

PORTFOLIO

- <https://colrdavidson.github.io>

SKILLS

- *Core Programming Languages:* C, Go
- *Other Languages:* Python, Odin, MIPS and X86 Assembly, Bash, SQL
- *Technologies:* Linux kernel, Git
- *Operating Systems:* Linux, OSX, FreeBSD, Windows

EXPERIENCE

- *Independent Software Engineer* 2022-Ongoing
Developing profiling and debugging tools to improve developer productivity
 - Built spall, a fast, user-friendly profiler with both a WASM and native frontend, supporting manually tracing, and full instrumentation, capable of tracing through 55+ million functions per second.
 - Created a debugger with a web-accessible frontend, along with tooling for parsing and printing human-readable ELF/DWARF information
 - Developed and shipped a lock-free work-stealing threadpool to help the Odin compiler scale to many cores efficiently
 - Co-lead a team for a new non-profit-in-progress, generating articles for a curriculum I designed to help intermediate programmers understand important parts of the software stack at a deeper level
- *Senior Software Engineer* **Arbitrary Execution** 2022
 - Developed emulation and debugging tools to support security analysts
- *Project Lead* **BlueRoof Learning, Philadelphia, PA** 2019-2021
 - Designed and built scalable frontend and backend infrastructure using JS and Go for display, hosting, and development of user-created music education content
 - Developed hiring process to help bring in backend and frontend developers with strong web skills that could hit the ground running fast
 - Worked with clients to understand their unique needs and issues enabling us to improve and expand educational content delivery options, connect students with best-fit teachers, and tune student progress tracking
- *Principal Software Engineer* **ManTech, DC Metro Area** 2017-2019
Rapidly promoted to principal software engineer for my efforts
 - Found and resolved significant performance issues in both kernel and userspace network-heavy applications, improving developer workflows and simplifying further development
 - Independently pursued architectural improvements for multiple projects in C, MIPS Assembly, and Python to improve scalability, eventually bringing them back into the mainline fold for a massive maintainability win
 - Worked with customers to rescue a key project, fleshing out a multiprocess-heavy Python backend to meet their needs in a short timeframe

OPEN SOURCE

- Wrote most of the the Linux/OSX-side of the Odin core network library
- Helped debug and test parts of disx86, a zippy DFA-based x86 disassembler written in C