

Joshua Lin

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EDUCATION

Princeton University, A.B. Mathematics

(Expected) Aug 2023 - May 2027

Minors in Computer Science, Statistics & Machine Learning

GPA: 3.8/4.0

- Relevant Coursework: Linear & Nonlinear Optimization[†], Machine Learning Theory[†], Functional Analysis^{†§}, Complex Analysis, Algorithmic Game Theory, Theory of Algorithms, Probability & Stochastic Systems.
- Awards & Activities: Princeton Physics Pyka Memorial Prize for “promise in independent research,” ACM Competition Chair, Tournaments Officer for Princeton Quantitative Traders, Tour Director for the Princeton Debate Panel.

[†] Denotes graduate coursework. [§] Denotes upcoming fall coursework.

EXPERIENCE

Deep Learning Researcher

Oct 2024 - Present

Princeton Astrophysical Data Laboratory

Princeton, NJ

- Analyzing robust allocations of cosmological targets by constructing graph neural networks to solve high-dimensional and NP-hard mixed-integer optimizations. Trained with CUDA toolkit using high-performance computing clusters.
- My work will direct the [Prime Focus Spectrograph](#)’s second-year exposures. [The PFS is an international consortium of over twenty-five universities and national laboratories to study [large-scale galaxy evolution](#).]

Directed Reading Program

Jun 2024 - Aug 2024

Princeton Mathematics Department

Hybrid | Princeton, NJ

- Accelerated study of topics in general relativity and cosmology, with the requisite semi-Riemannian geometry.

Mathematics Teaching Assistant

Jun 2024 - Aug 2024

Jane Street Capital

New York, NY

- Taught topics in probability, combinatorics, and number theory at the Academy of Mathematics and Programming.
- Facilitated probability games, market-making simulations, and the Electronic Trading Challenge.

Computational Physics Research Intern

Jan 2023 - May 2023

NASA Jet Propulsion Laboratory

Pasadena, CA

- Developed numerical and analytical methods to approximate the ages of lithospheric bands, identify regions of geologic co-/re-activation, and classify surface fractures in Europa’s nondeformed and chaos terrains.
- Presented at NASA-JPL summer research conference to members of the *Europa Clipper* physics team.

PROJECTS

Emergency Signaling System

Nov 2023

Top Prize, HackPrinceton

Princeton, NJ

- Developed “Moco” to discretely execute preset emergency calls, texts, and other customizable actions, triggered by customizable wrist gestures pre-calibrated with iOS app.
- Implemented gesture matching between live Apple Watch accelerometer/gyroscopic data and calibrations using iterative closest point for spatial transformations and dynamic time warping for temporal mappings.

Automated Securities Trader

July 2023

Top Prize, Jane Street Electronic Trading Challenge

New York, NY

- Engineered stochastic models to forecast time series through order book data, conducting six hours of live market making.
- Interfaced with backend AWS servers through WebSocket API to exchange bonds, stocks, and ETFs at high frequency.

SKILLS, INTERESTS, & AWARDS

Skills Languages: Python, C, C++, x86 Assembly. Libraries: CVXPY, PEPit, Tensorflow, Pandas, Scipy.

Interests Mathematical optimization; statistical learning theory; asymptotic statistics; high-dimensional probability.

Awards Bill and Melinda Gates Scholarship, USAPhO Semifinalist with Honorable Mention, Wells Fargo Wealth Management Competition National Champion.