

Alexander Lucas

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Summary

I am a computer science enthusiast with an inclination for harnessing computer science theory to tackle practical challenges as cleanly as possible. I believe strongly in the importance of codebase health and quality, maintaining those values over time as programs and projects evolve.

Skills

Languages: Javascript/Typescript, Java, Python, Rust, Haskell, OCaml, F#, Ruby, C#, C, C++, Lean 4, HTML/CSS, LaTeX, Typst

Platforms: Ten years using GNU/Linux including Debian and Redhat, QEMU, Google Cloud

Technologies: Buildroot, WebGL, Numpy/Pytorch/Sklearn, Matplotlib, Git, Gitlab/Github, PostgreSQL, Node, Slurm

Soft Skills: Technical Writing, Software Documentation, Presentation

Experience

Embedded Software Engineer, Jr. Trusted Microelectronics, KBR, 01/2025-05/2025 (End of Funds)

- Continuing to work with the same great team, tools and software as during my internship.
- Developing QEMU virtual hardware devices for building/testing platform-specific applications.

Linux Driver Development Intern Trusted Microelectronics, KBR, 05/2024-08/2024

- Learned Linux kernel subsystems and developed device drivers for custom "system on a chip" hardware, including GPIO/pin controllers and an AES encryption accelerator module.
- Worked with team members to develop testing and assurance methodologies including coverage profiling and input fuzzing for Linux drivers while porting Linux to our boards.
- Automated common tasks, writing scripts to handle OS installations and code restructuring.
- Presented project status and details to large, cross-functional and interdisciplinary groups.

Teaching Assistant James Madison University, 08/2022-12/2023

- Took questions and led review sessions in proofs, programming, tooling, debugging code.
- Maintained a calm and encouraging environment while helping students with difficult problem sets against a deadline.

Education

B.S. Computer Science (3.8 GPA) James Madison University, 12/2023

- Programming Languages, Compiler Construction
- Independent Study in Constructive Logic, Symbolic Logic
- Applied Algorithms, Data Structures
- Parallel and Distributed Systems, 3D Graphics

Study Abroad, London, UK JMU at Florida State Study Center, Summer 2023

- Rigidity Theory
- Independent Study in Computational Geometry

Academic Awards

- "President's List" JMU, 2023
- "Alonzo Church Award for Theory" JMU CS Department, 2024

Personal Projects

Aasam (on [Hackage](#)) is a Haskell implementation of the CFG-generation algorithm \mathcal{M} from Annika Aasa's paper "Precedences in specifications and implementations of programming languages".

Randall (on [Gitlab](#)) is a Discord bot for executing dice-notation, making it easy to play TTRPGs remotely. It uses a recursive descent parser and tree-walk interpreter on the backend and the .NET Discord library up front.