Benjamin Ye

benjaminye.email@gmail.com • 425-588-1812 • Evanston, IL
https://golf0ned.com/ • https://www.linkedin.com/in/benjamin-ye/ • https://github.com/Golf0ned/

Education

Northwestern University   Evanston, IL
Master of Science in Computer Science   *September 2025 – March 2027*

Northwestern University   Evanston, IL
Bachelor of Science in Computer Science   *September 2022 – December 2025*
- Cumulative GPA: 3.8/4.0
- Select coursework: Compilers, Parallelism, Networks, Machine Learning, Algorithms, Data Structures, Agile

Technical Skills

Programming Languages: C/C++, Rust; Shell/Bash; HTML/CSS, Java, JavaScript, MATLAB, Python, Racket, SQL
Software/Tools: Git, Make/CMake, Unix/Linux; LLVM, OpenMP; AWS, Docker, Firebase, Postgres, React.js; Microsoft Office

Work Experience

Wells Fargo   Columbus, OH
Software Engineer Intern   *June 2025 – Present*
- Leading the migration of a core banking UI to React with an **agile team of 15 engineers**, **unblocking development** after new requirements broke compatibility with the legacy UI and **improving code maintainability**
- **Writing documentation** on setup and GenAI workflows, assisting adoption and knowledge transfer across 3 teams
- Presenting workflow and architectural improvements to senior leadership, clearly communicating project impact

Northwestern University Department of Computer Science   Evanston, IL
Compiler Research Assistant   *March 2024 – Present*
- Analyzing **LLVM-IR** generated by **C, C++, and Rust compilers** to compare structure and quality of generated code
- Writing an **LLVM pass** to track **170+ code metrics** for comparison, including **LLVM attributes** and **def-use chains**
- Built a **Rust frontend** for the **MemOIR compiler**, which generates novel memory optimizations for C/C++

Northwestern University Department of Computer Science   Evanston, IL
Peer Mentor   *January 2024 – June 2025*
- Devoted 6-10 hours per week to **assist 200+ students in Intro to AI** understand course content
- Offered personalized 1-on-1 guidance through regular office hours to help students with AI concepts and debugging
- Promptly addressed over 10% of questions on Campuswire/Piazza about course material and logistics

Projects

NU Miku   *January 2025 – Present*
- Writing a Discord bot in Python to provide community-related utilities for **1,500+ Northwestern Esports members**
- Implementing requested features to streamline esports team processes and **increase club engagement by 40%**
- Using **Postgres** and **Docker compose** to manage persistent data and streamline deployment

F-STARS   *October 2024 – October 2024*
- Designed an embedded system to **efficiently filter seismic signals** on Mars with an FPGA and a microcontroller
- Assembled a **compiler toolchain** to deploy a PyTorch model to FPGA with **the LLVM ecosystem**, accurately detecting **>85% of seismic events** with minimal energy and compute overhead
- Won the **"Most Innovative" award** at NASA Space Apps Chicago 2024

Purple Hours   *March 2024 – June 2024*
- Developed a group-based queue system using React.js to **double the number of students helped** per office hours session in Northwestern CS courses
- Hosted the app and its database on Firebase, allowing immediate data updates and seamless operation

LB to x86_64 Compiler   *January 2024 – March 2024*
- Built a compiler that efficiently **compiles a C-like language into x86_64** using **C++**
- Implemented **modern compiler backend techniques** such as register allocation with live variable analysis and graph coloring, and instruction selection using maximal munch and tree covering
- Used PEGTL to parse input, handle desugaring, and generate memory representations transformable by the compiler