PAWAN SHANKAR SAWANT

Boulder, CO | pawanshankar.sawant@colorado.edu | pawanssawant | My_Portfolio

EDUCATION:

- **Master of Science, Mechanical Engineering** |University of Colorado Boulder *Aug 2023 – May 2025*
  GPA: 3.96| Courses: Advanced Product Design, Mechatronics and Robotics, Design for Manufacturability, Advanced Dynamics, Optimal Design, Graduate Design, Quality Management, Biomedical Ultrasound.
- **Bachelor of Engineering, Mechanical Engineering**| Savitribai Phule Pune University, India *Aug 2016 - Apr 2020*
  GPA 8.27/10

SKILLS AND CERTIFICATIONS:

- **Mechanical Engineering and Product Design:** Design for Manufacturing and Assembly (DFMA) | FEA | Prototyping | GD&T | Tolerance Stack-Up | Sheet Metal | Weldments | Surfacing | Topology Optimization | BOM Creation
- **Tools**: DS SolidWorks | DS Catia V5 | PTC Creo | AutoCAD | Ansys | SAP Product Lifecycle Management | Microsoft Office
- **Programming:** MATLAB | Python.
- **Certifications:** CSWP | CSWPA - Sheet Metal, Surfacing, Weldments, Drawing tools | GD&T Basics and Advanced (Udemy)

WORK EXPERIENCE:

MOLON LABE AIRCRAFT SEATING, CO, USA *Aug 2024 – May 2025*

Mechanical Design Engineer | Graduate Design Capstone Project

- Designed an FAA-compliant aircraft seat for PRM passengers to travel in wheelchairs without transferring.
- Managed SolidWorks Assembly of 250+ Parts using BILD PDM and Drafted 30+ Engineering Drawings for Manufacturing.
- Engineered a unique two-factor locking mechanism enabling flight attendants to seamlessly switch from a two-seat to a one-seat configuration within 30 seconds.
- Developed, Manufactured, and Delivered an FAA-compliant seating prototype in 8 months within a strict $5,000 budget.

BHARAT ELECTRONICS LTD, PUNE, INDIA *Sept 2021 – Sept 2022*

Mechanical Design Apprentice - Development and Engineering Department (D&E)

- Designed and developed mechanical systems for laser range finders used in defense applications, collaborating with optical and electronics engineers to ensure seamless system integration.
- Developed lens housings, electronics mounting, and enclosures based on system space constraints, achieving a 15% weight reduction compared to similar laser range finders.
- Engineered 20+ precision components to meet Military Grade Standard requirements and withstand Environmental Stress Screening (ESS) tests.
- Created detailed manufacturing drawings with GD&T and tolerance stack-up analysis.

BHARAT ELECTRONICS LTD, PUNE, INDIA *Jul 2020 –Nov 2020*

Mechanical Design Intern - Development and Engineering Department (D&E).

- Designed vibration testing fixtures capable of testing four laser range finders simultaneously, ensuring testing rig compatibility and manufacturability.
- Conducted ESS tests to validate mechanical integrity and ensure defense standard compliance.

STALLION MOTORSPORTS (FSAE), PUNE, INDIA *Jan 2017- Jun 2019*

Vehicle Dynamics and Design Lead

- Re-designed complete suspension system and components in CATIA V5, performed FEA Analysis of suspension component.
- Developed Kinematic Model on Lotus Suspension Simulation Software to optimize roll stiffness, camber gain, and weight transfer, enhancing lateral stability and minimizing roll center migration.
- Reduced overall unsprung mass by 1.21kg, achieved 1st place in Skidpad event, and secured 4th overall at F-Bharat 2020.

PROJECTS:

Topology Optimization of an Aircraft Tray Table (link)- Automated Mechanical Design Coursework *Nov 2024- Dec 2024*

- Identified the possibility of weight reduction of an Aircraft tray table and ease of manufacturing.
- Optimized arm geometry using topology optimization and validated structural integrity with FEA for FAA compliance.
- Achieved a 19.2% weight reduction, facilitating efficient CNC manufacturing by applying DFM principles for optimal performance and cost efficiency.

Automated Vertical Bike Storage (link)**-** Design for Manufacturability Coursework Project *Jan 2024- May 2024*

- Identified a problem of limited storage space for bikes in compact indoor spacing.
- Engineered an automated vertical lifting mechanism with a self-engaging wheel clamp and implemented DFMA principles.
- Saved 45% of floor space, Improved assembly efficiency by 39%, reduced secondary assembly operations by 18%, and successfully lifted a 60 lb bike to 6 ft.

Reverse Engineering of Oster Hair Clipper (link)**-** Design for Manufacturability Coursework Project *Jan 2024- Mar 2024*

- Evaluated original clipper design, finding high part count and inefficient assembly processes.
- Redesigned components to consolidate parts, implemented snap-fit assembly, and conducted detailed DFM/DFA analysis.
- Reduced total parts by 33%, decreased assembly time by 15 seconds per unit, and lowered overall unit cost by 7.6%.

Autonomous 'Tank' Robot (link)**-** Mechatronics and Robotics Coursework Project *Aug 2023- Dec 2023*

- Built an autonomous combat robot for a "Tanks" arena game using mecanum wheels, Pixy camera for targeting, IR sensors for navigation, and a flywheel system for rapid projectile firing, all integrating through Arduino Mega Microcontroller.
- Achieved precise autonomous navigation and targeting with integrated systems and an indexed firing mechanism, reaching 10 balls per second and winning 1st place out of 12 teams in the final competition.