# Zhijing Wu

Computer Science Undergraduate, Sichuan University
zhijingwu.cs@gmail.com | zhijingwu.github.io | GitHub | LinkedIn

## Education

**Sichuan University** Chengdu, China
*B.Eng. in Computer Science* *Sep. 2025 – Expected Jun. 2030*

- Overall GPA: **3.88/4.00**; Required-course GPA: **4.00/4.00**; Required-course average: **94.7/100**; Rank: **2/288**.

## Research Interests

Embodied AI and Robotics; World Models and Model-Based Planning; Reliable LLM Agents; Structured Reasoning and Agent Memory.

## Publications

Jinghong Tang, **Zhijing Wu**, Yikun Liu, Wei Ju, and Jiyao Wang. "Hyperbolic Self-Supervised Pretraining for Hierarchical EEG Representation Learning in Generalizable Parkinson's Disease Detection." *IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2026)*. **Regular Paper, Accepted**.

## Selected Research & Engineering Projects

**UAV Powerline Inspection: Mission Planning & Replanning** | *Team Project* 2026

- Responsible for topology-aware route planning and dynamic replanning in a three-person powerline-inspection project; integrated inspection targets, component transitions, route visualization, and playback.
- Validated the Chengdu image-to-mission pipeline on **15 detected lines, 13 inspection points, and 15 mission segments**; added provenance and regression checks for replanning and frontend state consistency. No physical-flight performance is claimed.

**Action-Conditioned World Model: Planning-Reliability Audit** | *Independent Study* 2026

- Examined action-candidate scoring and paired stochastic rollouts using the released EgoWM checkpoint, with frozen actions and a shared scene to separate sampling variability from action effects.
- Analyzed **24 generated eight-frame rollouts** across the initial comparison and paired-sampling study; found no established variance-reduction gain. This was an open-loop, single-scene evaluation without navigation-success measurement.

**Dynamic Web-Agent Reliability under Changing Observations** | *Independent Study* 2026

- Built controlled browser-UI state transitions and evaluated whether fresh observations and feedback policies reduce stale actions and preserve achieved objectives in a closed-loop agent setting.
- Executed **96 main + 18 supplementary real-model branches** on one shared state machine; fresh observations prevented tested stale clicks, while subsequent retries sometimes undid achieved goals. Branches are not independent tasks.

**Within-Step Perturbation Timing for Computer-Use Agents** | *Independent Extension* 2026

- Extended the upstream AgentHijack evaluation with observation/action-boundary perturbation controls, fixed-click instrumentation, and trajectory-level evidence logging.
- Analyzed **36 executions across three Chrome tasks**; documented timing-sensitive trajectory differences, while uncontrolled sampling seeds and failed/capped episodes limit causal conclusions.

**Memory Mechanisms: Evidence Retention, Readers & Ambiguity** | *Independent Study* 2026

- Designed a symbolic control over ten archived PropWorld worlds to distinguish memory evidence loss, reader inference errors, and ambiguity under matched observation histories.
- Across **640 held-out queries**, a version-space reader gave **494 correct / 146 abstentions** versus **250 correct** for the conventional reader; the abstentions reflect class-conditional ambiguity, not demonstrated embodied-world-model gains.

**Guided Topology Diffusion: Representation-to-Execution Audit** | *Independent Reproduction* 2026

- Traced diffusion-generated communication graphs through runtime construction and agent-message execution; isolated a coordinate mismatch between intended and executed edges.
- Across **603 records**, canonicalization increased mean edge Jaccard from **0.152 to 0.863**; no downstream task-performance gain was established. Work resides on the upstream fork's reproduction branch.

## Awards & Honors

**First Prize (Sichuan Division)**, Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM), **Oct. 2026**.

**Meritorious Winner (M Award)**, Mathematical Contest in Modeling (MCM), **May 2026**.

## Technical Skills

**Programming / ML:** Python, C/C++, PyTorch, PyTorch Geometric, Transformers, Graph Neural Networks.
**Research:** Controlled Experiments, Agent Evaluation, Execution Tracing, Model/Code Audits, Reproducibility.
**Tools:** Linux, Git, Docker, Conda.