

# CHRISTINE ZHOU

christineezhou@gmail.com | [christinezhou.info](http://christinezhou.info) | (626) 632-8105 | Los Angeles, CA

## EDUCATION

### Brown University (GPA: 3.91/4.00)

Sc.B. Mechanical Engineering and Visual Art

September 2019 – May 2023

Providence, Rhode Island

- **Relevant Coursework:** Dynamics and Vibrations, Metalworking, Electricity and Magnetism, Fluid Mechanics, Mechanics of Solids/Structures, Structural Analysis, Computer Aided Visualization/Design, Electrical Circuits, Instrumentation Design

## EXPERIENCE

### Tesla

Mechanical Design Engineer Intern (Interior Engineering)

January 2022 – April 2022

Fremont, California

- Led product cycle for an injection molded mechanism, from ideation to DFM to 2 motorized prototypes in 3 months
- Performed root cause analysis and ran trials on 5+ key ramp issues on a program launch, increasing ramp efficiency
- Extensive usage of Catia V5, GD&T, DFA, DFM, and cross-functional reviews for fixture and product design/optimization
- Utilized human-centered design to create and install fixture, reducing quality issues by 87% while considering ergonomics

### Hasbro

Product Design Engineer Co-Op (NERF)

July 2021 – December 2021

Pawtucket, Rhode Island

- Invented new internal blaster mechanism, optimized with force vs. time plots generated from SolidWorks Motion Analysis
- Modeled and tested 20+ barrel designs using rapid prototyping and DOE, enhancing blaster firing accuracy by 20.2%
- Programmed MATLAB code that stores user input points on a photo as array data, reducing data collection time by 67%
- Manufactured casting molds for rapid prototyping of repetitive part designs to vary durometers, materials, and textures

### Temple Allen Industries

Mechanical Engineer Intern

May 2021 – July 2021

Rockville, Maryland

- Drove product development for user-controlled surface preparation robots: part design, procurement, and assembly
- Wrote and performed 15+ tests to verify IP waterproof ratings, pneumatic valve function, material strength for parts
- Calculated numerical parameters for pneumatic cylinder force, drivetrain wheel torque, gear ratios, and cycle times
- Designed custom sensor window mount after root cause analysis, reducing sensor system assembly time by 30%

### USC Space Engineering Research Center (SERC)

Manufacturing Research Intern

June 2020 – September 2020

Los Angeles, California

- Developed a quantized inertia theory-based system that generates propellantless thrust using high-powered lasers
- Maximized thrust by iterating cavity designs while attentive to material thermal limits and CNC manufacturability

## PROJECTS

### Scallop Music Box ([christinezhou.info/scallops](http://christinezhou.info/scallops))

October 2021

- Designed and built animatronic music box combining hardware, electrical, and software: Arduino code, sensors, motors
- Debugged hardware by reducing frictional contact, determining maximum motor torque required, fully constraining parts

### Apple Design Test: iPod Battery Door Mechanism ([christinezhou.info/apple](http://christinezhou.info/apple))

April 2021

- Innovated latch and damped spring door mechanisms, modeled in SolidWorks assembly with 10+ dynamic components
- Determined total production cost of new iPod using costs of direct labor, raw materials, and manufacturing overhead

### UtiliTool: A Touchless Keychain Tool ([christinezhou.info/utilitool](http://christinezhou.info/utilitool))

August 2020

- Performed primary market research, financial modeling, competitive landscape research, and market size evaluation
- Utilized FEA to observe stress concentrations under applied loads and iterated designs to ensure tool longevity

## SKILLS & INTERESTS

**Design/Testing:** SolidWorks, Catia V5, NX, Design for Manufacturing, Design of Experiments, GD&T, Materials Selection, ANSI/ASME Drawing Standards, Fits/Tolerances, Finite Element Analysis, Electronics Assembly and Testing, Plastic Part Design

**Fabrication:** 3D Printing, CNC Router, Laser Cutter, Mill, Power and Hand Tools, Welding, Soldering, Woodworking

**Software:** MATLAB, Arduino, LabView, LTspice, Adobe Creative Suite (Photoshop, Illustrator, Premiere), Microsoft Office

**Interests:** Illustration, Animatronics, Photography, Hiking, Gardening, Architecture