

# Kai Goodman



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goodkaiman.github.io

## Education

**UC Davis - Materials Science and Engineering, Mech-E Focus (GPA 3.85)** June 2020 (expected)

- Deans' Honors List: Top 16% in UC Davis College of Engineering (Fall 2016 – Present)

## Technical Skills

- Analytical Electrochemistry • MATLAB • Fusion 360 • Solidworks • XRD • SEM • SQUID Magnetometry •
- Microsoft Suite • CNC Machining • 3D Printing • Composite Layup • Flexural/Tensile Testing •

## Technical Experience

**Multiscale Fab Science & Tech R&D Intern - Sandia Natl. Labs, ABQ, NM** Jul 2019 - Present

- Electropolished aluminum targets for Mykonos using analytical electrochemistry, anodization, and selective etching processes
- Electroplated CoFe alloys with high permeability and low coercivity for MEMS and ID tags

**Researcher - Condensed Matter Physics Research Group, Davis, CA** Jan 2018 - Present

- Optimized growth for and built an electrochemical growth cell for electrosynthesis of superconducting crystals to produce large facets and high, sharp transition temperatures
- Conducted SQUID magnetometer, X-ray Diffraction, and resistivity measurements to characterize samples' magnetic, electrical, and crystallographic properties
- Investigated effects of oxygen saturation in a lattice on sample purity and superconductivity through annealing

**Composites Sub-team - Formula Racing at UC Davis, Davis, CA** Mar 2016 - Present

- Developed and refined the manufacturing process of custom carbon fiber, fiber glass, and aircraft fabric parts using CNC machining and wet-layup
- Used CAD, CFD, and CAM software to design, develop, and create composite body panels, seats, nosecone, battery-cooling ducts, and an aero package for the car
- Tested composite samples to verify strength of manufactured parts using tensile/flexural tests

**Engineering Intern - Origin Materials, West Sacramento, CA** Jun - Sept 2018

- Assisted in operation of p-Xylene coiled tubular reactor and distillation processes
- Conducted mass balances on reactor-distillation system to find yields from Gas-Chromatography (GC) analytics
- Located, tested, calibrated, and inventoried all pressure gauges, pressure transducers, RTD's, and thermocouples
- Constructed and studied piping and instrumentation diagrams (P&IDs) of chemical processes

**R&D Technician Intern - Broadcom Limited, San Jose, CA** Aug - Sept 2017

- Thermally stress tested radio frequency (RF) filters using network analyzers and signal generators

## Relevant Coursework

- Property of Materials • Mathematical Methods • Thermodynamics of Materials • Circuits • Dynamics •
- Fluid Mechanics • Rate Processes • Mechanical Behavior of Materials • Materials in Engineering Design •

## Leadership Experience

**Engineering Ambassador - College of Engineering at UC Davis, Davis, CA** Jan 2019 - Present

- Gave tours of nano-manufacturing center, coffee lab, and machine shop to prospective high school students
- In charge of high school outreach on behalf of the College of Engineering and participated in student panels

**Vice President - UC Davis Origami Club, Davis, CA** Apr 2018 - Present

- Finished among top 25% of entrants in NASA's crowdsourced origami contest for radiation shield design

**Trumpet Section Leader - Mission San Jose High School, Fremont, CA** Sept 2015 - Feb 2016