Allen Pham

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EXPERIENCE

PARSEC
Vancouver, Canada
Technical Team Member
February 2025 – Present
- Researched and procured pressure and temperature sensors based on cryogenic requirements and ease of integration for the lunar water purification system.
- Integrated temperature and pressure sensors into the **ESP-32** electronic system of the lunar water purification system using **C++** and multiple serial communications system such as **I2C**, **UART** and analog inputs.
- Populated the sensor boards containing through-hole **MOSFETs**, **ICs** and **buck converters**.

UBC Supermileage
Vancouver, Canada
Electrical General Team Member
September 2024 – Present
- Led improvement effort on the **ESP-32** telemetry system, including RPM warning and specific indicators for driver's user experience using **C++**.
- Populated telemetry PCBs using a **reflow oven** and **soldering iron** for the team's cars: Urban Concept, Gas Prototype, and Fuel Cell Prototype.
- Expand on vehicle's dynamic simulations and strategize racing lines and car setup to maximize mileage using **MATLAB** and **Python**.

Blacksheep Power
Hanoi, Vietnam
Electrical and Mechanical Engineering Intern
May 2023 – July 2023, July 2024 – August 2024
- Designed and created new electrical wiring harnesses for an electric motorbike, developed low-voltage electronics such as amplifiers, and documented wiring diagrams for future development by **LTSpice**.
- Analyzed performance data from pressure pumps with **Python** to compare prototypes and devised a prototype heat sink using **Creo** and **Arduino IDE**, lowering operating temperature by 10°C.
- Constructed a safety guide to ensure workplace safety for employees and visitors.

PROJECTS

Reflow Oven Controller
January 2025 – February 2025
Github, 8051 Instructional Set, Python
- Designed a circuit that consists of an LCD, **Intel's microcontroller** and **op-amps** to amplify, display and collect temperature data for the oven controller's thermocouple wire.
- Programmed a finite state machine using **8051 Instructional Set** incorporated with the circuit to create a reflow soldering temperature profile for a toaster oven.
- Collected and visualized the reflow oven process and temperature data using **Python's Matplotlib**, creating an interactive and insightful user-interface.

Urban Concept Vehicle Simulation
December 2024 – Present
MATLAB, Python, Optimization Toolbox
- Gathered instantaneous weather conditions of Indianapolis Motor Speedway by requesting and storing the NWS API's data using **Python SQL**.
- Created an optimal racing line for the UBC Supermileage Urban vehicle using **MATLAB's Optimization Toolbox** in the Shell's Eco-shell Marathon, reinforcing the team's racing strategy and setup.

RISC Machine
November 2024 – Present
SystemVerilog, ModelSim, Quartus Prime
- Developed a script to create a datapath for a **RISC** machine supporting addition and bit-shifting with System Verilog.
- Co-created a **RISC** controller using a finite state machine to control the datapath and assembly instruction.
- Used **ModelSim** and **Quartus Prime** to implement the finite state machine into a DE1-SOC and visualize waveforms and debug functionality respectively.

Signal Generator
May 2024 – June 2024
KiCad, LTSpicem, Multimeter, Oscilloscope
- Redesigned a signal generator schematic using **KiCAD** to simplify the printed circuit board when it would be ready for assembly.
- Analyzed properties of electric components such as operational amplifiers and capacitors to understand properties of a signal generator with **LTSpice**.
- Debugged a printed circuit board assembly with a **multimeter** and an **oscilloscope** to create a final product

EDUCATION

The University of British Columbia
Vancouver, BC
Bachelor of Applied Science in Electrical Engineering
September 2024 - Present