CHRISTINE ZHOU

christineezhou@gmail.com | christinezhou.info | (626) 632-8105

EDUCATION

Brown University [ABET Accredited] (GPA: 3.93/4.00) **September 2019 – May 2023**
Sc.B. Mechanical Engineering and A.B. Visual Art *Providence, Rhode Island*

EXPERIENCE

Boeing – Mechanical Design Engineer Intern **June 2022 – September 2022**
Payloads, Autonomy, and Flight Controls Teams *Everett, Washington*

- Created a push/pull paddle latch mechanism with tamper-proof security for life vest deployment in emergency exit aisle
- Executed a tolerance stack-up analysis, finding 35.3% gear alignment error causing high lift actuator failure in flight
- Constructed a portable car mount with an IMU to track position of vehicles for autonomous flight machine learning
- Ideated, modeled, and prototyped lavatory for persons of reduced mobility with bolt latch designed for mass production

Tesla – Mechanical Design Engineer Intern **January 2022 – April 2022**
Interior Engineering Team *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 retrofit an ergonomic fixture, cutting loose object issues by 87%
- Interfaced with overseas suppliers to coordinate shipments, spec parts, and expedite timelines for interior commodities

Hasbro – Product Design Engineer Co-Op **July 2021 – December 2021**
NERF Department *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 in-use MATLAB code that stores user inputs on photos 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**
Robotics Research and Development Team *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%

PROJECTS

Hoppy (christinezhou.info/hoppy) **December 2022**

- Built an accessible kitchen cutting guide with design for injection molding, bearings, motors, IR sensors, and Arduino
- Collected primary market research, interviewing 40+ people and developing human-centered designs around insights

Drop Tower: Biological Sample Impactor (christinezhou.info/droptower) **December 2022**

- Engineered a drop weight machine to impact biological samples, using an electromagnetic platform for drop release
- Utilized Abaqus to perform FEA for varying impactor geometries, increasing the load the impactor can withstand by 57%

Apple Design Test: iPod Battery Door Mechanism (christinezhou.info/apple) **September 2022**

- Prototyped battery door latch, minimizing assembly time, manufacturing steps, and cost to optimize for mass production
- Constrained all dynamic parts while reducing frictional contact through ribbed part design and plastic material selection

SKILLS

Design/Testing: SolidWorks, CATIA V5, NX/Unigraphics, Design for Manufacturing, Design of Experiments, GD&T, 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, Abaqus FEA, LabView, LTspice, Adobe Creative Suite (Photoshop, Illustrator), Microsoft Office