Xiaochen Zhai

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Education

Nanjing University, Nanjing, China — Sept. 2023 – Present

Undergraduate Student in Computer Science and Technology (Brain Science and AI)

- **Academic Performance**: Rank 2 / 24
- **Professional Skills**: English CET-6 (606), PyTorch, Isaac Gym, MuJoCo, Python, C++, Java

Publications

- **Non-Adversarial Imitation Learning Provably Free of Compounding Errors: The Role of Bellman Constraints**
  Tian Xu, Chenyang Wang, **Xiaochen Zhai**, Ziniu Li, Yi-Chen Li, Yang Yu.
  *International Conference on Machine Learning (**ICML 2026**)*, **Regular Accept**. [arXiv]

Research & Project Experience

LAMDA-RL Group, Nanjing University — Aug. 2025 – Present

Research Intern

- **Reproduction of Quadruped Locomotion Algorithms** *Aug. 2025 – Oct. 2025*
  Independently researched and reproduced frontier works such as *Robot Parkour Learning* and *DrEureka*. By building simulation environments and debugging code, I successfully implemented end-to-end visual locomotion policies, gaining practical experience in deploying reinforcement learning algorithms.
- **Eliminating Compounding Errors in Non-Adversarial Imitation Learning** *Oct. 2025 – Present*
  Investigated core algorithmic mechanisms in Non-Adversarial IL. To tackle the severe issue of error divergence in long-horizon planning tasks, we explored the theoretical framework of introducing **Bellman constraints** into the objective function to provably eliminate compounding errors. Under the guidance of my supervisor and senior labmates, I completed the experimental design, model training, and performance profiling of this framework alongside baselines (e.g., IQ-Learn) in high-dimensional visual continuous control tasks, fully verifying the superior robustness of our algorithm in complex observation spaces.

Institute for AI Industry Research (AIR), Tsinghua University — Dec. 2025 – Mar. 2026

Research Intern Autonomous Driving & Embodied AI

- **Architecture Analysis of Dual-arm Embodied AI and VLA Models**
  Participated in research seminars on dual-arm collaboration tasks, systematically studying complex manipulation modeling logic based on the **RoboTwin** simulation environment. Investigated architecture design of general robot foundation models such as **RoboBrain-X0**, and conducted theoretical analysis on their adaptation to highly heterogeneous tasks.
- **End-to-End Autonomous Driving Decision Planning and Trajectory Generation**
  Assisted in the basic code implementation and performance verification of a **Diffusion Policy**-based vehicle trajectory generation module for long-horizon planning in complex scenarios. Researched end-to-end autonomous driving architectures based on **World Models** and participated in seminars on action space discretization and autoregressive generation schemes.

AtmoWatcher: Multi-source Satellite Monitoring System — May 2024 – June 2025

Project Leader Key Project for Innovation and Entrepreneurship

- Led the team to develop algorithms and a system for monitoring greenhouse gases using multi-source satellite data.
- Utilized deep learning time-series models (RNN) to analyze emission data and provide accurate future trend predictions.

♡ Honors and Awards

Meritorious Winner, Mathematical Contest in Modeling (MCM/ICM) 2025
Provincial First Prize, China Undergraduate Mathematical Contest in Modeling (CUMCM) 2024
First Prize, Renmin Scholarship (Top 5%) 2024, 2025
First Prize, Top-Notch Scholarship for Basic Disciplines 2024, 2025

Leadership & Activities

Head, "Nanxing Plan" Hometown Enrollment Group, Nanjing University 2024
Minister, Event Organization Dept., Student Union of Kuang Yaming Honors School 2023 – 2024
Peer Mentor, Kuang Yaming Honors School, Nanjing University 2024, 2025
Member, Orienteering Club; AIA Club (AI Association) 2023 – Present

Self-Evaluation

- **Academic Passion**: Deeply passionate about **World Models, Autonomous Driving, and Embodied AI**, emphasizing the synergy between mathematical derivation and programming practice. Explored the full research cycle from architecture analysis to code implementation during internships at top-tier labs.
- **Comprehensive Skills**: Developed strong organizational and collaborative skills through leadership roles in student public services. I am a responsible and effective communicator.
- **Personality**: Possess strong self-motivation and excellent learning abilities. Courageous in exploring frontier technologies and able to adapt quickly to new environments.