MICHAEL BRENNAN

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Education

Northeastern University, Boston, MA **Fall 2023 - (Expected) Spring 2027**

- 3.8/4.0 GPA, 1x Dean's List | Candidate for B.S in **Computer Science**
- **Notable Courses:** Fundamentals of Computer Science 1 & 2 (Accelerated), Discrete Structures (Accelerated), Cornerstone of Engineering 1 & 2

Fairview High School, Boulder, CO **Fall 2019 – Spring 2023**

- **Cum Laude,** 3.6/4.0 GPA
- FIRST Robotics team co-captain, Website team co-captain, National Honor Society member

Experience

Software Engineer, Generate Product Development **January 2024 - Present**

- GitHub link
- Working on Student Activity Calendar, an organization and event marketing platform for clubs at Northeastern.
- Authored API endpoints for club, membership, and user CRUD in Go and PostgreSQL.
- Leading implementation of semantic search for clubs and events using OpenAI API, PineconeDB, and embedding models.

Programming Captain, FRC Team 2036 **May 2022 - March 2023**

- Authored or helped design driving & navigation, autonomous, camera, and mechanism control systems.
- Led a team of 5 members, did code & architecture reviews, taught new members programming & electrical skills, and worked with other captains to make sure goals were being met.

Co-Captain, Fairview High School Web Team **May 2022 - May 2023**

- Worked on front-end features, and fixed bugs in Docker setup and development tooling.
- Did code reviews, and taught new members web programming skills.

Skills

Languages: Rust, Go, Java, Kotlin, TypeScript, Python, Lua, F#, SQL

Frameworks & Technologies: WebGPU, OpenAI API, PineconeDB, PostgreSQL, Docker, React, Linux, Bash, Git, Docker, GitHub

Personal Projects

Oceanman

- GitHub link
- 3D graphics renderer built from scratch using WebGPU and Rust
- Implemented physically-based rendering, image-based lighting, glTF scene loading, HDR textures & tone mapping, and FXAA.

dg6502

- GitHub link
- MOS6502 emulator written in Rust, can be used as a library for emulator projects, or as a standalone app for running 6502 programs.
- Implemented all 6502 legal and "illegal" instructions, has a command-line interface, configurable BCD support and jam/illegal support.

Saxon

- GitHub link
- Command-line calculator written in F#, supports arithmetic and elementary functions (tan, sin, cos, sqrt, etc.), summations and products, numerical integration, and symbolic differentiation of simple polynomials.
- Implemented a recursive descent parser, tree-walk interpreter, and support for user defined functions and variables.