CHRISTINE ZHOU

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EDUCATION

Brown University **May 2023**
Sc.B. Mechanical Engineering | A.B. Visual Art **GPA: 3.83/4.00**

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

RESEARCH EXPERIENCE

Breuer Lab at Brown University **Jan. 2021 – Present**
Research Assistant *Providence, Rhode Island*

- Oversee repair of mechanical bat wing machine with 4 degrees of freedom, driven by a motor-powered cam mechanism
- Research optimization of bat wing: decrease weight, add ball bearings to cam profiles, replace helical coupling with Rzeppa joint
- Design and implement 3D-printed bat wing modeled in SolidWorks, dimensioned according to bat wingspan research data

USC Space Engineering Research Center (SERC) **Jun. 2020 – Sept. 2020**
Manufacturing Research Intern *Los Angeles, California*

- Iterated 5+ designs of Horizon Drive cavity: splitting into two parts, adding flanges, cut-extruding bolt holes in SolidWorks
- Manufactured Horizon Drive cavity bowl and spikes using SolidWorks CAM, CNC machining, manual mill, and manual lathe
- Served as point of contact with 10+ LA-based metal plating companies for electroless silver plating of Horizon Drive cavity
- Researched Horizon Drive project and quantized inertia theory with a team of 8 to create a propellantless propulsion system

USC Alfred E. Mann Institute (AMI-USC) **May 2020 – Aug. 2020**
AMI-USC Summer 2020 Intern *Los Angeles, California*

- 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
- Looked into various flexible materials (TPA, TPE, TPU) and their mechanical properties to determine ideal tool dimensions

LEADERSHIP EXPERIENCE

Brown Student Agencies (BSA) **Feb. 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
- Handle interactions between Brown University and local businesses including OCM Linens, Knead Donuts, Kaplan Test Prep
- Manage BSA Instagram (500+ followers), Facebook page, and website while communicating with BSA Marketing Director

Brown Space Engineering (BSE) **Jan. 2021 – Present**
Manufacturing Team Member *Providence, Rhode Island*

- Brainstorm PVDX satellite's robotic arm design and folding mechanism with a team of 8 to satisfy NASA launch requirements
- Attend BSE meetings 2+ times a week to refine design of PVDX satellite, communicating with Avionics and Payload subteams

PROJECTS

Ebb: Mechanical Light Oscillation Projector (https://www.christinezhou.info/engineering/ebb/) **Mar. 2021**

- Devised interior cam mechanism powered by singular motor, composed of 50+ moving parts (cams, gears, wheels, followers)
- Iterated exterior product casing in sketchbook and SolidWorks, making 20+ prototype designs and modeling 5+ in CAD
- Rendered final assembly (casing and interior mechanism) in Adobe Dimension, retouching 5+ hero shots in Adobe Photoshop

Koi: Height-Adjustable Lantern (https://www.christinezhou.info/design/koi/) **Feb. 2020**

- Utilized a four-bar chain mechanism and moment distribution analysis of beams to allow for lantern height to be adjusted
- Operated laser printer to cut Adobe Illustrator koi fish frame design, woodworked lantern stand using bandsaw and drill press

Porto: A Quaint, Portable Lamp (https://www.christinezhou.info/design/porto/) **Jan. 2020**

- Drew prototype sketches in Adobe Photoshop, choosing product colors, shape, texture, material, size, function, environment
- Conducted primary market research, interviewing population regarding lamp element deliverables such as portability and safety

SKILLS AND INTERESTS

Technical: Adobe Suite: Photoshop, InDesign, Lightroom, Illustrator, Premiere, Dimension, Xd; Microsoft Office: Word, Excel, PowerPoint, Access. MATLAB, SolidWorks, NX, Fusion 360, 3-D Printer, Laser cutter, CNC, Manual mill, Manual lathe, Drill press, Hand drill, Circular saw, Bandsaw, Spot welding, Plasma welding, Soldering, Microscope

Languages: English (native), Spanish (conversational), Chinese (proficient)

Interests: Drawing storybook-style illustrations, Badminton, Photography (Nikon D3500), Gardening, Animation, Museums, 1010!