidelines, and 1,000 real-world cases; used PaddleStructureV3 OCR and Gemini-2.5-Pro to generate traceable high-quality QA pairs.
- Co-developed **SpineBench**, a benchmark spanning 14 sub-diseases for diagnosis and report generation, with an XML-based LLM-as-a-Judge evaluation protocol for reproducibility and objectivity.
- Fine-tuned Qwen-2.5-VL and achieved performance surpassing multiple open-source multimodal models on SpineBench, ranking just behind Gemini-2.5-Pro overall.
- Also explored agent memory through reproductions and literature study on Agentic Context Engineering and training-free GRPO.

Independent Research for MICCAI Preparation — Hangzhou, China
Multimodal Fusion & Explainability in Medical AI — *Jan 2026 – Feb 2026*

- Investigated multimodal fusion strategies for medical AI systems during winter-break preparation for MICCAI, with a focus on aligning image, text, and structured clinical signals under limited-label settings.
- Reviewed and implemented representative designs for cross-modal interaction, feature aggregation, and uncertainty-aware interpretation to improve both predictive performance and model transparency.
- Studied explainability methods for multimodal medical models, comparing token-/region-level attribution, case-based analysis, and clinically meaningful rationale generation for more trustworthy decision support.

State Key Lab of CAD&CG, Zhejiang University — Hangzhou, China
Undergraduate Research Assistant — *Mar 2025 – Mar 2026*

- Worked under Prof. Yingcai Wu on vision-language models for Chinese traditional painting, focusing on fine-grained multimodal understanding.
- Participated in research under Prof. Shuiguang Deng on deep imbalanced regression, exploring algorithmic improvements for long-tail data distributions.

Pi3Lab Remote / China
AI Full-Stack Engineer Intern *Jul 2025 – Aug 2025*

- Independently built scholarwiki.com, an alternative to Paper with Code after service shutdown, including high-concurrency crawlers that ingest the latest arXiv papers and code daily.
- Scaled the platform to 570K+ indexed papers and 40K+ visits; automated paper summarization and social-media publishing workflows with n8n.
- Delivered enterprise-facing AI features for clients including China Telecom and Nike, covering AI design and automatic PPT generation modules.

CSGO Virtual Asset Market Trend Prediction System Singapore / China
Project Lead *Jun 2025 – Jul 2025*

- Led the final project during the NUS summer program and built a full-stack system for virtual asset price forecasting.
- Collected transaction data with Selenium-based dynamic crawlers and trained deep learning time-series models for price prediction.
- Achieved an R^2 score of 0.8963 on the test set and deployed a web platform for historical trend visualization and forecasting.

Skills

- **Programming:** Python, C++, PyTorch, Selenium, Git.
- **AI/ML:** Multimodal LLMs/VLMs, reinforcement learning, quantitative ML, OCR pipelines, benchmark design, model fine-tuning, backtesting systems.
- **Research Interests:** Multi-Agent RL, Machine Learning, multimodal fusion, explainability, agent memory, long-tail learning.
- **Languages:** English (strong academic reading and technical communication), Chinese (native).