

# PAWAN SHANKAR SAWANT

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## EDUCATION:

- **Master of Science, Mechanical Engineering** | University of Colorado Boulder *Aug 2023 - May 2025(Expected)*  
**GPA: 4.0** | Courses: Advanced Product Design, Mechatronics and Robotics, Design for Manufacturability, Advanced Dynamics, Optimal Design, Biomedical Ultrasound.
- **Bachelor of Engineering, Mechanical Engineering** | Savitribai Phule Pune University, India *Aug 2016 - Apr 2020*  
**GPA 8.27/10** | Courses: Component design, CAD/CAM, Mechanics of Solids, FEA, Numerical Methods & Optimization.

## SKILLS:

- **Mechanical Engineering and Design:** Design for Manufacturing and Assembly (DFMA), FEA, Prototyping, GD&T, Sheet Metal, Weldments, Optimization.
- **Tools:** PTC Creo, DS SolidWorks, DS Catia V5, AutoCAD, Ansys, SAP Product Lifecycle Management, Microsoft Office Suite.
- **Programming:** MATLAB, Python.

## WORK EXPERIENCE:

### UNIVERSITY OF COLORADO BOULDER

*Dec 2023 – Present*

Teaching Assistant, Aerospace Department

- Assisted Prof. Kurt Maute (Spring 2023) and Prof. Erik Knudsen (Fall 2024) for the Course ASEN2701: Intro to Statics Structures and Materials.
- Conducted weekly office hours to solve students' doubts, drafting exams, weekly homework and their solutions.

### BHARAT ELECTRONICS LTD, PUNE, INDIA

*Sept 2021 – Sept 2022*

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

- Developed Opto-Electro-Mechanical Products for Defense Applications.
- Designed the components to meet the Military Grade Standard JSS 55555 and to pass Environmental stress screening tests.
- Drafted detailed engineering drawings of the components for manufacturing using GD&T.
- Maintained all the project files and drawings using Project Builder in the SAP PLM module.

### BHARAT ELECTRONICS LTD, PUNE, INDIA

*Jul 2020 – Nov 2020*

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

- Designed components and fixtures for Vibration tests of the components in CAD Software (SolidWorks) and Drafting.
- Performed FEA simulations such as Vibration, Structural and Thermal Analysis in ANSYS Software.
- Executed various tests, such as Vibration Tests and leak tests on fixtures.

### BHARAT FORGE LTD, PUNE, INDIA

*Jun 2019- Jun 2019*

Manufacturing Intern - Machined Component Division (MCD-1)

- Studied Machining Processes performed on Crankshafts after Forging.
- Conducted a time study on a batch of crankshaft packaging and implemented changes that reduced cycle time by 12%.

### STALLION MOTORSPORTS (FSAE), PUNE, INDIA

*Jan 2017- Jun 2019*

Vehicle Dynamics and Design Lead

- Lead Vehicle Dynamics and Design Department with a total of 8 undergraduates.
- Designed complete suspension system and components in CAD and performed CAE Analysis of suspension components.
- Drafting of components for Cost & Manufacturing report.
- Performed Kinematic and Dynamic analysis on Lotus Suspension Simulator.

## PROJECTS:

### Automated Vertical Bike Storage - Design for Manufacturability Coursework Project

*Jan 2024- May 2024*

- Designed an Automated indoor bike stand capable of lifting a 60lb to its vertical position(6ft) in 6 seconds.
- Developed an automatic front wheel-clamping mechanism that will engage when the bike is pushed into the mechanism.
- Performed FEA simulation for the critical components to ensure a factor of safety of 1.5.
- Designed the components according to the DFMA principles, which led to improving the insertion metric by 39% and reducing secondary operations in assembly by 18%.

### Reverse Engineering of Oster Hair Clipper - Design for Manufacturability Coursework Project

*Jan 2024- Mar 2024*

- Reverse engineered and redesigned the hair clipper, reducing total parts by 33.33% and lowering unit cost by 7.6%.
- Implemented snap-fit assembly features to eliminate the fasteners resulting in reducing assembly time by 15 seconds.
- Performed detailed DFA and DFM analysis, created CAD models and engineering drawings using GD&T in SolidWorks

### Truss Topology Using Linear Programming – Optimal Design Coursework Project

*Jan 2024- May 2024*

- Optimized truss topology using linear programming to minimize internal forces and member lengths for a complex 11x20 grid with 24090 possible truss elements.
- Developed and applied a mathematical model to calculate internal forces and angles, improving load distribution accuracy.
- Achieved optimal solutions with a 14-member structure by minimising internal forces and a teardrop-shaped solution with 189 members when minimising both length and internal forces.

### Autonomous Vehicle Competition - Mechatronics and Robotics Coursework Project

*Aug 2023- Dec 2023*

- Developed a fully autonomous tank-like vehicle for one-on-one combat, based on the original game 'Tanks'.
- Implemented an autonomous navigation algorithm that would allow the robot to localise and navigate the arena.
- Engineered a precise shooting mechanism that would detect opponents through a pixy camera, align itself with the opponent's robot and accurately shoot the Nerf ball.