

JOSHUA BISSETT

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EDUCATION

Kent State University

Kent, OH

Bachelor of Science in Computer Science

Expected May 2027

Relevant Coursework: Operating Systems, Computer Organization, Data Structures & Algorithms, Linear Algebra, Calculus I & II.

TECHNICAL SKILLS

- **Languages:** C, C++, Python, Bash, JavaScript/TypeScript, SQL.
- **Systems & Embedded:** Linux (Arch), GCC, GDB, Valgrind, Makefiles, Memory Management (malloc/free), Process Scheduling.
- **Tools:** Git/GitHub Actions, Neovim, VS Code, Subversion (SVN).
- **Hardware/Hobbies:** 3D Modeling (Blender), Basic Electronics (ESP32/ESP8266 exposure), PC Hardware.

PROJECTS

Custom Memory Allocator (C, Linux)

Systems Programming

- Designed and implemented a user-space memory allocator in C using `sbrk` and `mmap` system calls.
- Replicated standard library functionality (`malloc`, `free`, `realloc`) with a focus on pointer arithmetic and memory safety.
- Engineered a free-list management system with block coalescing to minimize memory fragmentation, a critical concept for long-running embedded applications.
- Verified reliability by testing against standard workloads to ensure zero memory leaks.

System Resource Monitor (C++, Linux)

Real-Time Monitoring

- Built a command-line utility that parses the Linux `/proc` pseudo-filesystem to track CPU usage, memory consumption, and process states in real-time.
- Implemented efficient string parsing and file I/O to handle high-frequency data updates without lagging the system.
- Utilized Valgrind during development to detect and resolve memory leaks, ensuring the monitor could run indefinitely without crashing.

Assembler & Postfix Evaluator (C++)

Low-Level Logic

- Developed an infix-to-postfix converter and assembly code generator using a custom stack data structure.
- Created a custom String class with operator overloading and manual memory management to understand the overhead of high-level abstractions.
- Implemented robust error handling for file I/O and syntax validation.

Stockpile Portfolio Tracker (React, Node.js, PostgreSQL)

Full Stack Development

- Developed a complete web application for tracking financial assets using a RESTful API architecture.
- While primarily a web project, this demonstrated the ability to integrate database backends (SQL) with user-facing frontends, similar to internal dashboard tools.