Wesley Soo-Hoo

310-661-0828 | wsoohoo@olin.edu | wesleysoohoo.me | github.com/wsh32

—Education—

Olin College of Engineering Needham, MA — Graduation: Spring 2023
Major: B.S. in Engineering with Concentration in Robotics

Skills: Python, Java, C++, ROS, MatLab, Simulink, Git, Web Development (Django), Vim, KiCAD, SysML, Solidworks, Autodesk Fusion, Autodesk Inventor, Siemens NX, FMEA, LaTeX, Design for Manufacturing, 3D Printer, Laser Cutter, CNC Mill

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 high level system models for vehicle low voltage system using SysML and Cameo System Designer to create a single source of truth for the vehicle's model-based development and reduce errors in modeling parameters.

Formula SAE - Olin Electric Motorsports (Needham, MA) — August 2019 – Present

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

- Designed, assembled, and tested PCBs for wheel speed sensing and real-time closed loop traction control subsystem.
- Programmed and debugged ATMEGA MPUs in C for digital signal processing and filtering and CAN and SPI protocols.
- Built production vehicle harnesses and test harnesses for bench testing of individual PCBs and sensors.

Olin Robotics Lab (Needham, MA) — August 2019 – Present

Robotics 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.
- Developed top-down system design and long-term project plan for a multi-terrain autonomous quadrupedal robot.

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 work with client's autonomy system. Programmed and debugged two low level controllers to interface and control the van's brake, steering, throttle, and body functions with full redundancy.
- Designed fault-redundant systems using FMEA processes for power management subsystem and sensor systems.
- Programmed automatic testing scripts to accelerate bench and track testing for over 600 vehicle single faults.
- Autonomous Delivery Vehicle: Led firmware development for a robotic cargo system to securely deliver packages.
- Integrated over 10 actuators and over 60 sensors in 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. Increased detection accuracy to 99% in all conditions.
- Autonomous Semi Truck: Designed and tuned the controls architecture for a pneumatic-based Brake by Wire system.
- Wrote detailed documentation for the bring up and tuning processes for a high-volume batch build by a subcontractor.
- Semi-Truck Battery Subsystem: Developed battery management firmware for a semi truck's battery system to safely handle the startup and shutdown sequences of the truck and detect hardware failures internal to the battery pack.

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.

FIRST Robotics (Carson, CA; El Segundo, CA) — May 2014 – May 2019

Team 4201: Mentor (2018-2019), Team 687: Mentor (2018-2019), Team Captain (2016-2018)

- Team Captain (2016-2018): led team (100) through two build and competition seasons, pit crew (repaired robot between matches) and award presenter at multiple regional competitions and the world championships.
- Mentored students in software and mechanical design and supported them in development of the competition robot.
- Drive Coach: Facilitated communication between students (both within team and with other teams) in time-sensitive and high-pressure situations, empowered students to lead discussions with students and mentors from other teams
- Awards: 2019: World Champion Winners, Newton Division Winners, Chairman's Award, Innovation in Controls Award, Autonomous Award, Gracious Professionalism Award; 2018: Newton Division Semifinalist, Las Vegas Regional Finalists, Beach Blitz Winners; 2017: Dean's List Finalist, Fall Classic Finalists; 2016: Fall Classic Finalists