

Shiyi Chen

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Education

University of California, Berkeley, Bachelor's Degree in Computer Science

- **GPA: 4.0/4.0** | **Dean's List**
- **Coursework:** *Principles and Techniques of Data Science, Discrete Mathematics, Probability Theory, Linear Algebra, Differential Equations, Data Structures, Digital Infrastructure, Computer Architecture, Efficient Algorithms*

Experiences

Berkeley Artificial Intelligence Research (BAIR) | Undergraduate Researcher

May 2026 - Present

- **Topic:** Efficient approximate guidance for CTMC-based discrete flow matching; Gaussian Process-based probability prediction (advised by Yun S. Song).
- Implemented and benchmarked Exact Guidance, Bootstrap Sequential Monte Carlo, on sinusoidal wave and RNA sequence generative models.
- Formulated efficient heuristics k-guidance, reducing guidance time by $(1 - k)\%$ compared to Exact Guidance while preserving high reward and low edit distance.

UC Berkeley & Lawrence Berkeley National Lab (LBNL) | Student AI Researcher

Jan 2026 - May 2026

- **Topic:** Multi-Agent framework for automated scientific bias labeling.
- Developed uncertainty-aware multi-agent architectures for *bias labeling* in 3D point clouds and raster data. Reduced per-tree labeling time by 98%. Accepted to ICML 2026 Workshop on AI4Science.
- Designed and implemented a decoupling framework to transpile expert rules into executable decision trees, enabling the zero-modification reconfiguration of the orchestrator agent, outperforming ML baselines by Macro-F1 of 30%.

Jacobs Institute for Design Innovation | Independent ML Researcher

Sep 2025 - May 2026

- Developed a full-stack cross-platform SaaS for posture detection and improvement using Flutter and PostgreSQL.
- Previously selected from 200+ applicants, including undergraduate, Master's and Ph.D students, as one of the three undergraduate teams to join the Berkeley Student Entrepreneurship Program (StEP) in Fall 2025.

Projects, Pre-Prints & Publications

1. [ICML 2026 Workshop on AI for Science] Chen, S., Saban, N., Hargreaves, C., & Wang, H. (2026). **TreeAgent: a generalizable Multi-Agent framework for automated bias labeling in forestry via compiled expert rules and Vision-Language models.** [arxiv] (Top 50% among accepted papers, ~Top 20% among all submissions.)
2. **YXiZ: NeRF-Assisted and Deep Learning-Driven Spatial Inference for At-Home Posture Optimization** [poster]
 - Awarded The Jacobs Institute Innovation Catalysts.
 - Derived a training objective to map mesh-based Human NeRF output to a fixed dimension for deep model training.
3. **Probing Latent Bias in LLM Technical Self-Representation (RLHF vs GRPO)** [link]

Honors & Awards

The Jacobs Institute Innovation Catalysts | Jacobs Institute for Design Innovation

Feb 2026

Outstanding Project of the Year | The Chuying Innovation Talent Program

Feb 2025

- *Selected as one of the 10 out of 100+ research projects* to receive this award. Findings are published and patented.

Grand Slam | International Space Settlement Design Competition (ISSDC)[media]

Apr 2023 - Jul 2024

- Led the first Chinese delegation to achieve the Grand Slam across National, Asian, and International Finals.

National Finalist | China National College Mathematics Modeling Competition

May 2024

Skills

Programming: Python (primary), Java, C, Dart, TypeScript

Machine Learning: scikit-learn, PyTorch, OpenCV, LangGraph, HuggingFace, SpaCy, NLTK

Data & Software: NumPy, Pandas, Matplotlib, CUDA, Git, FastAPI, Flutter, SQL

Research Focus: Generative Modeling, Machine Learning Theory, AI4Science, Multimodal Learning