

Brian Lu

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EDUCATION

College of Engineering - University of California, Berkeley

Expected Graduation: May 2025

B.S. Mechanical Engineering; Electrical Engineering & Computer Science Minor

Relevant Coursework: Solid Mechanics; Thermodynamics; Manufacturing and Tolerancing, Visualization/3D Modeling for Design

Skills: SolidWorks, Fusion 360, Finite Element Analysis, Computational Fluid Dynamics Analysis, Python, Java, JavaScript, MATLAB, Soldering, 3D Printing, Laser Cutting, CNC Mill, Adobe Photoshop/Illustrator, and Google applications

WORK EXPERIENCE

Beauty Search Corporation - Ecommerce/Operations Intern

Monterey Park, CA | June 2019 - June 2021

- Initiated and managed all online platforms (Amazon, eBay, company website, etc) by cataloging and digitalizing all products and descriptions. Supervised online customer service relations during shipping and customer review interactions.
- Restrategized warehouse organization and operations to increase daily efficiency and deliver to more customers.
- Documented in-person and online customer files using Excel and Quickbooks to file invoices and record payments.

PROJECTS

LED Arcade Game Board - Mechanical/Manufacturing Lead

January 2022 - June 2022

- Developed motorized scissor-lifting mechanism, performed stress and deflection simulations in Solidworks (verifying maximum lifting capability), and manufactured aluminum and PLA parts using a CNC machine and 3D printer.
- Administered FEA simulations and tolerance analysis on 3D-printed, separable snap-fit joints to optimize size of clearance slots and cantilever beams, reduce friction between surfaces, and maximize durability and longevity of connections.
- Devised multiple LED grid prototypes to securely center each strip without adhesives, efficiently diffuse diodes across their respective notch, and prevent light leakages onto adjacent slots (to ensure information will be transmitted clearly).
- Project Website: <http://led-game-board.glitch.me/>

Ultra-Violet Light Sterilizing Box - Manufacturing Lead

January 2022 - June 2022

- Conducted tolerance and fit analysis on part and assembly constraints to allow for interference/transition fits between wooden laser-cut plates (placing emphasis on an efficient manufacturing/assembly process without the use of adhesives).
- Designed safety feature aimed towards minimizing harmful UV exposure to its users, by integrating a light-sensor system programmed to detect lid closure and activate timed UV light exposure period using ESP32 microcontroller.
- Formulated and pitched a formal marketing plan outlining several factors, such as material/manufacturing/production costs, manufacturing complexity, target demographic, market size, and potential societal impacts due to the pandemic.

Miniature Wind Turbine - Structures Lead

August 2021 - December 2021

- Coordinated wind turbine blades and airfoil design using CFD and 3D modeling processes to optimize blade geometries (pitch, angle of attack, blade angle, chord length, etc) for efficient energy generation given a variable wind speed.
- Devised stress and deflection simulations to develop best tower structure given dimensional and material constraints, and determined maximum displacement and yield stress under variable loading conditions.

Integrated PC Desk - Personal Project

June 2022 - August 2022

- Conceptualized and constructed water-cooled personal computer within a 2.5-inch thick wooden/aluminum desk.
- Iterated airflow path and water-cooling circuit design to allow for proper cooling despite narrow clearance requirements.
- Manufactured frame with hardwood and laminated aluminum sheets using various wood/metal working tools and techniques.

EXTRACURRICULAR ACTIVITIES

UC Berkeley Solar Vehicle Team (CalSol) - Suspension Project Member

September 2022 - Present

- Redesigning mounting brackets on the front suspension to meet new ground clearance regulations, simulating various materials to optimize strength/weight/flexibility, and performing FEA analysis to analyze the strength of the new bracket.

UC Berkeley Professional Engineering Society - Fundraising Chair

January 2022 - Present

- Developing new fundraising events and soliciting donations through corporate partnerships, school-run events, etc.
- Coordinating with school faculty, student union, and local businesses to raise \$3000 per semester for multiple organizations.