

Xichen Song

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EDUCATION

University of California, Berkeley

Expected Graduation: Spring 2029

B.A. in Applied Mathematics

Cumulative GPA : 3.87

- Relevant Courses: Math 54 (Linear Algebra & Differential Equations), Math 55 (Discrete Mathematics), Data C8 (Foundations of Data Science), Physics 5A–5BL (Mechanics, Electromagnetism, Waves & Optics, Experimental Physics)
- **Berkeley Math Directed Reading Program (DRP):** Studied category theory and its applications to machine learning and AI systems under PhD mentorship

WORK EXPERIENCE

Crypt0nest.io

Remote, U.S.

Quantitative Research Intern

Jan 2026 - Present

- Designed and evaluated machine learning pipelines for cryptocurrency signal generation, comparing statistical and ML approaches across changing market regimes.
- Built backtesting infrastructure to evaluate profitability, drawdown, Sharpe ratio, and robustness under different market conditions.

Mitsubishi Electric Innovation Center

Potomac, MD

Autonomous Systems & Simulation Intern

Jun 2024 - Aug 2025

- Built a physics-based drone simulation with PID control and interactive visualization tools to analyze flight stability and support controller tuning.

George Washington University

Washington, DC

Machine Learning Research Assistant

May 2024 - May 2025

- Applied deep learning and medical imaging pipelines to MRI scans from Alzheimer's and control cohorts to analyze structural patterns associated with neurodegeneration.

RESEARCH & PUBLICATIONS

X. Song. "Fixed Deep Residual Networks with Multi-Objective Proximal Policy Optimization for Adaptive Trading." *American Journal of Student Research*, 4(4), 727–739, 2026 [Paper](#) | [GitHub](#)

- Developed a multi-objective reinforcement learning framework that jointly optimizes profitability and downside risk using preference-conditioned PPO with evaluation across seven independent random seeds.

X. Song, A. Becerra, A. Qiu, "Pairwise Convolutional Relationship Modeling with Learned and Fixed Weighted Aggregation for Multi-Horizon Temperature Forecasting." *Preprint*, 2026. | [Paper](#) | [GitHub](#)

- Developed a target conditioned pairwise convolutional forecasting framework that models temperature with each secondary weather variable independently and aggregates predictions using learned or fixed weights across 1–7-day horizons.

PROJECTS

Muscel: Adaptive Workouts | [App Store](#) | [Website](#)

- Developed an adaptive workout recommendation engine that optimizes training plans using user goals, historical performance, recovery, available equipment, and exercise science constraints.
- Built data-driven progression models to forecast future strength targets and dynamically adjust workout prescriptions based on recorded performance.

LEADERSHIP & INVOLVEMENTS

American Computer Science League (ACSL)

Oct 2023 - Jun 2024

Virginia State Champion, Senior Division (2023–2024)

- Competed in algorithmic programming and discrete mathematics contests.

Game Development & 3D Modeling Club

Jan 2022 - Aug 2025

Founder & President

- Founded and led a 70-member game development organization, teaching Unity, Unreal Engine, Blender, and C# while organizing game jams and leading development of six published games with 27,000+ Steam downloads.

SKILLS & INTERESTS

- **Machine Learning:** PyTorch, scikit-learn, XGBoost, Reinforcement Learning, Time Series Forecasting
- **Data Science:** NumPy, Pandas, Matplotlib, Seaborn, Jupyter
- **Programming:** Python, C++, C#, JavaScript/TypeScript
- **Web & Development:** Git, GitHub, React, React Native, Next.js, Supabase