JOSHUA BIMSON

Davis, CA 95616
Phone: (530) 564-2654 ▪ Email: joshua.bimson@protonmail.com

Key skills and knowledge areas:

- Solid command of technologies, tools, and best practices in designing mechanical equipment using SolidWorks and engineering drawings.
- Excellent shop and safety skills honed from over 5 years of machining and welding work. Able to design and fabricate fixtures and tooling.
- Detail-oriented and skilled at debugging technical problems quickly, in order to ensure reliability of the product.
- Self-starter and able to take responsibility for various projects, working both independently and with others.

Education

California State University, Sacramento -- Sacramento, CA

Bachelor of Science in Mechanical Engineering (BSME), GPA: 3.8, Graduated 5/2021

Technical Skills

Programs: SolidWorks, HSMWorks CAM, Cut 2D, MATLAB, MS Excel, MS Word, Arduino

Machining Tools: CNC, Mills, Lathes, Plasma cutters, Band saws, Grinders, Drill presses, Surface grinders, Chop saws, and a variety of hand tools

Welding: Gas Metal Arc Cutting (GMAC), Metal Inert Gas (MIG), Tungsten Inert Gas (TIG) for steel and aluminum, Oxygen-acetylene welding and cutting, Brazing, Silver soldering, Lead soldering

Design Skills: Sheet metal, injection molded parts, 3D printed parts, welded assemblies, bolted assemblies, rivetted assemblies, mechanical-electrical interface, part and assembly drawings, Design for Manufacturing (DFM), Design for Assembly (DFA), FEA

Relevant Experience

Mechanical Engineer II, 11/2022 to 3/2025
Advanced Farm Technologies

- Designed and prototyped a new 4-DOF robot arm with a low cost and fast cycle time, ensuring it integrated well with other harvester systems.
- Evaluated several robot kinematics to ensure application-specific requirements could be met.

- Performed design calculations and simulations for numerous mechanical systems and their components.
- Designed electrical enclosure layouts for robot compute modules.
- Researched options for robot power and communications cabling to reduce failure points and downtime at connector interfaces.
- Designed and assembled an industrial robot de-palletizing end effector for a packaging line, which operated daily with minimal downtime.
- Worked closely with other departments to ensure multi-disciplinary requirements for systems were met.
- Created test plans and performed testing on mechanical systems for design validation.
- Performed root cause analysis on failed components, and developed FMEA tables as part of a preventative maintenance plan.
- Utilized 3D Printing (SLS, SLA, FDM) and other advanced fabrication techniques to rapidly develop prototype iterations and replica components for testing purposes.

Mechanical Engineer, 5/2021 to 11/2022
Student Mechanical Engineer, 7/2017 to 5/2021
NovaSource Energy Services

- Performed every stage of product development of robotic cleaning units, including prototyping, CAD/CAM, creating drawing packages for vendors, assembling, debugging, and shipping to bring products to market.
- Revised a prototype design of a robot to use sheet metal, injection molded, and 3D-printed parts for less expensive, higher quantity manufacturing.
- Assembled and performed QA on many fleets of robots, to validate operation of components and optimize cleaning performance.
- Provided support for post-production units, solving mechanical and electrical problems by fixing, replacing, or sourcing new components, and training operators on robot functions.
- Managed a project with a fast turnaround time, creating purchase lists and order of machining and assembly operations to ensure 5 fleets of robots were delivered on time and within budget.
- Updated an older design to enable compatibility with more solar panel and tracker manufacturers, integrating the new design onto more than a dozen robots.
- Designed an electrical and pneumatic system with an Arduino controller to augment the shop lighting system, ensuring that enough light is available for shop projects.
- Commissioned products on site both in California and outside of the United States, working with diverse field teams to ensure the proper operation of the products.
- Able to work both independently and along with a multi-disciplinary team, communicating effectively to prevent delays.