WENZHENG CHANG

Ph.D. Student in CS at SJTU | amberheart.github.io

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Education

Shanghai Jiao Tong University (SJTU)   **Sep. 2025 – Present**
Ph.D. in Computer Science (Advised by Prof. Tong He)   *Shanghai, China*

University of Science and Technology of China (USTC)   **Sep. 2021 – Jun. 2025**
B.Eng. in Computer Science and Technology   *Hefei, China*
- **GPA:** 3.88/4.3 (Weighted Average: 90.32, **Rank: 8/192**)
- **Honors:** Outstanding Graduate of the School of CS, National Scholarship (Top 1%)
- **Thesis:** *"A Unified Geometry-Aware World Model"* (Outstanding Undergraduate Thesis Award)

Publications (* indicates equal contribution)

Aether: Geometric-aware unified world modeling | *ICCV 2025* **(Outstanding Paper @ RIWM Workshop)**
H. Zhu*, Y. Wang*, J. Zhou*, **W. Chang***, Y. Zhou*, Z. Li*, J. Chen*, C. Shen, J. Pang, T. He.

π^3**: Scalable Permutation-Equivariant Visual Geometry Learning** | *ICLR 2026*
Y. Wang*, J. Zhou*, H. Zhu, **W. Chang**, Y. Zhou, Z. Li, J. Chen, J. Pang, C. Shen, T. He. *[1.7k+ GitHub Stars]*

Omniworld: A multi-domain and multi-modal dataset for 4d world modeling | *ICLR 2026*
Y. Zhou, Y. Wang, J. Zhou, **W. Chang**, H. Guo, Z. Li, K. Ma, X. Li, Y. Wang, H. Zhu, M. Liu, et al. *[200k+ HF Downloads]*

Wint3r: Window-based streaming reconstruction with camera token pool | *ICLR 2026*
Z. Li, J. Zhou, Y. Wang, H. Guo, **W. Chang**, Y. Zhou, H. Zhu, J. Chen, C. Shen, T. He.

Deepverse: 4d autoregressive video generation as a world model | *Under Review (2025)*
J. Chen, H. Zhu, X. He, Y. Wang*, J. Zhou*, **W. Chang***, Y. Zhou*, Z. Li*, Z. Fu, J. Pang, T. He.

Research Experience

Shanghai AI Lab   **Nov. 2024 – Present**
Research Intern, Spatial Representation & Video Generation   *Shanghai, China*
- **Large-Scale Distributed Training:** Set up and ran multi-node distributed training pipelines (via SLURM, NCCL, and DeepSpeed) on up to **64 GPUs** for SOTA open-source video generation models like **CogVideoX (5B), Wan2.1, and HunyuanVideo (8B)**.
- **4D World Models:** Focused on training, distilling, and evaluating 4D world models, dealing with high-dimensional video tensors to scale up spatial-temporal representations effectively.
- **Data Infrastructure:** Built robust data pipelines to process and manage **100TB+** of synthetic spatial data (**18M+ frames**), covering multiple modalities like RGB, depth, camera poses, text, and optical flow.

Graphics and Geometric Computing Laboratory (GCL), USTC   **Jan. 2024 – Jun. 2024**
Undergraduate Research Assistant (Supervised by Prof. Ligang Liu)   *Hefei, China*
- Explored and optimized 3D reconstruction methods for transparent objects by applying advanced physically-based path tracing algorithms.

Teaching Experience

University of Science and Technology of China (USTC)   **Sep. 2023 – Jan. 2025**
Teaching Assistant   *Hefei, China*
- **Computer Networks** *(Fall 2024)*: Led Q&A sessions, designed networking assignments, and evaluated student implementations.
- **Computer Organization and Design** *(Spring 2024)*: Guided students in understanding modern computer system architecture, instruction set design (RISC-V/LoongArch), and CPU pipelining principles.
- **Intro to Computer Systems A** *(Fall 2023)*: Provided comprehensive teaching support covering the hardware-software interface for core CS/EE majors.

Selected Engineering Projects

LoongArch 32-bit Pipelined CPU Design | *Verilog, FPGA, Computer Architecture* **Aug. 2023**
- **Team Leader:** Built a complete LoongArch-32 pipelined CPU from scratch, handling everything from hardware description to datapath optimization and hazard resolution.
- Took the project through the full engineering lifecycle—from ISA design to FPGA hardware validation—leading a 4-person team to win the **Winning Prize** at the 7th "Loongson Cup" National Finals.

Distributed File Management & High-Performance Network I/O | *eBPF, C/C++, OS* **Jun. 2024**
- **Team Leader:** Developed an advanced distributed file system and network I/O module using eBPF to intercept and accelerate kernel-level network packets.
- Designed the overall system architecture and optimized kernel-space data paths, significantly boosting concurrent processing and I/O throughput.

USTCube (Digital Campus Metaverse) | *Minecraft, Digital Art* **Jan. 2023 – Jun. 2024**
- **Founder & Leader:** Started and led the full-scale digital reconstruction of the USTC campus in Minecraft, managing community contributions and large-scale rendering assets.
- Partnered with the Alumni Foundation to turn a course prototype into a sustained metaverse project that won multiple provincial-level digital art awards.

Pygame Pixel-Art 2D Strategy Game (Lock Down in USTC) | *Python, Pygame* **Dec. 2023**
- **Team Leader:** Created a post-apocalyptic survival game without relying on existing commercial game engines, building a custom 2D core engine, event loop, and physics from the ground up.

Honors & Awards

National Scholarship (Top 1%, Rank 2/186), *Ministry of Education of the PRC*	Sep. 2023
Outstanding Graduate & Outstanding Undergraduate Thesis, *School of CS, USTC*	Jun. 2025
Winning Prize, *7th "Loongson Cup" National College Student Computer System Training Competition*	Aug. 2023
Silver Award for Outstanding Student Scholarship, *USTC*	Sep. 2024 & 2021
Longfor Scholarship, *USTC*	Sep. 2022
Third Prize in Anhui Province, *Contemporary Undergraduate Math Contest in Modeling (CUMCM)*	Jun. 2023
Third Prize in Art Practice Workshop, *7th Anhui University Student Art Exhibition*	Nov. 2023
Third Prize in Photography, Video and Digital Art, *2nd USTC Competition*	Sep. 2023

Technical Skills

Languages: Python, C/C++, Verilog, MATLAB, SQL
Deep Learning: PyTorch, CUDA, Transformers, Diffusers, Hugging Face
Distributed Training & Infra: SLURM, NCCL, DeepSpeed, Linux, eBPF, Docker
AI-Assisted Engineering: Highly proficient with modern coding agents (**Cursor, Claude Code, Gemini CLI, Codex**), using them to significantly speed up system prototyping, complex debugging, and codebase refactoring.