

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)

Machine Learning (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