Owen Park

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Education

University of Michigan — **Ann Arbor, MI**
(Expected) M.S.E. in Computer Science and Engineering — *Jan. 2025 - Dec. 2025*
B.S.E. in Computer Engineering — *Aug. 2022 - Dec. 2024*

- **GPA:** 3.92 / 4.0
- **Coursework:** Computer Architecture, Operating Systems, Embedded Systems, Applied GPU Parallel Programming, Data Structures and Algorithms, Wireless Systems, Signals and Systems

Experience

Magna International — **Troy, MI**
Embedded Software Engineer Intern — Summer 2024

- Wrote C firmware for embedded Linux, QNX, and RTOS for the EV and autonomous driving R&D department
- Developed robust OpenVX camera streaming applications for TI's TDA4VM SoC by interfacing kernel drivers and utilizing inter-processor communication, successfully reducing latency by 33%, achieving as little as 200ms

Michigan Mars Rover — **Ann Arbor, MI**
Embedded Software Lead — *Aug. 2024 - Present*

- Leading the embedded software team, orchestrating meetings, spearheading recruitment and onboarding, and educating new members

Embedded Software Member — Sept. 2022 - Apr. 2024

- Integrated FreeRTOS on STM32 microcontrollers in C to manage concurrent tasks with various sensors, ensuring efficient communication and coordination between the subsystems
- Designed and implemented a C++ ROS nodelet, interfacing the NVIDIA MTTCAN driver on our Jetson and integrating netlink sockets for CAN interface activation
- Leveraged multithreading to concurrently read from ROS topics and communicate with the CAN bus, enhancing real-time data exchange efficiency

University of Michigan — **Ann Arbor, MI**
Teaching Assistant for EECS 370: Introduction to Computer Organization — *Aug. 2024 - Present*

- Leading lab section on hardware/software interaction, assembly language, and computer hardware design

Projects

Multithread Out-of-Order RISC-V Processor in SystemVerilog — Spring 2024

- Spearheaded the design and implementation of a RISC-V MIPS R10K-based out-of-order processor from scratch, employing SystemVerilog and Synopsys Design Compiler for design, verification, and synthesis with a group of 4 other classmates
- Integrated simultaneous multithreading (SMT) with a 2-way superscalar architecture, effectively doubling instruction throughput and maximizing parallelism, achieving the fastest processor in the class semester
- Designed a custom instruction cache with multiple concurrent prefetch buffers for each thread's stream of execution, resulting in a 150% increase in performance (measured in cycles per instruction)

Autonomous Shopping Cart

- Developed a user-tracking autonomous shopping cart using STM32 microcontrollers, leveraging I2C/SPI communication protocols for sensor integration, motor control, and user interface through an LCD screen
- Implemented tracking algorithms with PixyCam data for user recognition and ultrasonic triangulation for enhanced directional tracking

Skills

- **Languages:** C, C++, {System}Verilog, {RISC-V/ARMv7-M} Assembly, Python, Java, {Java/Type}Script, Bash
- **Technical/Tools:** Git, Makefile, CMake, Synopsys VCS, AWS (SDK, S3, and EC2), Docker, Terraform

Honors and Activities

- **Honors:** James B. Angell Scholar, University Honors, Perfect ACT Scorer, AP Scholar with Distinction x3
- **Affiliations:** Traders at Michigan, Korean-American Scientists and Engineers Association