

Harry Guan

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EDUCATION

Northwestern University

B.A. in Computer Science and Mathematics, B.M. in Trombone Performance

Expected Jun. 2027

Evanston, IL

- **Cumulative GPA:** 3.9/4.0 | **Major GPA:** 4.0/4.0 | **Dean's List:** 4/4 Quarters
- **Relevant Coursework:** Operating Systems, Distributed Systems, Database Systems, Computer Systems, Parallel Computing, Machine Learning, Analysis of Algorithms, Data Structures and Algorithms, Artificial Intelligence, Stochastic Processes

EXPERIENCE

LinkedIn

Incoming Software Engineer Intern

Jun. 2025 – Sep. 2025

Mountain View, CA

Overture Games - Music Education Startup (Techstars)

Software Engineer Intern - API Development Team

Jun. 2024 – Sep. 2024

Chicago, IL

- Engineered a Computer Vision **RESTful API** using Audiveris for Optical Music Recognition, handling HTTP requests with Python scripting within Flask, and a Node.js backend to convert sheet music to machine-readable formats with **85% accuracy**
- Published an open-source website (sheetmusic2midi.com) on an **AWS EC2** instance using Nginx for load balancing and PM2 for process management, with Google Analytics showing **5,000+ monthly uses, saving 20,000+ hours** of transcription
- Iteratively scaled the API, implementing **automatic file cleanup and storage management**, enabling seamless support for **400+ concurrent users** while ensuring optimal resource utilization across multiple regions with **Auto Scaling groups**

Aigentless - PropTech Startup

Software Engineer Intern - Machine Learning Team

Jun. 2024 – Sep. 2024

Chicago, IL

- Designed an LLM chatbot with **92% accuracy on housing market pricing data** to uncover key traits influencing prices by conducting large-scale web scraping with GraphQL parsing and PyTorch for clustering analysis and regression
- Established and **maintained CI/CD pipelines** using Jenkins, integrated automated testing frameworks with PyTest, and utilized Docker for containerization to ensure consistent environments across development, testing, and production
- Developed and optimized Aigentless' B2B2C web platform (aigentless.com) using React and FastAPI to create a fully autonomous apartment search experience with **real-time data analytics**, intuitive dashboards, and speedy back-end processing

Cupertino City Council

Software Engineer Intern

Jun. 2023 – Aug. 2023

Cupertino, CA

- Directed the design and development of a HTML website to streamline communication and information dissemination between campaign managers and voters, significantly contributing to the Cupertino Vice Mayor's **successful re-election campaign**
- Leveraged Google Analytics to pinpoint and implement data-driven UI/UX improvements, **increasing viewer retention by 34%**

PROJECTS

Texas Hold'em Poker Solver ([GitHub](#))

Dec. 2024 – Present

- Developed a PyTorch-based **Counterfactual Regret Minimization solver** to compute Nash Equilibria across over **10¹⁷ non-deterministic game states**, leveraging **ordinal bucketing** to reduce game tree analysis computation time by over **78%**
- Created an **open-source** research-focused C++ poker engine library, optimizing source code to **reduce average simulation runtime by 72.31%** by improving memory access patterns for **cache locality** and **streamlining I/O operations**

Prelude Planner ([GitHub](#))

Jun. 2024 – Sep. 2024

- Spearheaded development of a mobile studio assistant app for Northwestern's Bienen School of Music with a cross-functional team, **enhancing scheduling efficiency by 44%** and enabling efficient file read/write with greedy graph coloring and PostgreSQL
- Administered real-time scheduling updates using Socket.IO, optimized a robust backend for scalability with Node.js and Express, and ensured seamless and reliable communication with notification functionality, user authentication, and data validation

HONORS AND AWARDS

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

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

TreeHacks 2025 | *Honorable Mention Autonomous AI Agent Track*

JPMorganChase Code For Good Hackathon | *Project Manager, 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: C++, Python, C, Java, TypeScript, Bash, x86 Assembly, L^AT_EX

Frameworks/Libraries: PyTorch, scikit-learn, PyTest, GTest, NumPy, Pandas, Node.js, Matplotlib, Flask

Infrastructure: UNIX, Amazon Web Services, GCC, Nginx, Jenkins, Docker, Git, GitHub + Actions