Ishan Porwal

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Education

Olin College of Engineering **May 2027**

Bachelor of Science, Electrical and Computer Engineering GPA: 4.00 *Needham, MA*

Coursework: Software Design, Machine Learning, Discrete Mathematics, Principles of Integrated Engineering, Sensors Instrumentation and Measurement

Spring 2025 Coursework: Microelectronic Circuits, Computer Architecture, Linear Systems and Signals Analysis, Engineering Design

Hardware and Software Skills

Proficiencies: HMI, APIs, ETL, Data Engineering, Embedded Systems, PCB Design, Digital Communications (I2C, SPI, MQTT, Modbus), QA/QC, Continuous Process Improvement, Documentation, Agile, Signal Processing

Languages: Python, HTML, CSS, Java, C, C++. MatLab, R, SQL

Tools: KiCad, CAN, Bash, Ignition, Signal Generator, Arduino, Microsoft Office, Linux, Oscilloscope, Multimeter, Pandas, PyTorch, TensorFlow, LTspice, NumPy, PLC, Tableau, Bazel

Experience

TTM Technologies **May 2024 – Aug. 2024**

Automation Engineering Intern *Stafford Springs, CT*

- Developed, tested, and deployed Industry 4.0 solutions to connect several PCB manufacturing factories, improving process engineers' ability to monitor and optimize production workflows
- Established communication with several factory machines via OPC UA protocol, collected real-time data from PLCs, and configured alarms used by factory operators
- Used Python scripting and SQL databases in Ignition for machine data parsing and analysis across all TTM sites
- Created new process flows to streamline documentation and project request management

Olin Formula SAE Electric **Sept. 2023 – Present**

Sensing Subteam Lead *Needham, MA*

- Leading implementation of data acquisition systems to monitor suspension strain and travel to validate mechanical designs, and measure performance parameters including wheel speed and various temperatures
- Responsible for managing first-year learning, and progression and completion of subteam projects
- Previously worked on low voltage subteam to integrate and debug electrical systems, implement new circuit boards for cooling system, and test and validate electrical system per FSAE regulations to ensure safety and compliance

Olin Rocketry **Sept. 2023 – May 2024**

Electrical Engineer *Needham, MA*

- Worked with other avionics members to build custom PCBs with minimized footprints to collect data to control various rocket subsystems using components including 9-axis IMU, barometric altimeter, and ESP32 C3
- Refactored codebase to integrate new electrical components and developed quaternion-based orientation tracking system using gyroscope data

Projects

Cooling Control Module | *KiCad, CAN, C, Git* **Dec. 2023 – April 2024**

- Developed a PCB control system for the cooling systems on MKVII, Olin's seventh FSAE electric race car, including radiator fan and water pump control functionalities
- Used embedded C programming language and CAN API to write firmware for the microcontroller, ensuring efficient and reliable operation of the cooling control module
- Implemented CAN protocol to facilitate communication between cooling control module and other components of vehicle such as motor controllers, enabling real-time exchange of temperature data

WareBot | *Python, C++, Arduino IDE* **Dec. 2022 – June 2023**

- Led team of 4 in addressing lack of automation in warehouses and occupational injuries due to forklift accidents, based on prior personal research that was presented to former US Assistant Secretary of Labor
- Created small-scale automated forklift that brings pallet of goods to desired destination and has ability to return it to original location
- Designed programmable movement, prong rotation, and linear slide lift using Raspberry Pi, Arduino Mega, as well as motor controllers