Elliot Miller

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EDUCATION

University of Michigan — Ann Arbor, MI
Bachelor of Computer Science — *Expected May 2027*

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

EXPERIENCE

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

- Worked on an autonomous AI agent that provided marketing services to customers, reaching ∼2000 contacts and generating ∼150 custom marketing assets per day
- Wrote AWS Serverless Lambdas in Typescript, for purposes including image processing, SMS/MMS handling, and interfacing with human sales
- Migrated application from Azure to AWS ECS with a Codepipeline CI/CD setup, decreasing performance degradation during traffic spikes by 50% and removing 2 second AWS to Azure performance bottleneck in application
- Wrote a from-scratch fast JPEG metadata decoder, cutting off over 95% of runtime from the previous implementation

Software Developer (JavaScript, Python) — January 2025 – May 2025
DemandEngine — *Ann Arbor, MI*

- Developed the entire backend using Django and designed and managed the PostgreSQL database
- Wrote comprehensive OpenAPI documentation for all API endpoints
- Optimized React.js codebase, reducing UI element latency on landing page by 75%

PROJECTS

GameBoy Emulator (C++) Github

- Wrote simulators for all GameBoy hardware components, including a Z80 Sharp CPU, internal clock circuits, interrupts, and proprietary graphics/audio chips.
- Consistently rendered 300 frames per second using a custom SDL-integrating renderer on an M1 Macbook with integrated graphics

Wordle Bot (Python) Github

- Wrote an algorithm using a mix of heuristics including frequency of words/characters in the English language, scoring words and sorting them by likelihood
- Achieves an average guess count of 3.36 over the last 2 years of words, compared to the human average of 3.97

MapReduce Implementation (Python)

- Created an efficient recreation of the MapReduce algorithm using a distributed systems setup
- Hand wrote the TCP and UDP communication protocols between the Manager and Worker servers
- Worked in a healthy team environment using pair programming and conflict resolution skills

Snake Compiler (Rust, x86)

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

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, C++, CSS, HTML, SQL, ARM, Rust, x86_64
Libraries/Frameworks: React, Node.js, Flask, SQLite, PostgreSQL, Django, SDL
Developer Tools: Git, AWS, AWS Lambdas, Docker, MacOS, Linux
Interests: Compilers, Web Systems, Processor Design, Software Engineering, Programming Language Design, Networking, Operating Systems, Game Design, Game Engines, Hardware Emulation