Ray Sun

1200 E. California Blvd. MSC 919
rayjhsun@gmail.com | raysun@caltech.edu

EDUCATION

CALTECH
BS in Electrical Engineering
June 2020 | Pasadena, CA
Cum. GPA: 4.2 / 4.3
Major GPA: 4.17 / 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 Systems (EE 119ab)
FPGAs with VHDL (EE 125)
Feedback Control Circuits (EE 113)
Circuit Analysis and Systems (EE 44)
Signal Processing Systems (EE 111)
Teaching Assistant
Mechatronics (EE/ME 7)
Embedded Systems (EE/CS 10a)

COMPUTER SCIENCE
Autonomy (CS/EE/ME 134)
Machine Learning (CS 156a)
Algorithms (CS 2)

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 • Java • VHDL • AVR Assembly
Other:
ROS • MATLAB/Simulink • LaTeX

MISCELLANEOUS
GIMP • Some control theory (PID) • German (limited) • Chinese (spoken)

EXPERIENCE

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.

DAMIEN HIGH SCHOOL | Robotics Summer Camp Coordinator
Summer 2016 | La Verne, CA
- Planned and managed a five-day robotics summer camp with 80 junior high and high school student participants.
- Design and software skills from competitive robotics, in addition to communication and teaching abilities, ensured a professional competitive robotics event for participants.

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 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 chapter. Member of committee seeking to reestablish the club and organize 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.
VEX Robotics Founded high school competitive robotics organization; 3 years of experience including mechanical design, programming (C/C++ based), control (PID). Leadership contributed to recognition at regional, state, and world levels.
Recent and Ongoing Personal Projects AR open-source wearable computer; Arduino-based self balancing robot (demonstrator for electric Segway project), AVR target board, RGB LED controller / music visualizer