Owen Park

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Education

University of Michigan   **Ann Arbor, MI**
B.S.E. in Computer Engineering   *May 2025*
- **GPA:** 3.92 / 4.0
- **Coursework:** Computer Architecture, Embedded Systems, Data Structures and Algorithms, Digital Circuits, Wireless Systems, Signals and Systems, CS Pragmatics, Discrete Math, Calculus I-IV, Linear Algebra, Probability

Experience

Michigan Mars Rover   **Ann Arbor, MI**
Embedded Software Member   Fall 2022 - *Present*
- 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
- Accomplished successful CAN communication between various STM32G4 microcontrollers, allowing for full functionality on our rover, replacing our existing I2C system

University of Michigan CSE Department   **Ann Arbor, MI**
Undergraduate Researcher   Fall 2023 - *Present*
- Researching how large language models can be used to generate infrastructure as code configuration files for Terraform from natural language descriptions to submit to NeurIPS 2024
- Building a comprehensive dataset of over 1,000 different prompts, policies, and target configurations of Terraform AWS resources
- Leveraging machine learning techniques to achieve a significant reduction in error rates and up to a 20% improvement in code synthesis accuracy during preliminary testing

Projects

R10K-Style Out-of-Order RISC-V Processor in SystemVerilog   *Spring 2024*
- Spearheading the design and implementation of a RISC-V MIPS R10K-based out-of-order processor from scratch, employing SystemVerilog for high-level synthesis with a group of 4 other classmates
- Integrating simultaneous multithreading (SMT) with a 2-way superscalar architecture, doubling instruction throughput, and customizing thread scheduling and resource allocation mechanisms to maximize parallelism
- Incorporating advanced features such as an N-way associative cache, tournament branch predictor, and instruction/data prefetching

Podium Prints Ecommerce Website - *Full-Stack* - podium-prints.com   Fall 2023
- Developed a full-stack ecommerce web app in TypeScript with a Next.js frontend and an Express backend, integrating Payload CMS to easily access a MongoDB database and AWS S3 bucket
- Managed API endpoints using tRPC, ensuring a type-safe backend that seamlessly integrated with the frontend
- Used Docker Compose, Terraform, and LocalStack to create an instant development environment with a mock S3 server and local MongoDB database

Skills

- **Languages:** C, C++, {System}Verilog, RISC-V Assembly, Python, Java, {Java/Type}Script, SQL, Bash, HCL
- **Web Technologies:** React, Next.js, Express, Node.js, MongoDB, HTML, CSS
- **Technical/Tools:** Git, AWS (SDK, S3, and EC2), Docker, Terraform, Makefile, CMake

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
- **Hobbies**: 7v7 Intramural Flag Football, 3v3 Intramural Basketball, Poker, Traveling, Hiking