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EDUCATION

University of California, Berkeley

B.S. Chemical Engineering — *Fall 2018*

Focus: Control System Design / Programming and Mechanical Fabrication

Coursework	Skills	Design	Programming
Microfabrication Processing Lab	Si + Ge chemical processing	SolidWorks	ROS / OpenCV / SLAM
Robotics Programming Laboratory	Robotics sensing, vision, motion	OpenFOAM	Embedded C / C++
UAV Control System Design	Design for Manufacturing (DFM)	COMSOL	LabVIEW
Microprocessor System Design	Clean room laboratory	Illustrator	Python

RELEVANT EXPERIENCE

Semiconductor Detector Laboratory (LBNL) – Research Internship — *May 2018 – Current*

- Fabricated semiconductor radiation detectors for use in research applications. Surface-treated germanium crystals using chemical/material processing techniques, wire bonding contacts, connecting DAQ hardware.
- 2x efficiency while reducing costs 10x for a CCD diagnostic tool for an advanced research accelerator for nuclear non-proliferation, using Solidworks mechanical design and data acquisition using a SoC controller.

Nuclear Engineering Design Collaborative (NEDC) Club – President — *Aug 2017 – May 2018*

- Oversee project research and development. Coordinate with department professors and perform outreach and recruitment with incoming nuclear engineering freshmen.
- Consulting on robotics project for changing experimental foils for particle accelerators.
- Fabrication of low-price composite material to absorb thermal neutrons with minimal byproducts and a green footprint for lightweight applications in shielding radiation-use personnel.

Silicon Microfabrication Processing Laboratory – El Eng 143 course — *Fall 2018*

- IC circuit, MOS transistor, poly-Si surface microstructure fabrication using hands-on experience with thermal oxidation, impurity diffusion, film deposition, expitaxy, lithography, etching, contact & interconnect formation.
- Device characterization using NanoSpec film-thickness interferometer and 4-point resistance probe.

Robotics Laboratory – EECS C106A course — *Fall 2018*

- Programming, testing, diagnosis of robotic manipulators, vision and sensing using force sensing, vision sensors, camera calibration, stereo construction and motion detection.
- Simultaneous localization and mapping (SLAM), Kalman filter tracking in computer vision.

PROJECTS

Embedded Control System Programming, Assembly, Fabrication – Mec Eng 135 course — *Spring 2018*

- Achieved first successful self-balancing project in 5 years.
- Implemented multitasking and real-time on the PSoC 5LP microprocessor using embedded C programming.
- Fabricated reaction wheel, self-balancing bike body with rapid prototyping, metal machining and laser cutting; assembled bike components. State-machine, producer-consumer structure implementation.

UAV Control System Programming, Implementation – Mec Eng 136 course — *Fall 2017*

- Demonstrated the stability and robustness of a UAV control system design at the Jacobs Winter Design Showcase as one of 2 project groups to bolster the course's first offering.
- Implemented, designed, tested and refined an unmanned aerial vehicle (UAV) control system for a Crazyflie quadcopter (drone) operating with a microprocessor to control vehicle attitude (rotation) and trajectory (location). Aerodynamic stabilization and trajectory planning using cascaded control and state estimation.