Alex Matthes

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EDUCATION

The Ohio State University   Columbus, OH
B.S. in Computer Science and Engineering (In Progress) — Minor in Theatre   *Aug. 2022 – Expected May 2027*
Relevant Coursework: Data Structures & Algorithms, Software Development, Digital Logic, System I/O, Database Systems

EXPERIENCE

Student Technology Assistant   Aug. 2023 – Aug. 2025
The Ohio State University - Mansfield   *Mansfield, OH*
- Diagnose and resolve complex hardware/software failures for a user base of 1,000+, utilizing ticketing systems to track recurring system faults.
- Manage the deployment and configuration of learning technologies, ensuring 99% uptime for critical classroom hardware.
- Provide remote and on-site technical support for faculty and students, optimizing service request turnaround times.

PROJECTS

Fortify: Algorithmic Drumming Speed Trainer | *TypeScript, React, Node.js, PostgreSQL*
- Developed a full-stack PERN application to track drumming velocity and apply progressive overload using linear regression algorithms.
- Engineered a sample-accurate metronome using Web Workers to offload timing from the main thread, preventing React rendering drift.
- Architected a type-safe backend with Express and Prisma ORM, utilizing Zod for runtime validation and JWT for secure authentication.

writeAM Text Editor | *C, Unix/Linux*
- Built a lightweight, terminal-based text editor in C with raw-mode terminal I/O.
- Implemented incremental search, syntax highlighting, and efficient buffer management.
- Designed robust manual memory management to ensure leak-free performance.

Red-Black Tree Implementation | *Java, JUnit*
- Implemented a self-balancing binary search tree from scratch, handling complex rotation and recoloring logic.
- Optimized for $O(\log n)$ time complexity for insertion, deletion, and search operations.

TECHNICAL SKILLS

Languages: Java, C, C++, TypeScript, JavaScript, SQL, HTML/CSS, x86-64 Assembly
Frameworks & Libraries: React, Node.js, Express, Prisma, JUnit
Tools: Git, VS Code, Docker, Eclipse, GDB
Platforms: Linux, Windows

AWARDS

James C. Lewis Technical Theatre Award - The Ohio State University, *April 2023*