# Ray Sun

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## LINKS

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

## 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

## COURSEWORK

### ELECTRICAL ENGINEERING
Advanced Digital System Design • FPGAs with VHDL • Analog Design Laboratory • Signal Processing • Circuit Analysis •
*Teaching Assistant*
Advanced Embedded Systems • Embedded Systems • Mechatronics

### ROBOTICS
Autonomy • Experimental Robotics • Electronics for Space Applications

### COMPUTER SCIENCE
Machine Learning • Computing Systems • Algorithms

## SKILLS

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

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

### MISCELLANEOUS
General class amateur radio license • GIMP • Control theory

## EXPERIENCE

### MICRO-VU CORP. | Electrical Engineering Intern
Summer 2019 | Windsor, CA
- Provided support for electrical and FPGA firmware development for precision non-contact and multi-sensor measurement machines.
- Designed and prototyped low-latency, fault-robust wireless machine remote.

### 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 MISSION OPERATIONS CENTER
Student Team Member
April 2019 – Present | Pasadena, CA
- Collaborating with JPL and University of Michigan on uplink/downlink operations and data analysis of CubeSat missions.

### 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.

## ACTIVITIES AND ORGANIZATIONS

**IEEE :** Chair of the Caltech IEEE student branch, leading committee organizing events for networking, outreach, and education.
**Caltech Formula SAE Team :** Designed temperature sensing board and high voltage sensing circuit for 2nd generation electric vehicle battery management system. Designed, verified, and integrated 3rd-generation STM32-based vehicle pedal sensors board; designed 4th generation board.
**Team CoSTAR :** Student member of Caltech DARPA Subterranean Challenge team, working on hybrid ground-aerial vehicle prototype.
**Hacktech :** Organizer of intercollegiate hackathon; 3 years of involvement.
**Tau Beta Pi :** Member of engineering honor society, Secretary of Caltech chapter.
**Personal Projects** RGB LED music visualizer | AR wearable computer with transparent display | Segway self-balancing robot | Analog function generator.