

ALEXANDER M. MANLEY

Graduate Computer Engineer

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EDUCATION

Exp. 2025 **Master of Science in Computer Engineering**
The University of Kansas
Focus: Computer Architecture and Systems

2023 **Bachelor of Science in Computer Engineering**
The University of Kansas
3.53 GPA

AWARDS

- Dean's List (2023)
- Undergraduate Research Award (2021, 2022)
- Distinction Scholarship (2019-23)
- Eagle Scout, Medal of Merit (2018)

EXPERIENCE

Fall 2023 **Graduate Teaching Assistant** The University of Kansas
CoE Senior Design

- Operated as lab manager, ensuring safe environment and productive student collaboration.
- Offered insight to guide student projects to achieve success.
- Maintained positive communication with students to develop engaging environment.

Summer 2023 **RF Hardware Engineering Intern** Taikan Company

- Utilized PCB software to modernize company design process, simplifying product development.
- Developed quality procedure setup to enable in-house verification of hardline cable products.
- Updated product lines to utilize SMD technology enabling reduction in manufacture time.
- Provided documentation to streamline engineering design efficiency.

Summer 2022 **Electrical Engineering Intern** Peraton Incorporated - USPS Central Repair Facility

- Developed retrieval system to allow for rapid on-site screening of dimensioner cameras.
- Reverse Engineered motor controller leading to 1,200 dollar cost savings per repair.
- Designed test fixture for rapid testing of system controller; reducing screening time by 50 percent.
- Wrote documentation to organize system layout and ensure project repeatability.

COMPUTER ARCHITECTURE RESEARCH FELLOW

- Implemented efficient memory controller to expand gem5 functionality.
- Developed cloud-based FPGA-accelerated FireSim simulation to discover hardware-level bottlenecks of gem5.
- Cross-compiled PARSEC benchmarks for the ARM ISA to run on gem5 full system environment.
- Maintained standard coding practices while applying computer architecture concepts.

PUBLICATIONS

- [1] J. Umeike, N. Patel, A. Manley, A. Mamandipoor, H. Yun, and M. Alian, "Profiling gem5 Simulator," 2023 IEEE ISPASS.
- [2] N. Taheri, A. Manley, A. R. Pang, and M. Alian, "Profiling an Architectural Simulator," 2022 IEEE ISPASS.

PROJECTS

Computer Arch **MIPS Single Cycle Processor**
Written in VHDL, I designed registers, functional logic, and control subsystem. The design supports 16 individual operands including arithmetic, data movement, branches, and jump instructions. Through simulation, the processor could successfully compute the Fibonacci sequence recursively, up to the 15th digit.

Senior Design **(AI)-larm: A modular alarm system** <https://github.com/amanley97/AI-larm>
As a team lead, I coordinated both hardware and software to deliver a cohesive product. I designed Bluetooth sensors for break-in detection and developed a user-friendly interface for seamless operation.

Embedded **Automated Car**
I developed software for controlling servos and motors using datasheet details and microcontroller specifications. I incorporated UART and I2C communication protocols and leveraged the Raspberry Pi and RISC-V ISA development environment.