

Zachary Yoon-Kim

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EDUCATION

University of Michigan – College of Engineering

Expected December 2027

B.S.E. in Computer Science, minor in Mathematics

GPA: 3.95

Relevant Coursework: Data Structures and Algorithms, Computer Organization, Operating Systems*, Distributed Systems*, Foundations of Computer Science Theory, Object-Oriented Programming, Unix Programming, Discrete Mathematics, Linear Algebra, Combinatorics and Graph Theory, Real Analysis*

* Expected Fall 2026

Involvements: Atlas Digital Consulting Group, MEG Consulting

EXPERIENCE

General Dynamics Mission Systems

May 2026 – August 2026

Software Engineer Intern

Dedham, MA

- Architected and implemented full-stack, distributed test and build automation platform for high volume production of network products using Flask, PostgreSQL, and Python multi-threading, to orchestrate concurrent hardware and software tests on 200+ remote units
- Engineered a PostgreSQL-coordinated communication layer to replace in-process thread synchronization, enabling two separate processes to coordinate worker threads without shared memory
- Spearheaded development of data extraction program with PostgreSQL and Python that allowed abstract configuration across different classification levels with YAML configuration files
- Drafted deployment strategy and systemd unit files for multi-service Linux backend server to run a Flask/Gunicorn REST API, a long-running engine daemon process, and nginx for reverse proxying and static file-serving
- Developed Claude Code workflow to iteratively log frontend interactions and backend behavior, to accelerate identification of blocking race conditions in multi-threaded applications

CollegeSensei

June 2025 – December 2025

Software Engineer Intern

Cambridge, MA

- Implemented a live fuzzy search system for FAQ portal using Vue.js and TypeScript, enabling search using weighted scoring, tag-based filtering, and role-specific results; improved content discoverability across 8+ articles
- Designed responsive, accessible UI with debounced input, loading animations, and real-time result previews; integrated routing for direct navigation to full articles, enhancing mobile and desktop UX and reducing user friction

Michigan Medicine – Dr. Morgan Salmon Lab

December 2024 – April 2025

Research Intern

Ann Arbor, MI

- Streamlined an end-to-end automation pipeline to preprocess and segment vascular tissue images, using Python and QuPath for image processing and Pandas to standardize raw output by converting CSV files to XLSX spreadsheets, enabling comprehensive analysis of tissue structure across experimental conditions for high-resolution images
- Executed and documented custom Groovy scripts to automate tissue image processing, including cell detection and region marking, reducing potential analysis time by 90% and reducing user variability-based human error

PROJECTS

Fantasy Football Waiver Wire Notifier

[Github Link](#)

- Incorporated Sleeper API calls to a Rust Axum backend to periodically fetch fantasy football league data, to send a Mac notification to the user when a player on their wishlist was no longer on any other active rosters
- Made a command line textual user interface with ratatui to interactively add and remove players from a user's wishlist on the backend, with a player search feature that used a composite fuzzy-search algorithm to show relevant players

Static C/C++ Program Analysis Suite

[Github Link](#)

- Created a suite of static analysis tools in C++ using Clang AST/LLVM to analyze loop structures, memory access patterns, and struct alignment, enabling identification of cache locality issues and low-level performance bottlenecks
- Integrated OS-level system calls to retrieve L1/L2/L3 cache and memory hierarchy information, allowing analyses and optimization recommendations to adapt to each individual user's underlying hardware architecture

ADDITIONAL

- **Programming Languages:** Python, C++, C, Rust, JavaScript/TypeScript, HTML/CSS, PostgreSQL
- **Frameworks:** React, Axum, Tokio, Vue.js, Next.js, Firebase, Supabase, Tailwind, Scikit-Learn, PyTorch
- **Tools:** Git, Ubuntu Linux, Unix, VS Code, Vim, Docker, Node.js, Gemini API, nginx, Claude Code
- **Interests:** Marathon running, Hiking, Piano, Bass Guitar, Guitar, Jigsaw Puzzles, and Dr. Pepper