Alexander Manley

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Education

Master of Science in Computer Engineering
Expected May 2025

The University of Kansas
Lawrence, Kansas

- GPA: N/A
- Focus: Computer Architecture and Systems

Bachelor of Science in Computer Engineering
May 2023

The University of Kansas
Lawrence, Kansas

- GPA: 3.53
- Honors: Undergraduate Distinction Scholarship, (2x) Undergraduate Research Award, Undergraduate Research Fellowship, Dean's List (SP23)

Experience

Graduate Teaching Assistant
Lawrence, Kansas

The University of Kansas
Fall 2023

- 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.

RF Hardware Engineering Intern
Lawrence, Kansas

Taikan Company
May 2023 - August 2023

- Utilized PCB software to modernize company design process, simplifying board development and turnaround.
- 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.

Electrical Engineering Intern
Topeka, Kansas

Peraton Incorporated - USPS Central Repair Facility
May 2022 - August 2022

- 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 to allow for rapid testing of system controller leading to reduction of screening time by 50 percent.
- Wrote documentation to organize system layout and ensure project repeatability.

Research

Undergraduate Computer Architecture Research Fellow
Lawrence, Kansas

The University of Kansas - Electrical Engineering and Computer Science Dept.
Nov. 2020 - May 2023

- Implemented efficient memory controller to expand gem5 functionality.
- Developed cloud-based FPGA-accelerated FireSim simulation to discover hardware-level bottlenecks of gem5.
- Developed gem5 full system environment for running PARSEC benchmarks.
- 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 International Symposium on Performance Analysis of Systems and Software (ISPASS), Raleigh, NC, USA, 2023, pp. 103-113, doi: 10.1109/ISPASS57527.2023.00019.
- [2] N. Taheri, A. Manley, A. R. Pang, and M. Alian, "Profiling an Architectural Simulator," 2022 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), Singapore, Singapore, 2022, pp. 233-235, doi: 10.1109/ISPASS55109.2022.00032.

Projects

(AI)-larm: A Modular Home Alarm System
Spring 2023

Senior Design Project
https://github.com/amanley97/AI-larm

- Served as team lead, coordinating the hardware and software to form the final product.
- Designed and prototypes wireless Bluetooth sensors to detect break-in events.
- Developed intuitive interface for user operation.

Infrared Communication System *Fall 2022*

Microcontroller Communication Project

- Developed transmitter and receiver circuit to wirelessly send data via infrared pulses.
- Utilized Arduino microcontroller to encode/decode packets while ensuring transmission rate of 2100 bps.

Linear Power Supply *Fall 2022*

Electronic Circuits Project

- Designed stable power supply able to deliver 11 volts at up to 1 amp, with over current protection.
- Simulated the circuit in PSpice before implementing on a protoboard.

Vitronic Camera Dimensioner Retreival System *Summer 2022*

Internship Electronic Systems Project

- Worked with engineers across many disciplines to iterate system designs according to problem requirements.
- Prototyped microcontroller-driven circuit system to achieve motor polarity and braking control.
- Manufactured industrial motor control system to ascend and descend pulley system.

Automated Car *Fall 2021*

Embedded Systems Project

- Developed software to control servos and motors based on datasheet information and microcontroller's basic microarchitecture specifications.
- Integrated communication through UART and I2C timing protocols.
- Utilized Raspberry Pi and RISC-V ISA development environment.

Custom Filter Design *Fall 2021*

Electronic Circuits Project

- Calculated design characteristics based on the following parameters: Low Pass, 6kHz cutoff, 5V Gain.
- Routed circuit board in OrCAD while adhering to design rules.

Skills

Programming Languages C++ (Object-Oriented), C, Python, Bash, VHDL
Software Xilinx Vivado Suite, AutoDesk EAGLE, OrCAD, KiCAD, isoPro, Gem5, QEMU
Lab Equipment Multimeter, Function Generator, Oscilloscope, Soldering Station

Awards

Undergraduate Research Fellowship *Feb. 2022*

The University of Kansas

- Prestigious program to develop young undergraduate researchers.

Undergraduate Research Award *Dec. 2021*

The University of Kansas

- Nominated to continue research.

Undergraduate Research Award *Mar. 2021*

The University of Kansas

- Nominated by faculty member for research efforts.

Undergraduate Distinction Scholarship *Feb. 2022*

The University of Kansas

- Awarded for excellence in academics.

Eagle Scout *May 2018*

Boy Scouts of America

Medal of Merit *Jun. 2018*

Boy Scouts of America

Extracurriculars

Jayhawk Rocket Design

Hardware Team Member *2019*

- Developed an autonomous thrust vector-controlled rocket in collaboration with teams.
- Iterated and prototyped a flight computer with other members of the hardware team.

Institute of Electrical and Electronics Engineers (IEEE)

IEEE Expo Coordinator *2019*

- Corroborated with club president to organize project demonstration booth.
- Executed pre-event forms and documentation.
- Club ambassador at Engineering Expo and inter-organizational pre-planning meetings.