

# Galen Savidge

Robotics & Control Engineer

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## Education

2014–2019 **Bachelor of Science, Robotics Engineering**, *University of California, Santa Cruz*.

GPA: 3.80

Courses: Introduction to Mechatronics, Feedback Control Systems, Sensing and Sensor Technologies, Models of Robotic Manipulation, Microprocessor System Design, Algorithms and Abstract Data Types, Introduction to VLSI

## Awards

**Highest Honors in the Major**, *Jack Baskin School of Engineering*.

**Dean's Honors List**, *F '14; W '15; W '16; W '17; S '17; F '17; S '18*.

**Tau Beta Pi**, *Engineering Honor Society*.

## Experience

Oct 2018– **Attitude Control System Team Lead**, *SlugSat*, Microsatellite Design Project.

June 2019 Led a team of 4 electrical and robotics engineers designing an attitude control system for a CubeSat. Designed and built space-grade sensors and actuators, wrote embedded C programs for sensor fusion and feedback control, and ran hardware-in-the-loop simulations. Presented team work summaries, ran meetings, and managed team deadlines.

Apr 2018– **Lab Tutor**, *Microprocessor System Design*, Embedded Systems Programming Course.

June 2018 Helped students program microcontrollers to read sensors, communicate over serial connections, and use embedded hardware. Assisted students with debugging embedded C programs. Wrote test code used by instructors.

June 2016– **Robotics Intern**, *Biomimetic Millisystems Lab*, UC Berkeley.

Sept 2016 Developed and tested feedback control systems for use with bio-inspired locomotion techniques. Established the code base used for closed-loop control of wheeled and multi-legged autonomous platforms. Presented improved mobility and efficiency of existing designs.

## Projects

Dec 2018 **Autonomous Mobile Robot**.

Designed, built, and tested an autonomous robot in a team of 3. Laser cut and assembled parts modeled in SOLIDWORKS. Designed multistage filtering circuits on protoboard and perfboard. Wrote hierarchical state machines. Demonstrated that the robot could consistently complete a randomized test course.

May 2018 **Optimization of Theo Jansen's "Strandbeest"**.

Simulated a multi-linked leg using MATLAB and optimized its design for maximum stability and efficient locomotion.

March 2018 **Three-Sensor Attitude Estimation**.

Implemented closed-loop attitude estimation using raw data from a three-sensor IMU package. Calibrated for sensor drift and misalignment using MATLAB.

## Skills

Languages & Software C, Python, Java, MATLAB, SOLIDWORKS, Git, digital filtering, embedded programming (PSoC 5, PIC32, STM32 Nucleo, Raspberry Pi, and mbed), L<sup>A</sup>T<sub>E</sub>X

Electronics Soldering & desoldering, DC motors & actuators, active/resistive/capacitive sensors, hardware filters

Rapid Prototyping Laser cutters, 3D printers

Communication & Leadership Presenting, leading meetings, Gantt charts