

Elliott Salpekar

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Education

Georgia Institute of Technology, Atlanta, GA

Expected May 2028

BS in Computer Science, BS in Mathematics

GPA: 4.0 / 4.0

Selected coursework: Data Structures & Algorithms, OOP, Combinatorics, Linear Algebra, Differential Equations

Technical Skills

Programming & Tools: Python (Pandas, NumPy, PyTorch), Java, SQL, Git, Microsoft Office, Google Cloud, Azure
Other: Analytic Modeling, Probability and Statistics, Deep Learning, Data Analysis, Neural Network Development

Awards

Placed 11th out of 2500 students nationwide in Skew The Script's national Data Science Challenge May 2023.

Technical Experience

AI Solutions Engineer — IBM. *San Francisco, California*

Aug 2026 – Dec 2026

- Incoming Fall 2026 Co-op.

Software Engineering Intern — Bay Point Advisors. *Atlanta, GA*

May 2026 – Aug 2026

- Led development of the AI analytics and servicing platform currently in service for an \$80M alternatives sub-fund, using an auditability-first, branched event-driven architecture with a custom MCP server and agentic interface.
- Reduced response latency by 70% and latency variance by 80% for the firm's agent management system by designing a new channel-agnostic networking architecture.

Senior Quantitative Analyst — GTSF Investments Committee. *Atlanta, GA*

Aug 2026 – Present

- Leading a team of competitively selected analysts to research, test, and implement fully automated trading strategies for the Georgia Tech Student Foundation's \$2.8M investment fund.
- Designing, experimentally validating, and deploying a library of interpretable market-wide state variables.

Student Researcher — Georgia Institute of Technology. *Atlanta, GA*

Jan 2026 – Present

- Algebraic Statistics, under the supervision of Dr. Ikenna Nomete. Analyzing the Maximum-Likelihood Degree of Hardy-Weinberg mixture models.

Technology Intern — OxBlue. *Atlanta, GA*

Dec 2024 – Jan 2025

- Ideated and programmed an automated pipeline to prepare billing data and flag anomalies, replacing a multi-day manual cleaning process and reducing effort by 70%.

Selected Projects

Signature-theoretic portfolio hedging of exotic derivatives under a personalized risk profile GitHub

- Built a portfolio hedging engine for arbitrary continuous derivatives using signature-theoretic optimal hedging, modulated by an individual's sensitivity to moments of the returns distribution (Lyons et. al, 2019).
- Cut portfolio variance 75% and 95% CVaR 57% versus a standard delta hedge on matched Monte Carlo paths
- Demonstrated delta hedging increases variance-swap risk by 74% where the signature hedge reduces it 57%.
- Added homotopy-continuation optimization to hedge under arbitrary non-convex polynomial risk preferences.

A practical model of the idealized reasoning agent 'AIXI' (Azure, Google Cloud, Playwright)

GitHub

- Built a functional approximation of "AIXI" (Hutter, 2005), an uncomputable mathematical ideal of reasoning, demonstrating a minimal bridge between theoretical reinforcement learning and physical computers.
- Designed a network of LLM-powered agents and a constitution-based environmental feedback loop to emulate AIXI-like decision-making under an uncertain environment, recasting tools as environmental elements.

Agentic analytics suite for small retailers (Azure)

- Built the central analytics platform for a family-owned small business which offers a user-friendly Business Intelligence agent with automated dataflow from a popular retail POS system's API.
- Created a custom MCP server of analytics tools to identify customer behaviors, price items, and inform stocking decisions using forecasting techniques such as Factorization Machines and Kaplan-Meier Survival Analysis.

Activities and Interests

- **Piano Performance and Recording Club.** Founded a student organization providing recording/performance resources, securing \$4,000+ in institutional funding.
- **Outdoor Athletics.** Cycled 1,400+ miles across Southeast Asia independently, Summited El Chachani, Peru (20k ft above sea level), Regular Marathons.

Languages: English (Native), Spanish (Fluent)