Benjamin Ye

benjaminye2026@u.northwestern.edu • 425-588-1812 • Evanston, IL
linkedin.com/in/benjamin-ye • golf0ned.github.io

Education

Northwestern University   Evanston, IL
Bachelor of Science in Computer Science   *Expected June 2026*
- Cumulative GPA: 3.7/4.0
- Relevant Coursework: Compiler Construction, Algorithms, Data Structures, Intro to Networks, Agile, Intro to AI

Technical Skills

Programming Languages: C, C++, CSS, HTML, JavaScript, MATLAB, Python, Racket, Rust
Software/Tools: React.js, SQLite, Git, Make, Shell/Bash, Firebase, Wireshark, Microsoft Office (Word, PowerPoint, Excel)

Work Experience

Northwestern University Department of Computer Science   Evanston, IL
Undergraduate Research Assistant   *March 2024 – Present*
- Writing a Rust frontend for the MemOIR compiler that uses single-ownership memory properties to generate unique memory optimizations for manually managed memory languages
- Extending MemOIR using FFI to match over 60% of Rust's API for Vec and HashMap, enhancing ease of use
- Writing 100+ unit and integration tests to guarantee output correctness and measure optimization effectiveness

Peer Mentor   *January 2024 – March 2024*
- Devoted 6-10 hours per week to assist 200+ students in COMP_SCI 348 (Intro to AI) in understanding course material
- Offered personalized 1-on-1 guidance through regular office hours to help students with AI concepts and debugging
- Promptly addressed over 10% of all inquiries on Campuswire about material and logistics, contributing to an effective and inviting learning environment beyond traditional class hours

Northwestern University Debate Institute   Evanston, IL
Lab Leader   *July 2022 – August 2023*
- Coached 50+ high school debaters from across the world through lectures on debate theory and targeted drills to build proficiency in debating topics such as AI, cybersecurity, fiscal policy, international relations, and current events
- Led the largest lab by judging 4+ hours of debates per day and facilitating evening office hours to refine students' argument generation skills and speaking mechanics
- Directed the camp tournament by overseeing logistics and pairings, ensuring a smooth and engaging experience

Personal Projects

Purple Hours (Javascript, React.js)   *March 2024 – Present*
- 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 using Firebase, allowing immediate data updates and seamless operation
- Implemented agile practices such as TDD and commit history analysis to reduce bus factor by 16% and triple velocity

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

PairingsBot (Python)   *November 2023 – Present*
- Wrote a Discord bot that automatically sends debate tournament pairings in a dedicated server channel, shaving 30+ minutes off team logistics between rounds per tournament
- Scraped Tabroom's HTML using BeautifulSoup4 to gather round information and generate unique pairings analysis
- Demonstrated best practices through iterative development across 7+ tournaments and writing usage documentation

Additional Information

Awards: R&B Feldmann Fellowship, John B. Kirk Award (2x), Milton S. Florsheim Prize (2x)
Interests: Ferrets, Possums, Piano, Speedcubing, Debate, US-China Relations, Legal Personhood, Valorant