Alexander Kang

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Education

Northwestern University *Evanston, IL*

B.S. Candidate in Computer Science, McCormick School of Engineering | GPA: 3.7 *Class of 2024*

- Relevant Coursework: Microprocessor System Design; Electronics System Design; Wireless Protocols for the Internet-of-Things; Internet-of-Things Sensors, Systems, and Applications; Distributed Systems; Design & Analysis of Algorithms; Data Structures & Algorithms

Experience

Tesla *Palo Alto, CA*

Incoming Firmware Engineering Intern *Mar. 2024*

- Joining BMS firmware team in the spring of 2024

Siemens Healthineers *Hoffman Estates, IL*

Electrical Engineering Intern *Jun. 2023 - Present*

- Developing & testing embedded **C** code for real-time control of robot arm movements using TI C2000 series MCU
- Leading & maintaining software development of Raspberry Pi GUI app using **C** and **Python** for a touchscreen interactive tool crib
- Writing documentation to provide clear instructions for software installation, operation, and maintenance
- Performing Highly Accelerated Life Testing (HALT) on power supplies to ensure performance and reliability meet project requirements

Northwestern Formula Racing *Evanston, IL*

Sensor & Data Acquisition Lead *Jun. 2022 - Aug. 2022*

- Collaborated with 4 cross-functional teams to evaluate and select 10 new sensors for the 2022-23 FSAE car based on project goals
- Architected a modularized main data acquisition board, streamlining the collection of sensor data from 7 daughter modules
- Designed, prototyped, and programmed (**C++**) the telemetry board responsible for transmitting real-time data to trackside base stations

Global Shop Solutions *The Woodlands, TX*

Programmer/Analyst Intern *Jun. 2022 - Aug. 2022*

- Conducted in-depth analysis of user requirements, leading to development of intuitive interfaces, enhancing overall user experience
- Modernized legacy user interface forms by migrating from COBOL to Visual Basic while improving system functionality and efficiency

Northwestern University Computer Science Department *Evanston, IL*

Undergraduate Teaching Assistant *Mar. 2022 - Present*

- Facilitating the Intro to Computer Systems course, serving as the initial introduction to the subject for most undergraduates
  - Spring ’22 (82 students), Fall ’22 (78 students), Winter ’23 (168 students), Spring ’23 (108 students), Fall ’23 (165 students)
- Assisting students with various topics in computer systems, **C** programming, **x86 assembly**, **Unix**, and low-level hardware
- Conducting weekly office hours, developing instructional video guides for lab assignments, and grading homework & exams

McCormick School of Engineering PC Support *Evanston, IL*

Computer Consulting Aide *Sep. 2021 - Jun. 2023*

- Developed a cross-platform desktop GUI application using **Rust**, streamlining and automating file transfers across the computer lab network
- Conducted comprehensive troubleshooting of malfunctioning systems and hardware & reimaged systems to be deployed in labs
- Assisted the computer labs administrator in maintenance and support of 5 computer labs, contributing to productive learning environment

Northwestern Formula Racing *Evanston, IL*

Data Acquisition Project Lead *Sep. 2021 - Jun. 2022*

- Managed a team of 3 members in developing, testing, and maintaining the data acquisition system for the 2021-22 FSAE car
- Spearheaded all aspects of development from hardware design (**Autodesk EAGLE**) to software development (**C++**)
- Achieved a 22% reduction in data acquisition PCB size while preserving full functionality and integrating a GPS for enhanced capabilities

Projects

ARMv7 Assembly Pong

Showcase Link *Mar. 2022*

- Developed an adaptation of the iconic game Pong in **ARMv7 assembly**, enhancing the classic gameplay with some additional features

Skills

Technical Skills C, Python, Rust, C++, assembly language (x86 & ARMv7), MATLAB, PCB design software

Other Embedded Linux, Git, communication protocols, JTAG, logic analyzers, oscilloscopes