CHRISTINE ZHOU

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EDUCATION

Brown University **May 2023**
Sc.B. Mechanical Engineering | A.B. Visual Art **GPA: 3.88/4.00**
Relevant Coursework: Sculpture: Conceptual Propositions; Dynamics and Vibrations; Electricity and Magnetism; Fluid Mechanics; Mechanics of Solids/Structures; Structural Analysis; Computer Aided Visualization/Design; Electrical Circuits

WORK EXPERIENCE & RESEARCH

Hasbro, Inc. (NERF Department) **July 2021 – Present**
Design Engineer Co-Op *Pawtucket, Rhode Island*
- Designed, modeled, and tested 10+ barrel modifications in rapid prototyping, improving Rival Charger firing accuracy by 12%
- Innovated clipping mechanism to secure motor in Ultra Amp flywheel cage, reducing labor and hardware cost by $0.80/blaster
- Optimized Ultra Amp flywheel cage to be canted by 7.57°, derived from helix calculations to reach target performance numbers

Temple Allen Industries **May 2021 – July 2021**
Mechanical Engineer Intern *Rockville, Maryland*
- Spearheaded all phases of product development cycle: designing custom parts, procuring parts, supporting production/assembly
- Collaborated with a team of 10 engineers to write, perform, and document 15+ testing procedures for smart automation system
- Calculated numerical parameters for pneumatic cylinder force and drivetrain wheel torque using moment analysis and part specs
- Designed custom sensor window mount after performing root cause analysis, decreasing sensor system assembly time by 30%

Breuer Lab at Brown University **January 2021 – Present**
Mechanical Engineer Research Assistant *Providence, Rhode Island*
- Oversaw repair of mechanical bat wing robot with 4 degrees of freedom, 10+ moving parts, and a motor-powered cam system
- Wrote specification and documentation of robot for the lab to access in future experiments involving installation and testing

USC Space Engineering Research Center (SERC) **June 2020 – September 2020**
Manufacturing Research Intern *Los Angeles, California*
- Manufactured Horizon Drive cavity using SolidWorks CAM and CNC machining, in compliance with OSHA safety regulations
- Outsourced electroless silver plating of cavity, contacting 10+ LA-based metal plating companies with technical documentation

LEADERSHIP EXPERIENCE

Brown Student Agencies (BSA) **February 2020 – Present**
Marketing Manager and Graphic Designer *Providence, Rhode Island*
- Design and create marketing materials (flyers, posters, banners, signage, brochures) with Photoshop, InDesign, and Lightroom
- Manage BSA Instagram (500+ followers), Facebook page, and website while communicating with BSA Marketing Director

Brown Space Engineering (BSE) **January 2021 – Present**
Manufacturing Team Member *Providence, Rhode Island*
- PVDX satellite utilizes novel solar cells and increases aerospace accessibility by allowing anyone to control PVDX from ground
- Brainstorm PVDX satellite's robotic arm design and mechanism, collaborating with a team of 8 to satisfy NASA requirements

PROJECTS

Apple Design Test: iPod Battery Door Mechanism (https://www.christinezhou.info/engineering/apple/) **April 2021**
- Innovated latch and spring door mechanisms, modeled in SolidWorks assembly with 10+ dynamic components and 5+ springs
- Composed a bill of materials, performing cost analysis with cost of direct labor, direct materials, and manufacturing overhead
- Simulated applied forces and displacements for finite element analysis in Fusion 360, analyzing stresses and safety factors

UtiliTool: A Touchless Keychain Tool (https://www.christinezhou.info/design/utilitool/) **August 2020**
- 3D modeled 10+ prototypes and 5+ design iterations of a multifunctional touchless keychain tool, the UtiliTool, in SolidWorks
- Performed primary market research with 10+ people, financial modeling, competitive landscape research, market size evaluation
- Analyzed various flexible materials (TPA, TPE, TPU) and their mechanical properties to determine ideal tool dimensions

Lunar Impact Mission: MATLAB Simulation **April 2020**
- Programmed optimal satellite orbital trajectory functions, using MATLAB Symbolic Toolbox and writing differential equations

SKILLS AND INTERESTS

Programs: **Adobe Creative Suite**: Photoshop, InDesign, Lightroom, Illustrator, Acrobat, After Effects, Premiere, Dimension, Xd. **Microsoft Office**: Word, Excel, PowerPoint. **Technical**: MATLAB, SolidWorks, NX, Fusion 360, Blender, Arduino.
Machining: 3D Printer, Laser cutter, CNC, Mill, Lathe, Drill press, Circular saw, Bandsaw, Spot welding, Plasma welding, Soldering
Interests: Drawing storybook-style illustrations, Badminton, Photography (Nikon D3500), Gardening, Animation, Museums, 1010!