Ray Sun

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EDUCATION

CALTECH
BS in Electrical Engineering + Prospective Minor in Control Systems
June 2020 | Pasadena, CA
Cum. GPA: 4.2 / 4.3
Major GPA: 4.15 / 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 119a)
FPGAs with VHDL (EE 125)
Embedded Systems (EE 10ab)
Circuit Analysis and Systems (EE 44)
Discrete-time Systems (EE 111)
Teaching Assistant
Mechatronics (EE/ME 7)

COMPUTER SCIENCE
Algorithms (CS 2)
Learning Systems (CS 156a)

SKILLS

HARDWARE
Design:
Altium/CircuitMaker • KiCad • EAGLE • Inventor • SolidWorks
Platforms:
Arduino/AVR • STM32 • Raspberry Pi
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)
Languages:
German (limited) • Chinese (spoken)

EXPERIENCE

AMPAIRE INC. | Powertrain Intern
Summer 2018 | Los Angeles, CA
- Assembled and validated 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 and verified 3rd-generation STM32-based vehicle pedal sensors board; designing 4th generation board.
Caltech Association of Makers Co-founder and Vice President; seeking to provide a network of resources to university makers of all backgrounds and experience.
Caltech IEEE Member of student committee seeking to reestablish the Caltech IEEE chapter and organize events for networking, outreach, and education.
VEX Robotics 3 years of high school competitive robotics experience including mechanical design, programming (C/C++ based), feedback control (PID). Leadership contributed to recognition at regional, state, and World Championship 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