

Joshua Lin

 EntropicHippo |  Joshua Lin |  lintropic.com |  joshua.lin@princeton.edu |  +559.691.0093

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[†], Mathematical Machine Learning[†], Functional Analysis^{†§}, Algorithmic Game Theory, Operating Systems, Probability & Stochastic Systems, Financial Mathematics (with Itô Calculus).
- Awards & Activities: Princeton Physics Pyka Memorial Prize for “promise in independent research,” ACM Competition Chair, Portfolio Optimization at Paragon Global Investments, Tour Director for the Princeton Debate Panel.

[†] Denotes graduate coursework. [§] Denotes Fall 2025 coursework.

EXPERIENCE

Numerical Optimization Researcher Oct 2024 - Present
Princeton Astrophysical Data Laboratory Princeton, NJ

- My principal goal is to find “good” approximations for a particular high-dimensional ($\approx 10^{12}$ parameters) nonconvex mixed-integer allocation problem. My current approach combines GNNs and RL algorithms to learn robust solutions.
- My work, selected for [USRP](#) funding, 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 theoretical cosmology, with the requisite semi-Riemannian geometry.
- Led by Anthony Coniglio and supervised by Professor Sergiu Klainerman.

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.
- Routed real-time data streams from Apple Watch accelerometer/gyroscope to server for gesture matching.

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; physics-based machine learning.
Awards	Bill and Melinda Gates Scholarship, USAPhO Semifinalist with Honorable Mention, Wells Fargo Wealth Management Competition National Champion.