Elliot Miller

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Education

University of Michigan Ann Arbor, MI
Bachelor of Computer Science *Expected Dec 2026*

- Relevant Coursework: Formal Verification of Systems Software, Operating Systems, Compilers, Web Systems, Computer Organization, Data Structures and Algorithms, Computer Theory, Game Development, Programming Languages

Experience

Software Developer (Rust) May 2026 – Aug 2026
Apple *Seattle, WA*

- Incoming Software Engineering intern where I will support the development of a database service similar to DynamoDB.

Software Developer (Rust) Jan 2026 – May 2026
N1 (Founder's Fund) *New York, NY*

- Incoming Software Engineering intern where my primary roles will be maintining a TypeScript targeting compiler and writing low-level networking code.

Backend Developer (Typescript) May 2025 – August 2025
Wise Pelican *Phoenix, AZ*

- Wrote a from-scratch fast JPEG metadata decoder, cutting off over 95% of runtime from the previous implementation by reducing data needed to process per JPEG from MegaBytes to a single KiloByte
- Decreased average runtime of PDF rendering engine from 10s to 2s by moving image generation to an asynchronous model, allowing smaller requests to be processed, generated, and responded to in the time that larger PDFs were rendering

projects

GameBoy Emulator (C++) Github

- Simulated all GameBoy-specific hardware components/systems, including internal clock circuits, interrupts, and proprietary graphics
- Wrote a fully accurate Z80 Sharp CPU simulator/machine code interpreter to run ROMs, emulating hardware bugs involving finicky instruction timing and interrupt handling
- Achieved consistent a consistent 300 frames per second using a custom SDL-integrating renderer on an M1 Macbook with integrated graphics

HTTP Server (Rust)

- Fully functional HTTP server built on top of the OS TCP layer
- Used the Rust core's type safe synchronization primitives to handle up to 20 concurrent connections
- Will soon be upgraded to an HTTPS server and used to host my portfolio website

Snake Compiler (Rust, x86)

- Wrote an x86 emitting, optimizing compiler for a Python/OCaml hybrid language called Snake

Multithreading Library (C++)

- Created an efficient implementation of Mutexes and CVs similar to that of the C++ STL in a toy kernel that leveraged a simulated underlying multi-core CPU for concurrent execution

Miscellaneous

- Was ranked #3 on the Stack Overflow global leaderboards (see my website for proof)

Technical Skills

Languages: C++, C, Rust, x86_64, Dafny, Python, C#
Libraries/Frameworks: SDL.h, AWS CDK/SDK, Unity
Developer Tools:Git, AWS, AWS Lambdas, Docker, MacOS, Linux, NVim