Zongze Du

AI Research Engineer | Multimodal AI · Embodied Intelligence · Builder

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Summary

Incoming PhD student at ZJU CAD&CG Lab (advised by Prof. Chunhua Shen), working at the intersection of multimodal reasoning, embodied intelligence, and video generation. Beyond research, I founded AIRA at Zhejiang University — building a research community, driving industry partnerships, and connecting students with frontier AI work. Core CUDA programmer at ZJUSCT with hands-on multi-GPU optimization experience. Drawn to work where frontier AI research translates into real systems, products, and industry impact.

Education

Ph.D. **Zhejiang University**, Computer Science and Technology — Hangzhou, China
- Advisor: Prof. Chunhua Shen, Prof. Hao Chen, CAD&CG National Key Laboratory — 2026 – Present

B.E. **Zhejiang University**, Computer Science — Hangzhou, China
- Chu Kochen Honors College (竺可桢荣誉学院 混合班) — Sept 2022 – June 2026

Research Experience

ZJU CAD&CG Lab, Research Assistant — Hangzhou, China — Jan 2024 – present
- Contributed to Omni-R1 multimodal RL pipeline — implemented training components and reward shaping for omnimodal reasoning under a two-system collaboration framework (NeurIPS 2025)
- Built face-swapping pipeline (LivingSwap) on VACE video generation backbone; focused on source video realism preservation for cinematic-quality output (CVPR 2026)
- Independently led protein representation learning research funded by ZJU Research Fund (50K RMB); designed molecular embeddings for drug candidate screening

ZJUSCT & AIRA, Zhejiang University, Founder & Team Lead — Hangzhou, China — Oct 2023 – present
- Founded AIRA (AI Research Association); secured ZJU institutional support, established a formal talent development partnership with Huawei's Kunpeng Ascend program, and mentored multiple teams to Huawei ICT National Finals — one team won **1st Prize** in the Ascend LLM track (2025)
- Launched zjuaira.com — a campus collaborative coding and AI learning platform for ZJU students, with AI-assisted learning features in development; initiated an AI agent deployment project with an alumni-founded company
- Core CUDA programmer at ZJUSCT; led server architecture design and multi-GPU acceleration; represented ZJU at ASC (2024, 2025) and ISC25 (Hamburg)

Publications

Preserving Source Video Realism: High-Fidelity Face Swapping for Cinematic Quality — Dec 2025
Zekai Luo, **Zongze Du**, Zhouhang Zhu, Hao Zhong, Muzhi Zhu, Wen Wang, Yuling Xi, Chenchen Jing, Hao Chen, Chunhua Shen
(CVPR 2026)

Omni-R1: Reinforcement Learning for Omnimodal Reasoning via Two-System Collaboration Dec 2025
* Equal contribution
Hao Zhong, *Muzhi Zhu*, **Zongze Du***, Zheng Huang, Canyu Zhao, Mingyu Liu, Wen Wang, Hao Chen, Chunhua Shen
(NeurIPS 2025)

ACTIVE-O3: Empowering MLLMs with Active Perception via Pure Reinforcement Learning Jan 2026
Muzhi Zhu, Hao Zhong, Canyu Zhao, **Zongze Du**, Mingyu Liu, Zheng Huang, Anzhou Li, Hao Chen, Cheng Zou, Jingdong Chen, Ming Yang, Chunhua Shen
(ICML 2026 (Under Review))

Metric-Bench: Exploring In-context Spatial Metric Reasoning in VLMs for Indoor Scenes Feb 2026
Yuling Xi, Haokai Zhang, Muzhi Zhu, Hao Zhong, **Zongze Du**, Hengyu Zhao, Chenchen Jing, Yufei Yin, Bin Qin, Yongjie Yang, Zhenbo Luo, Hao Chen, Chunhua Shen
(ECCV 2026 (Under Review))

GAE: Unleashing Physical Potential of VLM with Generalizable Action Expert Dec 2025
Mingyu Liu, Zheng Huang, Xiaoyi Lin, Muzhi Zhu, Canyu Zhao, **Zongze Du**, Yating Wang, Haoyi Zhu, Hao Chen, Chunhua Shen
(Preprint)

NoTVLA: Narrowing of Dense Action Trajectories for Generalizable Robot Manipulation Sept 2025
Zheng Huang, Mingyu Liu, Xiaoyi Lin, Muzhi Zhu, Canyu Zhao, **Zongze Du**, Xiaoman Li, Yiduo Jia, Hao Zhong, Hao Chen, Chunhua Shen
(Preprint)

Selected Projects

FrontierX — AURA & VEX Companion Robots (CES 2026) Sept 2025 – Jan 2026
- Led algorithm team at FrontierX for a spherical companion robot (AURA) showcased at CES 2026
- Built full perception stack on **Hobot RDK X5** under embedded hardware constraints: visual person/pet tracking, facial expression + body language emotion recognition, autonomous follow
- Balanced competing requirements across hardware limits, real-world scene variability, and feature delivery timelines to ship a working product demo
- AURA: LLM-driven emotion-aware dialogue + auto-follow

High-Performance Computing Optimization Jan 2024 – June 2025
- ASC 2024 (Shanghai): profiled and optimized HPL & HPCG benchmarks — **2nd Prize** (World Runner-up)
- ASC 2025 (Qinghai): accelerated AlphaFold CPU inference with JAX kernel tuning — **2nd Prize** (World Runner-up)
- ISC25 (Hamburg, June 2025): optimized C++ climate prediction code; received honor certificate

Honors and Awards

- ZJU First-Class Scholarship (2022–2023, 2023–2024), Zichen Scholarship (2024–2025)
- Huawei ICT National Finals 1st Prize, 昇腾大模型赛道 (March 2025)
- ASC Student Supercomputer Challenge 2nd Prize (2024, 2025)
- ISC Student Cluster Competition Honor Certificate (2025)

Technical Skills

Languages: Python, C++, CUDA, JAX

Frameworks & Tools: PyTorch, vLLM, OpenMP, IntelMPI

Research Areas: Multimodal Reasoning, Embodied AI, Video Generation, HPC

Capabilities: Research Prototyping, Multi-GPU Optimization, Technical Leadership, Industry Collaboration