

DERIC DINU DANIEL

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EDUCATION

University of Michigan

Computer Science B.S.E.; GPA: 3.64
Dean's List, University Honors

Aug. 2021 – April 2025

Ann Arbor, MI

Relevant Coursework: Operating Systems, Data Structures & Algorithms, Web Systems, Computer Architecture, Computer Security, Computer Science Theory, Intro to Circuit Analysis, Multivariable Calculus, Linear Algebra

EXPERIENCE

Bose

Systems Software Engineer Intern

- Enabling real-time streaming of multiple mics over LC3 codec using custom/Qualcomm DSP/ADK alongside new data-collection system design involving **Bluetooth** and Protobufs on **multithreaded embedded system**.

Jan. 2024 – Present

Framingham, MA

Siemens

Software Engineer Intern

- Managed DB and environment instances in **AWS** using **EC2** and **S3** while reducing development server costs by up to 5% to deploy testing and demo environments.
- Resolved critical bugs in dropdown menus on **C++** server-side code by refactoring with smart pointers, fixing product inconsistency and 8 memory leaks per dropdown interaction.

May 2023 – Aug. 2023

Troy, MI

UM Autonomous Robot Vehicle

Software Engineer – Sensors

- Engineered **ROS** Node (subscribers and ROS Service) using **C++/Python** and led team of 6 to produce GPS coordinate processing pipeline from Garmin GPS to provide goal locations from current robot location in Cost Map.
- Wrote **Python** scripts to test encoder accuracy, resulting in diagnosis of faulty hardware and enabling rapid testing.

Jan. 2023 – Aug. 2023

Ann Arbor, MI

V1 - Tech Entrepreneurship Organization

Software Engineer – Platform & Leadership Team

- Redesigned profile page utilizing **Next.js** and **Tailwind CSS**, improving UI/UX consistency and increasing info accessibility for 200+ users.
- Spearheaded redesign of primary dashboard through database schema in (**Supabase**) and front-end in a team of 5, resulting in 4 new features while significantly improving UI.

Dec. 2022 – Dec. 2023

Ann Arbor, MI

PROJECTS

Thread Library | C++, Multi-threading, Mutexes, Condition Variables, Semaphores, Unix

- Implemented a kernel level C++ thread library on Unix, handling CPU booting, thread management, management of 50+ CPUs, interrupts, atomicity, and FIFO scheduling order. Designed and implemented spin-locks, mutexes, conditional variables utilizing advanced Unix context management.

Virtual Memory Pager | C++, Virtual Memory, Page Faults, Process Lifecycle Management

- Designed a virtual memory pager which managed multiple processes and supported swap-backed and file-backed memory pages (similar to Unix `mmap()`). Managed process creation, page faults & MMU bits, process forking, process destruction, and swap disk all while supporting copy-on-write.

Multithreaded Network Fileserver | C++, Boost Library, Threads, Sockets

- Built a heavily concurrent, crash consistent network fileserver supporting multiple users and nested files/folders.
- Utilized committing writes to enable crash consistency, Boost threads and upgradeable reader-writer locks to optimize for maximum concurrency, and POSIX sockets alongside error-checking to enable network communication with clients.

TECHNICAL SKILLS

Languages : C/C++, Python, ARM, x86, HTML/CSS, Javascript/Typescript, SQL

Technologies : Next.js/React.js, Git, gdb, Linux, AWS, Flask, MapReduce, Sockets, Multithreading, Networks

Misc. : Ableton Live, FL Studio, Adobe Lightroom, Pioneer Rekordbox

Interests : Music Production/Audio, Consumer Tech, Soccer/Running/Gym