

Jonathan Murata

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EDUCATION

- **University of California, Berkeley**

Berkeley, CA

B.S. Electrical Engineering & Computer Science

August 2015 – May 2019

B.S. Mechanical Engineering

August 2015 – May 2019

GPA: 3.96

Relevant Coursework:

*current semester

- *Algorithms*
- *Artificial Intelligence*
- *Probability & Random Processes*
- *Machine Learning**
- *Data Structures*
- *Machine Structures*
- *Operating Systems*
- *Parallel Computing**
- *Embedded Systems*
- *Mechatronics Design*
- *Feedback Control Systems*
- *Control System Design**

EXPERIENCE

- **University of California, Berkeley EECS Department**

Berkeley, CA

Graduate Student Instructor, Course Reader/Tutor

August 2017 - Present

- **Operating Systems (CS 162) 20-hour GSI:** Spring 2019. Teach 2 discussion sections (80 students) per week. Hold design reviews for the Pintos Operating System project (Threads, User Programs, File Systems). Exam writing/grading and 2hr weekly office hours.
- **Machine Structures (CS 61C) 20-hour GSI:** Summer 2018, Fall 2018. Course content lead: managed homework, discussion worksheet, lab, and project preparation. Teach 2 discussion sections (100 students) per week. Teach 2 lab sections (60-70 students) per week. Exam writing/grading and 2hr weekly office hours. Rated 4.66/5 in teaching effectiveness, 4.75/5 in helpfulness.
- **Data Structures (CS 61BL) Tutor, Control of UAVs (ME 136) Reader:** Content creation and quality control of labs. Assist in grading and teaching sections.

- **Poly-PEDAL Laboratory**

Berkeley, CA

Research Assistant

September 2016 - June 2018

- **Inverted, Rod-Running Cockroach Robot:** Self-directed project to create a mechanical cockroach operating on an alternating tripod system to mimic real-life cockroach thin-rod running. Robot includes 3D-printed limbs with a servo motor and fishing line tension system. Worked with Prof. Nate Hunt.
- **Squirrel Biomechanics Study:** Assisted in data collection using phantom cameras. Studied squirrel jump optimization and motor skills when leaping from varying-compliance rods.

PROJECTS

- **BobaBot:** Automatic Boba (milk tea & tapioca pearls) dispenser. 3 stage-dispensation (pearl, tea, creamer) with rotating service plate. Embedded System Design Lead: interfaced pumps and motors to Raspberry Pi and Arduino, customized a two-phase commit system to synchronize hardware. Programmed in Python.
- **OS Demo:** Suite of demonstrations created to help students understand the discussion worksheet topics. Includes topics such as processes, signal handling, file systems, etc. Programmed in C.
- **Kingdom Conqueror:** Find lowest cost conquering tour over a set of kingdoms. Converted problem to ILP and solved with Gurobi Optimization software. Competition Rank 4 of 230 teams. Programmed in Python.
- **Bumper Quads:** Siemens Research Hackathon with **Berkeley HiPeRLab**. Navigated a quadcopter without range-finding sensors, for low-cost use in an unknown, potentially hostile environment. Used a touch-based mapping algorithm on physical quadcopter to map out space. Programmed in Python, ROS (C++).
- **BearWatch:** Security tower to watch over items in selected area. When an item is removed, sounds an alarm and tracks/records the thief with a servo-mounted camera and computer vision. Programmed in LabVIEW.

SKILLS

- **Programming:** Python, C, Java, MATLAB, LabVIEW *proficient bolded*
- **Tools & Design:** Latex, Git, HTML, CSS | SolidWorks, Fusion360, AutoCAD, Adobe Illustrator