Colin Davidson

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PORTFOLIO

- https://colrdavidson.github.io

SKILLS

- *Core Programming Languages*: C, Go
- *Other Languages*: Rust, Python, Odin, 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 a WASM frontend and a slim, single-header C library, supporting both binary and JSON files
  - Created a debugger with a web-accessible frontend, along with tooling for parsing and printing human-readable ELF/DWARF information
  - 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
  - Performed technical diligence on ETH Smart Contracts in Solidity on behalf of customers
  - Developed emulation and debugging tools to support other 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 Odin's central scalable work-stealing threadpool for compile parallelization and big chunks of the Linux/OSX-side of the core network library
- Helped debug and test parts of disx86, a zippy DFA-based x86 disassembler written in C
- Contributed to `rust_num`, a rust big number library, adding helpers for printing large values with hex and octal representations