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 Engineering Intern (Rust) May 2026 – Aug 2026

Apple *Seattle, WA*

- Incoming summer software/systems engineering intern on the Cloud Elastic Disk team, which provides storage primitives for Apple's global infrastructure

Systems Engineering Intern (Rust) Jan 2026 – May 2026

N1 (Founder's Fund) *New York, NY*

- Contributing production code to a performant NASDAQ-like central limit order book matching engine handling hundreds of millions of dollars in daily volume

Software Engineering Intern (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

- Wrote a fully accurate Z80 Sharp CPU simulator/machine code interpreter capable of running GameBoy ROMs, emulating hardware bugs involving finicky instruction timing and interrupt handling
- Simulated all GameBoy-specific hardware components/systems, including internal clock circuits, interrupts, and proprietary graphics

ChAsm (C, ARM Assembly)

- Engineered a Chess implementation in ARM assembly featuring a C/SDL event bridge and renderer
- Optimized performance using SIMD instructions and by maintaining game state within a single L1 cache line

Snake Compiler (Rust, x86)

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

Multithreading Library (C++)

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

Formally Verified Sharded KV store (Dafny)

- Wrote a formally verified, distributed KV store in Dafny, proving safety properties for a partition-tolerant and available system

Miscellaneous

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

Technical Skills

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