

# Mitchell Augustin

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## Career Status

I am a software engineer with a focus on operating system and networking software development. Independently and through my professional roles, I am also focused on building user-space utility and productivity software and systems software in C and C++ using the GNU toolchain. I am adept in Java, C, C++, and Python and passionate about contributing to the Linux ecosystem.

## Education

- M.S. in Computer Science – Purdue University – 2023
- B.S. in Computer Science – Purdue University – 2022

## Professional Software Development Experience

- Purdue University – Graduate OS Developer – January to December 2023 – West Lafayette, IN – I extended the Xinu operating system to support multicore processing on x86 and ARM SOCs and built an Ethernet driver for Xinu on the Orange Pi (Operating systems, C)
- GE Aerospace – Lead Software Engineer Intern – Summer 2022 & 2023 - Remote – I directed the development of the Derating Analysis Tool, which drastically improves upon the speed, maintainability, correctness, and feature set of the outdated stress utility my department previously used. I designed and implemented two major versions of this tool that are projected to save 1400+ engineering hours per year (Python). I also built custom Linux containerization software for HPC jobs used within our engineering departments. (Linux, Docker, K8s)
- Caterpillar - Software Engineer Intern – Summer 2021 - Remote – I built an extensible AWS Kinesis client that allowed our department to easily digest large amounts of telematics data and developed several tools that improved my team's testing methodology (Java, Python, AWS).

## University Software Development Experience and Notable Coursework

- Built and optimized a compiler for a subset of C for CS 502 at Purdue (C, C++, LLVM, Compilers)
- Malloc, Shell, and HTTP server implementations built for CS 252 at Purdue. (C, C++, HTTP, TCP/IP)
- Built pipe device driver for the Xinu operating system for CS 354 at Purdue. (C, Operating Systems)
- Xinu and Linux operating system debugging experience. (C, Operating Systems)
- Built a containerized test platform for network protocol testing (Rust, Docker, Networking, TCP/IP, QUIC)
- Late to the Stage, a fast-paced, isometric multiplayer party game consisting of several diverse minigames built as my group's project for CS 307 at Purdue. (GDScript, Godot Engine)
- My final project for CS 240 at Purdue, a MIDI augmentation program and library that allows users to modify their music in interesting ways, such as with pitch shifting, instrument remapping, and time dilation (C, GTK)

## Independent Software Development Experience

All of my personal projects can be found at <https://mitchellaugustin.com/projects.html>

- Spiral, an open-source virtual free-form notebook app for Linux and Windows that lets users take notes without being restricted to a linear format like traditional word processors with 500+ unique downloads (C++, C, QT Platform, Linux packaging)
- LandmARK, an augmented reality project for smartphones that allows you to view and place virtual artwork in different locations around the world that amassed 2000+ MAU at its peak. (Java, SQL, custom-built REST API)
- Aurora, a linguistic analyzer I created as a voice assistant for Android before the Google Assistant was available to the public. Aurora also exists as an extensible REST API (Java, JavaScript, SQL), an Android app (Java, SQL), a home automation unit (Java, IoT, C++), an AI Chatbot (Java, SQL), and a desktop application (Java).
- Sonar, an audio-based social network that allowed users to communicate with others through recorded audio or live calls about specific topics with random users. (Java, JavaScript, HTML, CSS, SQL, custom-built REST API, Android SDK)
- Linux debugging experience:
  - Debugged an issue with my laptop's trackpad and contributed testing information to maintainers of its driver as they worked on an upstream patch (C, Linux kernel, upstream, KVM/QEMU)
  - Interested in contributing upstream and familiar with patch process (Linux kernel, KVM/QEMU, Ubuntu)

## University Achievements

- Dean's List & Semester Honors (All semesters) – 3.82 GPA
- Winner of BoilerMake VII's "Best Water Conservation Hack" award – Spring 2020

## Notable High School Achievements

- Valedictorian - 4.240 GPA – Experience with public speaking
- Eagle Scout – Public speaking and community leadership experience