

XINJIE ZHANG

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Education

Columbia University

New York, USA

Joint Bachelor's Degree Program | BA in **Computer Science** and BA in **Applied Mathematics**

Sep 2024 – May 2026

CGPA: 4.0970/4.00

- Scholarship: George B. Bernheim Scholarship, GS Summer Scholarship
- Honors: Dean's List
- Relevant courses: **Computer Science**: Advanced Programming, Natural Language Processing, Topics in Computer Science (Deep Learning for Computer Vision), Computer Science Theory; **Mathematics**: Linear Algebra, Probability Theory, Elementary Stochastic Processes, Applied Stochastic Analysis, Analysis and Optimization, Modern Analysis I; **Finance**: AI Applications in Finance

City University of Hong Kong (CityU)

Hong Kong SAR

Joint Bachelor's Degree Program | BSc in **Computer Science(Artificial Intelligence Stream)**, Minor in **Mathematics**

Sep 2021 – Jun 2026

CGPA: 3.98/4.3

- Scholarship: Dr Herman Hu Scholarships for Joint Degree Programmes
- Honors: Talents Program (Top 10% of students), Dean's List
- Relevant courses: **Computer Science**: Artificial Intelligence, Fundamentals of Data Science, Database Systems, Data Structures, Software Design, Computer Networks, Operating Systems, Design and Analysis of Algorithms, Computer Organization; **Mathematics**: Probability and Statistics, Discrete Mathematics, Multi-variable Calculus, Computational Probability Modeling; **Finance**: Introductory Mathematical Finance

Peking University

Beijing, China

Globex Summer Program

Jun – Jul 2023

- Relevant courses: **Computer Science**: Machine Learning Algorithms — From Math to Code; **Finance**: Financial Decisions in Engineering Project Management

Research Experience

Remote Predoc Researcher | Rensselaer Polytechnic Institute

New York, USA

Joint work with W. Chen, D. Subramanian, & Dr. S. Paternain

Mar 2025 – Jul 2025

- Co-devised Learning History Filtering (LHF), the first data-centric preprocessing scheme for in-context RL; reweights and stochastically retains learning trajectories via a unified *improvement + stability* metric inspired by weighted ERM.
- Built a modular PyTorch pipeline (data collection → LHF → Transformer pre-training); experiments ran on RTX-4090 GPUs with TinyLlama backbones.
- Benchmarked LHF on 4 *Darkroom* variants (AD, DPT, DICP) and 8 *Meta-World-ML1* tasks (AD, DICP), yielding 12–46% average gains and up to 141% on *Reach-Wall*.
- Ablations confirm robustness to 30 % noisy actions, half-length histories, and lightweight models.
- **Preprint**: Weiqin Chen, **Xinjie Zhang**, Dharmashankar Subramanian, and Santiago Paternain. “*Filtering Learning Histories Enhances In-Context Reinforcement Learning*,” *arXiv preprint arXiv:2505.15143*, 2025.

Research Assistant | Shenzhen Research Institute, CityU

Shenzhen, China

Supervised by Professor LI Zhenjiang

Aug 2023 – May 2024

- Built a reinforcement-learning-based scheduler that orchestrates dual CUDA streams and multiple pruned CNN/Transformer variants (via DeGraph + torch-pruning) for real-time multi-model DNN inference on edge GPUs.

Academic Experience

Yale/UNCCH – Geophysical Waveform Inversion | Kaggle Competition

New York, USA
Apr – Jun 2025

- Ranked 185 / 1365 (top 15%).
- Built a physics-guided ML pipeline for Full Waveform Inversion.

Glass Surface Detection | COMS4995W Topics in Computer Science

New York, USA
Sep – Dec 2024

- Co-designed *GlassMindNet* with teammates Jiakai Xu and Xingchen Sha: a dual-backbone SegFormer + ResNet152 model featuring custom cross-correlation and feature-capturing modules for transparent-glass segmentation.
- Curated a multi-dataset benchmark and beat 13 SOTA baselines, reaching IoU 0.89 and F_β 0.95 on challenging urban scenes.

International Collegiate Programming Contest (ICPC) | Team Leader

Oct 2022 – Nov 2023

- Mastered advanced algorithms—search, dynamic programming, graph theory—and implemented C++ solutions that cracked four challenging problems under strict contest time limits.
- Directed team strategy and task allocation, fostering collaboration that earned an Honorable Mention in the competition.

Student Helper | CS2204 – Fundamentals of Internet Applications Development, CityU

Hong Kong SAR
Jun – Aug 2023

- Prepared the coursework project using HTML, CSS, and JavaScript, ensuring materials were up-to-date and industry relevant.
- Collaborated with course instructors to design and administer program requirements and grading criteria.

Box2D Lunar Lander Optimal Control | CS4486 Artificial Intelligence Course Project

Hong Kong SAR
Apr – May 2023

- Developed and trained a Double DQN agent in Gymnasium Box2D-Lunar Lander (Python, PyTorch), enabling precise, fuel-efficient touchdowns.
- Tuned hyperparameters and iteratively evaluated policies, showcasing reinforcement learning's effectiveness for complex real-time control tasks.

Miscellaneous Information

Programming Languages & Frameworks: Bash (shell scripting), C/C++, HTML/CSS/JavaScript/TypeScript, Java, Pascal, Python (Accelerate, Flash-Attention, Lightning, PyTorch, Stable-Baselines3, Transformers, XFormers), Visual Basic

Scientific Computing & Data Libraries: cvxpy, cvxpylayer, einops, HDF5 (h5py), MySQL, NumPy, Pandas, YAML, yfinance

Development Tools & Infrastructure: Conda, CUDA, Git, Linux, Ninja, PyTest, setuptools, TensorBoard, TQDM, UNIX/Linux command line, virtualenv

Languages: English (Fluent, TOEFL 105), Mandarin (Native), Shanghainese (Native)