

SUMMARY

Mathematics undergraduate at Cuiying Honors College (Top 5% Rank), Lanzhou University. Currently a Visiting Student at the University of California, Berkeley. My research bridges rigorous mathematics with modern deep learning, spanning AI for PDEs and Bioinformatics. Equipped with strong engineering proficiency, I am driven by a relentless passion for scientific discovery. I aspire to advance **Embodied AI** and **Multimodal AI** in my future studies.

EDUCATION

- **University of California, Berkeley** Berkeley, USA
Visiting Student, Berkeley Global Access Program *Jan. 2026 – May 2026*
- **Cuiying Honors College, Lanzhou University** Lanzhou, China
B.Sc. in Mathematics and Applied Mathematics; GPA: 4.01 / 5 *2023 – Present*
 - National Program for Top Talents in Basic Sciences

RESEARCH INTERESTS

Embodied AI, Multimodal AI, AI & Science

LEADING LEARNING PROJECTS

- **Running SmolVLA: Deployment & Evaluation of a Lightweight VLA Model** Nanjing, China
Lead Researcher *May 2026 – Present*
 - **Project Overview:** Independently deployed, trained, and evaluated **SmolVLA**, a lightweight Vision-Language-Action model for robot manipulation.
 - **Engineering & Environment:** Built the entire training and evaluation pipeline from scratch in a constrained **Windows environment** without relying on automated AI agents. Resolved critical issues including GPU OOM, dependency conflicts, API changes, and Windows-Linux cross-platform compatibility by systematic debugging.
 - **Technical Understanding:** Understood the architecture: truncated VLM as frozen visual-language encoder, plus a Flow Matching-based action head that generates continuous actions via ODE-based iterative denoising.
 - **Demonstrations & Results:** Successfully trained and evaluated on the LIBERO simulation benchmark; produced **failure vs. success comparison videos** that demonstrate model learning dynamics and generalization behavior.
 - **Resources:** [GitHub \(with demo\)](#)

LEADING RESEARCH EXPERIENCE

- **MEDNA-DFM: Dual-View DNA Methylation Framework & XAI Method** Hong Kong, China
Lead Researcher (1st Author) *May 2025 – March 2026*
 - **Architecture Design:** Developed a prediction framework based on Dual-View FiLM-MoE architectures by fine-tuning DNABERT2 and DNABERT-6mer for adaptive representation learning.
 - **Explainable AI (XAI) Innovation:** Proposed the CAD & CWGA interpretability method, emphasizing internal mechanism analysis as a necessary condition to bridge the logical reasoning gap in bioinformatics.
 - **Efficiency & Performance:** Achieved state-of-the-art (SOTA) performance across 17 benchmark datasets, while reducing parameter size by 50% compared to existing SOTA models.
 - **Academic Outcomes & Implementation:** Paper Under Review at *Advanced Science* (arXiv:2602.22850). Developed and deployed an Interactive Web Demo for real-time biological predictions.
 - **Supervision:** Supervised by **Dr. Tianchi Lu**, City University of Hong Kong.
- **Deep BSDEs: Solving Spherical Fokker-Planck and Feynman-Kac Equations** Lanzhou, China
Lead Researcher (1st Author) *Feb 2025 – Present*
 - **Mathematical Derivation:** Derived stochastic formulations on spherical manifolds to resolve geometric singularity issues and overcome the curse of dimensionality inherent in traditional methods.

- **Model Optimization:** Integrated a Fourier Feature Mapping layer to mitigate the spectral bias of Multi-Layer Perceptrons (MLPs), effectively capturing high-frequency components and accelerating convergence speed by 3x.
- **Key Results:** Achieved stable loss convergence (order of 10^{-3}) with a low absolute error of 0.0014 (relative error: 5.7%).
- **Academic Outcomes & Funding:** Preparing manuscript for a JCR Q2 journal, supported by Cuiying Fund, Lanzhou University.
- **Supervision:** Supervised by **Prof. Weihua Deng, National Distinguished Young Scholar** and Co-advised by **Dr. Heng Wang**, Lanzhou University.

COLLABORATIVE RESEARCH EXPERIENCE

- **PathMoG : A Pathway-Centric Modular Graph Network for Prediction** Hong Kong, China
Model Design Member (3th Author) *Aug 2025 – Jan 2026*
 - **Core Contribution:** Contributed to the core model design for multi-omics cancer survival prediction by introducing Feature-wise Linear Modulation (FiLM) as a key architectural innovation.
 - **Supervision:** Supervised by **Dr. Tianchi Lu, City University of Hong Kong**.
 - **Outcomes:** Paper Under Review at *Bioinformatics (CCF-A)*.
- **HBGSA: Hydrogen Bond Graph for Drug-Target Binding Affinity Prediction** Hong Kong, China
Core Member (5th Author) *Sep 2025 – Feb 2026*
 - **Core Contribution:** Configured the deep learning environment to facilitate model training and conducted comprehensive technical reviews to refine the manuscript prior to submission.
 - **Supervision:** Supervised by **Dr. Tianchi Lu, City University of Hong Kong**.
 - **Outcomes:** Paper Under Review at *Knowledge-Based Systems (CAS Tier 1 Top, IF: 7.6)*.(arXiv:2604.23115)
- **Fixed points of orientation-preserving full transformation** Lanzhou, China
Code Member (2th Author) *Oct 2025 – Feb 2026*
 - **Core Contribution:** Implemented efficient enumeration algorithms in Python for semigroup mappings and conducted statistical analysis to validate theoretical conjectures.
 - **Supervision:** Supervised by **Prof. Wenting Zhang** and Co-advised by **M.S. Yang An**, Lanzhou University.
 - **Outcomes:** Paper Under Review at *Discrete Applied Mathematics (CCF-C)*(arXiv:2604.26661).
- **Industrial Part Representation and Assembly via Equivariant Learning** Zhuhai, China
Core Member *Jun 2025 – Nov 2025*
 - **Core Contribution:** Engineered low-level operators for a Quaternion Neural Network (REQNN) and adopted point cloud contrastive learning to mitigate rotation sensitivity.
 - **Supervision:** Supervised by **Prof. Tiejong Zeng, National Distinguished Young Scholar**.
 - **Outcomes:** Received a letter of recommendation for outstanding performance.

TECHNICAL STACK

- **Programming:** Python, C/C++, MATLAB, LaTeX
- **Deep Learning:** PyTorch, GPU Monitoring, Cloud GPU Scheduling (Aliyun/AutoDL)
- **Tools:** Linux, GitHub, Huggingface, VSCode (Remote-SSH), Tmux, Conda, Spec Coding
- **Numerical Algorithms:** Monte Carlo Methods, FFT/IFFT, Remes Algorithm, Nonlinear Solvers

AWARDS

- **Finalist (Top 2%):** Mathematical Contest in Modeling (MCM/ICM)(International level) 2025
- **Second Prize:** National College Student Mathematics Competition (Provincial Level) 2024
- **Outstanding Team Leader:** Swimming & Track College Sports Team (University level) 2023 - 2024
- **Excellence Award:** Social Practice & Community Service (University level) 2023