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# Wesley Soo-Hoo

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## —Education—

Olin College of Engineering Needham, MA

Graduation: Spring 2023

Major: B.S. in Engineering with Concentration in Robotics

**Skills:** Python, Java, C++, Embedded C, MATLAB, Simulink, Git, Web Development, ROS, Vim, KiCad, SolidWorks, Autodesk Fusion 360, Autodesk Inventor, Siemens NX, FMEA, LaTeX, Confluence, Design for Manufacturing, Common Shop Tools

**Relevant Coursework:** Robotics Systems Integration, Fundamentals of Robotics, Quantitative Engineering Analysis, Products and Markets, Design Nature, Modeling and Simulation, Sensors Instrumentation and Measurement

## —Experience—

Waymo (Mountain View, CA / Remote)

June 2020 – Present

*Systems Engineering Intern*

- Designed software for a single source of truth for the vehicle's high-level system models using Cameo Systems Designer and programmed tools to generate functional Simscape models from SysML diagrams.
- Created power consumption measurement and data logging system to record and analyze voltage, current draw, and temperature at multiple points in the car's low voltage bus.
- Debugged and tested fault-injection PCBs and harnesses that simulated over 140 hardware faults in a test vehicle.
- Developed and documented firmware flashing procedures and strategies for efficient at-scale vehicle bringup.

Formula SAE - Olin Electric Motorsports (Needham, MA)

August 2019 – Present

*Electrical Design Lead (2020-Present), Electrical Engineer (2019-2020)*

- Organized and led team of 38 students during remote year, promoted inclusive environment and continuous learning.
- Designed, assembled, and tested PCBs for wheel speed sensing and real-time closed loop traction control subsystem.
- Developed a Hardware in the Loop testing environment for automating system-level integration testing of car firmware.
- Programmed and debugged AVR microcontrollers, used digital signal processing and CAN, SPI, and I2C protocols.

Olin Robotics Lab (Needham, MA)

August 2019 – Present

*Robotics Software Engineer*

- Programmed 2D and 3D LiDAR Gazebo simulations and ROS drivers and integrated into tractor autonomy code.
- Created tools to effortlessly compile and deploy the software to an onboard computer and Teensy 2.0 microcontroller.

Motivo Engineering (Gardena, CA)

June 2018 – January 2020

*Junior Electrical Engineer*

- Developed and tested embedded firmware, designed and built electrical harnesses, and handled client interactions for projects in automotive, agricultural, and consumer electronics industries for both start-ups and established companies.
- Autonomous Shuttle: Retrofitted a van to be compatible with client's autonomy system. Programmed and debugged two ECUs to interface and control the van's brake, steering, throttle, and body functions with full redundancy over CAN.
- Designed fault-redundant systems using FMEA processes for power management subsystem and sensor systems.
- Autonomous Delivery Vehicle: Led firmware development for a robotic cargo system to securely deliver packages.
- Integrated over 10 actuators and over 60 sensors during a compressed two-month timeline for demonstration at CES.
- Agricultural Cultivator Vision System: Programmed and trained neural network vision system that classifies plants and weeds using the YOLOv3 algorithm and Darknet framework, with a detection accuracy of 99% in all lighting conditions.
- Electric Semi-Truck Battery: Wrote battery management firmware for a semi truck's battery system to safely execute the startup and shutdown sequences of the truck and detect and handle internal battery pack hardware faults.
- Autonomous Electric Tractor: Developed hardware abstraction ROS nodes for tractor platform and interface systems.

The Boeing Company (Huntington Beach, CA)

June 2017 – August 2017

*Phantom Works Quality Engineering Intern*

- Developed and presented a project proposal and systems level top-down project plan to the site executive and team.
- Discussed and mitigated risks and opportunities with Boeing R&D projects to prevent schedule and budget losses.

## —Projects—

Coop.ai

November 2019

*Yale Hackathon – Runner Up*

- Created a graph-based mesh networking protocol to facilitate collision avoidance algorithms for autonomous cars.
  - Simulated multiple autonomous cars running simultaneously in road conditions using the CARLA simulation suite.
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