Harry Guan

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Education

Northwestern University **Expected June 2027**
B.A. in Mathematics and Computer Science, B.M. in Trombone Performance *Evanston, IL*

- **Cumulative GPA:** 3.9/4.0 | **Major GPA:** 4.0/4.0 | **Dean's List:** 6/6 Quarters
- **Relevant Coursework:** Probability and Stochastic Processes, Derivatives Markets, Deep Learning, Machine Learning, Operating Systems, Distributed Systems, Database Systems, Parallel Computing, Design and Analysis of Algorithms

Experience

IMC Trading **June 2026 – August 2026**
Incoming Quantitative Trading Intern *Chicago, IL*

LinkedIn **June 2025 – September 2025**
Incoming Software Engineer Intern - System Infrastructure *Mountain View, CA*

IMC Trading **May 2025**
Launchpad - Quantitative Trading Cohort *Chicago, IL*

- Engaged in intensive lectures and simulations covering **options pricing, futures mechanics**, market microstructure, and quantitative trading strategies, with hands-on applications in risk management and position sizing
- Secured **1st place** out of 30 in IMC Trading's futures market-making competition by implementing dynamic bid-ask spread sizing using the **Avellaneda–Stoikov** model and data-feed pipeline monitoring to capture order-flow edge

Susquehanna International Group **April 2025**
Discovery Day - Technology Cohort *Bala Cynwyd, PA*

- Participated in lectures and technical workshops on **low-latency systems**, trading infrastructure; completed a hands-on BTC **data pipelining and arbitrage challenge** using Pandas simulating real-time strategy deployment

Projects

NU FinTech Club Trading Competition (GitHub) **May 2025 – Present**

- Advancing a **C++ exchange simulator** to support dynamic market scenarios, including manual trading and multi-exchange arbitrage; researching current market structure to inform order book and participant design
- Engineered Python trading agents, including sporadic signal-based traders and participants placing information-rich large orders, to simulate complex market dynamics and test algorithm robustness in volatile exchange conditions

Texas Hold'em Poker Solver (GitHub) **December 2024 – May 2025**

- Developed a **Counterfactual Regret Minimization solver** to compute Nash Equilibria across over $\mathbf{10^{17}}$ **non-deterministic game states**, leveraging **ordinal bucketing** to reduce game tree analysis time by over **78%**
- Created an **open-source** research-focused C++ poker engine library, optimizing source code to **reduce average simulation runtime by 72.3%** by improving memory access patterns for **cache locality** and identifying bottlenecks

Honors and Awards

IMC Trading Market-Making Competition | *1st Place Overall*

USA Coding Olympiad | *Gold Division, Top 7% in Contestants*

IMC Trading Low Latency Competition | *2nd Place Overall*

Northwestern University Algorithmic Trading Competition | *2nd Place Cryptocurrency Exchange*

American Invitational Mathematics Examination Qualifier (4x) | *Top 5% in the American Mathematics Competition*

Additional

Programming Languages: Python, C++, C, Golang, Rust, Java, TypeScript, Bash, x86 Assembly
Frameworks/Libraries: NumPy, PyTorch, scikit-learn, PyTest, Pandas, PyBind, GTest, Pandas, Node.js, Matplotlib
Infrastructure: UNIX, CUDA, Amazon Web Services, GCC, OpenMP, Nginx, Jenkins, Docker, Git, GitHub + Actions
Interests: Texas Hold'em Poker, Teamfight Tactics, League of Legends, Orchestral Conducting