Ray Sun

1200 E. California Blvd. MSC 919, Pasadena, CA 91126
rayjhsun@gmail.com | raysun@caltech.edu

EDUCATION

CALTECH
B.S. in Electrical Engineering
June 2020 | Pasadena, CA
Cum. GPA: 4.2 / 4.3
Major GPA: 4.1 / 4.3

DAMIEN HIGH SCHOOL
Grad. May 2016 | La Verne, CA

LINKS

Facebook:// **ray.sun.7921**
Github:// **electronictoast**
LinkedIn:// **ray-sun-2020**
Website: **electronictoast.github.io**

COURSEWORK

ELECTRICAL ENGINEERING
Advanced Digital System Design • FPGAs with VHDL • Analog Design Laboratory • Signal Processing Systems • Circuit Analysis and Systems • Electronics for Space Applications

Teaching Assistant
Embedded Systems • Mechatronics

COMPUTER SCIENCE
Autonomy • Machine Learning • Computing Systems • Algorithms

SKILLS

HARDWARE
Design:
Altium/CircuitMaker • KiCad • EAGLE • Inventor • SolidWorks
Technologies:
Arduino/AVR • STM32 • Raspberry Pi • FPGA
Fabrication:
FDM 3D printing • Laser cutting • Machining

PROGRAMMING
Languages:
C/C++ • Python • Linux • VHDL • AVR Assembly
Other:
ROS • MATLAB/Simulink • LaTeX

MISCELLANEOUS
General class amateur radio license • GIMP • Some control theory (PID) • German (limited) • Chinese (spoken)

EXPERIENCE

MICRO-VU CORP. | Electrical Engineering Intern
June 2019 - Present | Windsor, CA
- Providing support for electrical and firmware development for precision non-contact and multi-sensor measurement machines.
- Designing low-latency, fault-robust wireless system prototype.

AMPAIRE INC. | Powertrain Intern
Summer 2018 | Los Angeles, CA
- Assembled and validated high voltage electric powertrain modules for ground testbed and flight aircraft.
- Assisted with development of Simulink model of powertrain.
- Designed and tested 15 Mbps isolated dual-channel CAN transceiver.

CALTECH | TechLab Student Assistant
April 2017 – September 2017 | Pasadena, CA
- Provided training to Caltech students and staff in using 3D printing resources.
- Maintained 3D printers and fulfilled print job requests.

RESEARCH

CALTECH AEROSPACE ROBOTICS AND CONTROL LAB
Undergraduate Researcher
September 2017 – March 2018 | Pasadena, CA
- Assisted in development for spacecraft simulator and UAV demonstrations.
- Designed STM32-based second-generation thruster controller boards.

Summer Undergraduate Research Fellow
Summer 2017 | Pasadena, CA
- Assisted development of a 6-DOF spacecraft simulator robot: assisted with hardware selection; performed thruster characterization; designed low-level thruster controller board.
- Collaborated on design of an androgynous docking mechanism for use on multi-agent simulator robots

ORGANIZATIONS AND ACTIVITIES

Caltech Small Satellite Operations Center Member of inaugural student team of new campus facility providing support for CubeSat flight operations with JPL.
Caltech Formula SAE Team Designed temperature sensing board and high voltage sensing circuit for 2nd generation electric vehicle battery management system. Currently I/O board co-lead; designed, verified, and integrated 3rd-generation STM32-based vehicle pedal sensors board; designed 4th generation board.
Caltech IEEE Chair of Caltech IEEE student branch, leading committee organizing events for networking, outreach, and education.
Caltech Association of Makers Co-founder and Vice President; seeking to provide a network of resources to university makers of all backgrounds and experience.
Recent and Ongoing Personal Projects AR open-source wearable computer; Arduino-based self balancing robot (demonstrator for electric Segway project); RGB LED controller / music visualizer; PCB reflow oven; analog function generator