Ray Sun

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EDUCATION

CALTECH
B.S. 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 System Design • FPGAs with VHDL • Signal Processing Systems • Circuit Analysis and Systems • Microelectronic Circuits • 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

CALTECH | SmallSats Operations Center
May 2019 - Present | Pasadena, CA
- Member of inaugural student team of new small satellite operations center
- Working on providing support for CubeSats flight operations in collaboration with JPL

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 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.
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); RGB LED controller / music visualizer; PCB reflow oven; analog function generator