

# CYNTHIA LI

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## EDUCATION

**University of California, Berkeley**  
*B.S., Mechanical Engineering*

**Berkeley, CA**  
*May 2019*

Skills: SolidWorks, Creo, AutoCAD, Fusion 360, MATLAB/Simulink, LabView, ANSYS, Arduino, Machine Shop, Rapid Prototyping

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## ENGINEERING EXPERIENCE

**Schlumberger**

**Sugar Land, TX**

*Manufacturing Engineering Intern (May 2018 – August 2018)*

- Conducted feasibility study of automated welding which improved first pass yield rate of neutron detectors (50% to 95%)
- Inspected detector tubes visually and under vacuum for defects, majority being from inconsistent weld quality due to nonoptimal welding parameters and human error
- Audited technician assembly procedures and times to increase confidence in production cycle time data used for process improvement/time optimization analysis
- Designed an adjustable safety fixture and ensured it withstood weight of shock tower during maintenance by comparing cross-sectional area to other parts under similar load cases
- Improved efficiency of detector production by drafting engineering drawings for construction of new clean room layout

**Berkeley Hyperloop**

**Berkeley, CA**

*Braking Team Lead (January 2017 – July 2018), Chassis Production Engineer (June 2016 - January 2017)*

- Competed in final round of SpaceX Hyperloop Competitions I & III (20 finalist teams selected from 100+ applications)
- Designed electromagnetic field sims to optimize size, thickness, and material of magnetic braking arrays to achieve required drag forces to safely brake from ~2x higher speed, while minimizing extraneous forces directed into the structure
- Worked with structures team to ensure structural design was able to withstand extraneous forces created from brakes
- Created a rotary test rig to validate simulated braking forces by measuring deceleration with an encoder

**Modus Advanced, Inc.**

**Livermore, CA**

*Intern (June 2017 - August 2017)*

- Programmed gasket paths to be dispensed on PCBs for EMI and thermal interfacing, and checked for quality post-curing
  - Fabricated 1000+ custom gaskets for various customers using a ZUND digital cutter and CNC dispensing machine
  - Provided evaluations and recommendations to improve machinery utilization and promote lean manufacturing
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## PROJECTS

**Automatic Bicycle Transmission**

*Feb – May 2019*

- Created an automatic, electronic gear shifter for bicycles based on user pedaling cadence, incline, and user exertion
- Conducted tension tests on bike derailleur to determine force needed from linear actuator to shift gears reliably
- Chose sensors for incline angle (IMU), pedaling cadence (hall effect sensor), and user exertion (heart rate sensor)
- Browsed sensor catalogs to find sensors with sufficient sensitivity and correct metrics for fast performance
- Wrote code to integrate sensors with actuator and handlebar displays, and tested to ensure gears shifted accordingly
- 3D printed display mount and electronics enclosure prototypes to fit check mounting holes and component clashes

**Haptic Feedback Device**

*Sep – December 2018*

- Worked with client to develop a sensor substitution device targeted for patients with lower limb prosthetics & neuropathy
  - Chose IMU and force sensors to characterize the user's leg position in 3D space at each stage of taking a step
  - Wrote code to convert sensor signals into leg position data that was translated into vibrational wristband provided by client
  - Tested the code to determine vibrational patterns and intensities that would be most intuitive for user to understand
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## LEADERSHIP & EXTRACURRICULARS

**Theta Tau Professional Engineering Fraternity**

**Berkeley, CA**

*President (May 2018 – December 2018), Recording Secretary (December 2017 – May 2018)*

- Worked with 24 officers to promote visibility through engineering, philanthropy, and fundraising events on & off campus
- Corresponded with industry professionals and the university to provide career development opportunities for students

**Cal Figure Skating Team**

**Berkeley, CA**

*President (December 2016 – May 2018), Public Relations Co-Chair (January 2016 - December 2016)*

- Spearheaded all logistical efforts to plan and host 10+ teams at a regional collegiate figure skating competition
- Instituted fundraising chair positions to promote campus visibility, contributing to a 100% increase in club membership