

# SAMUEL HOLLADAY

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## EDUCATION

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**University of California, Berkeley**

*May 2018*

M.S. in Electrical Engineering & Computer Science

**University of California, Berkeley**

*May 2017*

B.S. in Electrical Engineering & Computer Science

## EXPERIENCE

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**Metawave Corporation**

2018-present

*Hardware Engineer*

*Palo Alto, California*

On System Software team of self-driving car startup developing metamaterial-based radar antennas. Working on integrating hardware components of prototype radar system, as well as interfacing radar, LiDAR, and camera sensors to enable sensor fusion with a GPU-based ADAS engine, and developing analog electronic beam steering.

This beam-steering project entailed developing mathematical software and firmware, selecting parts, designing boards, interfacing with microprocessors and custom ICs, and doing lab testing and optimization-based calibration of a phased array antenna system using an anechoic chamber and VNA.

**UC Berkeley Laboratory for Emerging and Exploratory Devices (LEED)**

2015-2018

*Graduate devices researcher for Professor Sayeef Salahuddin*

*Berkeley, California*

In spintronics lab, worked on acoustically driven and spin-torque ferromagnetic resonance experiments, designed RF waveguides and fabricated magnetic structures, and measured multilayer nanostructures with spin pumping. Built ferromagnetic resonance structure from the ground up, integrating hardware (including a vector network analyzer, magnetic field controller, Hall sensor, and DAQ) and software scripts in LabVIEW and Python to measure important properties such as saturation magnetization, inhomogeneous broadening, and damping with high precision.

**Maxim Integrated**

2017

*Applications Engineering Intern*

*Colorado Springs, Colorado*

Designed and characterized circuits for multimedia serializers and deserializers for Maxim Integrated's next generation GMSL line in Automotive Unit. Created Power over Coax boards, simulated components, and improved board power supply and regulation. At the end of the internship, summarized and presented data, produced analysis of PoC circuitry after creating modeling framework and analytical expressions to design power circuits, and created family of PCB circuitry to optimize desired characteristics. Increased maximum power carried by factor of six while improving data transmission.

**EE130: Integrated Circuit Devices**

2016

*Reader*

*Berkeley, California*

Student reader grading assignments for Integrated Circuit Devices class, under Professor Sayeef Salahuddin.

**Lawrence Berkeley National Laboratory**

2014-2015

*Undergraduate researcher in Grid Integration Group*

*Berkeley, California*

Created server framework and website for MyGreenCar vehicle fuel economy app at <http://mygreencar-01.lbl.gov>. The app encouraged users to compare electric and hybrid cars to conventional gasoline cars, with the aim of ultimately convincing them to purchase the greener option. Worked on hybrid vehicle-grid integration, using Matlab to create a simulation platform (V2G-Sim) to enable the optimal integration of plug-in electric vehicles with the electricity grid.

## Undergraduate Research Apprenticeship Program

Undergraduate software researcher under Professor Alice Agogino

Spring 2014

Berkeley, California

Worked on creating a Web application for a ride-sharing and shuttle transportation system for a community in need of public transit. Extensive web development using Javascript, JQuery, and Ajax programming.

## Naval Research Laboratory

SEAP and USM Intern in Ocean Sciences Branch

2012-2014

Stennis Space Center, Mississippi

Created a comprehensive, interactive ocean modeling site to dynamically create and display data from the Navy Coastal Ocean Model (NCOM) using Python scripts at <http://www7330.nrlssc.navy.mil/GOMMS/>. Built the web-sites back-end scripts, which stored and manipulated model data for use in plots and analyses. In 2014, developed an iPhone app as part of an adaptive climatology project.

## COURSEWORK

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**Electrical Engineering:** RF Integrated Circuits, Quantum and Optical Electronics, Analog Integrated Circuits, Microelectronic Circuits and Devices, Microelectronic Fabrication, MEMS, Integrated Circuit Devices, Solid State Devices, Signals and Systems, Introduction to Microelectronic Circuits

**Computer Science:** Algorithms, Artificial Intelligence, Discrete Mathematics and Probability Theory, Machine Structures, Data Structures, Structure & Interpretation of Computer Programs

**Science:** Solid State Physics, Quantum Mechanics, Physics: Mechanics and wave motion, Physics: Electricity and magnetism, General Chemistry, Properties of Dielectric and Magnetic Materials, Introduction to Multiferroic Materials and Systems

**Mathematics:** Multivariable Calculus, Linear Algebra and Differential Equations, Calculus

## TECHNICAL SKILLS

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<b>Programming</b>	Python, Java, C, C++, Matlab, LabVIEW, Scheme, Objective-C
<b>Software</b>	Cadence, ADS, DipTrace, SPICE, AutoCAD, COMSOL, CST Microwave Studio, Unix, iOS development
<b>Lab Experience</b>	VNA, photolithography, E-beam evaporator, wire bonder, PCB and IC testing, anechoic chamber
<b>Web Development</b>	Django, Javascript, PHP, JQuery, Ajax, Git, Google Maps API, Node.js, Yeoman
<b>Languages</b>	English (Native), Spanish (Proficient), Portuguese (Proficient)

## ACTIVITIES

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### ASUC Office of the CTO

2016 - present

*Chief Engineer on Project Sensus (2016)*

Led project to create portable, low-cost wireless people counter to track occupancy of campus gyms and libraries, and upload data to web application for use by students. Designed and built, almost entirely from scratch, prototypes and tested them to track the occupancy of campus centers and inform students via a university mobile application.

### Calsol: UC Berkeley Solar Vehicle Team

2013 - 2016

*Data Team Lead, Webmaster (2014)*

In 2014 appointed team Webmaster, in charge of managing the website, accounts, and web security, and Data team lead, in charge of processing and transmitting diagnostic and sensor data from the car during the competitive race. Worked as a freshman on the Electrical Team within the Power subteam, focusing on storing and distributing power from the cars solar cells safely and efficiently. Focused on Battery Management System (BMS) development and Hall-effect current sensing.

### LeaderShape Institute retreat

January 2016

Week-long program with 200 other UC Berkeley engineers to learn team-building, leadership, and consideration for social and ethical issues in engineering.

**SOL Study Abroad: Granada, Spain**

Summer 2015

Participated in six-week study abroad program with SOL Education Abroad in Granada, Spain. Took classes in Spanish and Hispanic American Culture and Civilization, as well as Spanish language, with the University of Granada.

**FIRST Robotics: Team 1912**

2006-2014

Member of high school FIRST robotics team, helping with robot building, community outreach, public demos, administration, and leadership. Titles include captain of Chassis team, 2-time robot driver, and Secretary.

**HONORS**

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| <b>2013</b> | UC Berkeley Regents and Chancellors Scholar   |
| <b>2013</b> | NASA College Scholarship Fund award recipient |
| <b>2013</b> | High school valedictorian                     |