SHAUNAK DESHPANDE

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SUMMARY

- Mechanical Engineer with 3+ years of research and industry experience in design, rapid prototyping, and full-cycle product development, delivering innovative solutions from concept to manufacturing.
- Certified SolidWorks Professional (CSWP), FEA (Abaqus), and advanced material testing (DMA, DIC), with expertise in 3D printing, DOE, Root Cause Analysis and Failure Analysis to optimize design processes.
- Strong communication, teamwork, and cross-functional collaboration skills, driving results through attention to detail and effective problem-solving in fast-paced environments.

EDUCATION

University of Washington ***(Master of Science in Mechanical Engineering | GPA: 3.78)*** ***Sept 2023 – Dec 2025***

University of Pune ***(Bachelor of Science in Mechanical Engineering | GPA: 3.74)*** ***June 2018 – June 2022***

SKILLS

Design: SolidWorks (CSWP Certified), CATIA V5, AutoCAD, PTC Creo **|** **Programming:** Python, MATLAB, JavaScript

FEA: Abaqus, ANSYS, Hypermesh **|** **Manufacturing:** Rapid Prototyping, GD&T, 3D Printing, DFM & DFA, Lean Manufacturing

Engineering Techniques: Mechanical Testing (DMA), Mechanical Design, Parametric 3D Modeling, Tolerance Stack-up Analysis, Drafting, SEM, DIC, Plasma Treatment, Radio Frequency Treatment, Design of Experiments (DOE), Data Analysis & Visualization

RELEVANT EXPERIENCE

Graduate Research Assistant - Meza Research Group, ***Seattle, WA*** ***Mar 2024 – Present***

- Developed innovative plasma treatment methods to produce high-toughness thermoplastic materials, significantly improving strength-to-weight ratios through optimized thermoplastic processing.
- Designed and implemented composite fabrication and characterization workflows—leveraging SLA 3D printing for sample fabrication and DMA/DIC for material testing—**reducing sample prep by 80%** and **testing time by 30%**.
- Led fracture analysis of layered composites using FEA (Abaqus) and Python for nanoscale simulations; improved flaw tracking with ImageJ/OpenCV, resulting in enhanced insights into material durability.

Mechanical Engineer (R&D) - My Research Room Pvt. Ltd. ***Sept 2021 – July 2023***

- Automated die design process using Python and AutoCAD, **reducing design time by 90%** ensuring ASME Y14.5 compliance.
- Spearheaded the development of an automated solar dehydrator (220 lbs. to 1-ton capacity) using SolidWorks, implemented remote web app control. Achieved optimal moisture retention (15%), enhancing efficiency & product quality.
- Led design and manufacturing of an Electric-Cargo bike with a 300 lb. payload and **30-mile range** for delivery agents.

Project Lead - Foldable Electric Vehicle, University of Pune ***June 2021 – Apr 2022***

- Designed a lightweight, foldable electric vehicle using SolidWorks with ASME Y14.5 GD&T to ensure precise manufacturing and assembly, enhancing accessibility for individuals with physical disabilities.
- Conducted structural and modal analysis of the vehicle frame and linkages using Ansys & Hypermesh, optimizing the design to **reduce weight by 25%**, enhancing user mobility and range.

ADDITIONAL EXPERIENCE

Classification of Locomotion modes using Leg Kinematics, University of Washington ***Jan 2024 – Mar 2024***

- Classified walking and stairs locomotion modes using Linear Discriminant Analysis, achieving 91% accuracy.
- Developed a structured dataset from 10 participants and formulated a state machine using MATLAB.

Design & Manufacturing of a Hybrid Electric Trike, SAE India ***Mar 2019 – Oct 2019***

- Led a team of 5 to design a Human-Electric Hybrid trike for ***SAE-NIS Effi-Cycle***, earning a national rank of 6 and five awards.
- Engineered a chassis **45% lighter** and **40% stiffer** using CATIA V5 (CAD) and promoted hybrid electric vehicles through campus seminars, raising awareness on sustainable mobility.