PIYUSH TANDON

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EDUCATION

University of Washington | Seattle, WA — Aug 2024
Master of Science in Mechanical Engineering (Product Design and Manufacturing) — GPA: 3.72/4.0

Thapar Institute of Engineering and Technology | Punjab, India — Jul 2021
Bachelor of Engineering in Mechanical Engineering(CS Minor) — GPA: 8.13/10.0

SKILLS

Design and Prototyping: SolidWorks, CREO, Windchill, MAYCAD, Siemens NX, Altair- Hypermesh, HyperView, LS Dyna, SimLab, SimSolid, NCode, CFD, Rapid Prototyping, Machining composites, 3D Printing, CNC, MPI, P&IDs, GD&T, ASME Y14.5 standards and ISO9001, **Manufacturing and Quality Control tools:** Process capability management, Defect analysis, PLM, Six Sigma 5S, Lean Manufacturing, QMS, 8D, APQP, PPAP, DFMEA, **Programming:** Python, R, C++, SQL, **Data Visualization:** Tableau, Power BI, **Project Management:** Stakeholder Management, Risk Mitigation, MS Projects, Resource Allocation, Agile/SCRUM, Timeline Tracking, Certified SOLIDWORKS Associate (In Progress).

PROJECTS

AI Smartwatch | Product Design — Jun 2023 - Present

- Designed and developed an AI integrated smartwatch casing and internal component layout using SolidWorks, ensuring ergonomic fit and manufacturability. Applied parametric modeling techniques for flexibility in design iterations.
- Selected polycarbonate for the casing, balancing lightweight properties with impact resistance and durability. Incorporated silicone rubber for the strap to ensure comfort, flexibility, and wear resistance. Used aluminum alloy (6061) for internal support structures to provide strength and thermal conductivity.
- Optimized the integration of internal sensors and PCB layouts, ensuring efficient use of space and structural support.

Automated Grain Dispenser |Product Design — Aug 2020 – Jun 2021

- Designed key components such as barrels, screw conveyors, and storage compartments using SolidWorks. Conducted FEA simulations to validate the structural integrity of the barrel system made from Aluminum 6063-T6.
- Chose SS304 stainless steel for components like the hopper and screw conveyors, ensuring durability, hygiene, and compliance with food safety standards. Utilized mild steel (ASTM A36) for structural supports, balancing cost and mechanical performance.
- Developed a modular design incorporating vibrating tubes, rotary airlock valves, and screw conveyors for precise dosing and efficient product flow.
- Fabricated key parts in-house using processes such as laser cutting, TIG welding, and rotary bending.

Design and Analysis of Disc Brake for Effective Cooling | Product Design — Aug 2019 – Dec 2019

- Designed a four-piston brake caliper and rotor, with calculated design parameters.
- Performed thermal and structural analyses on 3D CAD model using Siemens NX and CATIA to obtain a maximum temperature range of 1179 to 1834 F and stress of 2.165 MPA during repetitive braking.

FSAE FATEH THAPAR CHAPTER | Design and CFD — Jan 2018 – Dec 2018

- Designed and optimized front and rear wings, undertray, and side pods to enhance vehicle downforce and reduce drag.
- Optimized the space-frame chassis by selecting lightweight materials such as 4130 chromoly steel, reducing overall weight while maintaining structural integrity.
- Conducted CFD analysis using ANSYS Fluent and SolidWorks Flow Simulation to evaluate airflow patterns, pressure distribution, and drag coefficients.
- Leveraged CFD to optimize airflow through radiators and brake ducts, ensuring effective cooling under race conditions while minimizing aerodynamic penalties.

WORK EXPERIENCE

Product Design Intern | Bendix Commercial Vehicle Systems, USA — Jan 2024 - Aug 2024

- Designed and developed mechanical assemblies and critical Air Disc Brake components for Heavy Duty Trucks.
- Collaborated with global suppliers to manage part manufacturing, implementing design and process improvements for final assembly.
- Used Creo and DFM techniques to refine brake component design, ensuring optimal manufacturability and alignment with ISO standards.
- Utilized predictive modeling techniques to decide material selection and design approaches, improving product reliability.
- Presented in international Design Review Council, created Design Verification Plan and documented key design changes.

Student Researcher | NASA JPL, USA — Jan 2023 - Jun 2023

- Designed and implemented a discriminator for NASA's CADRE project, which enables rovers to identify the lunar subsurface for enhanced scientific exploration.
- Developed and deployed ML models on Raspberry Pi, focusing on optimizing inference time and resource usage for embedded systems, tailored for extraterrestrial GPR imaging applications.

Senior Analyst | Capgemini Technologies, USA — Jul 2021 - Sep 2022

- Provided strategic consultancy to various clients in Product Lifecycle Management (PLM), design, and manufacturing.
- Optimized PLM workflows implemented digital transformation initiatives, and enhanced design-to-production processes.

Product Design and Series Planning Intern | Mercedes-Benz US International, USA — Feb 2020- Aug 2020

- Designed production line equipment for new product transition on hybrid line
- Collaborated with cross-functional teams to design dashboards in Power BI, enabling real-time monitoring of key performance indicators (KPIs) such as takt time, cycle time, and production efficiency.
- Optimized line layout for chassis line and intercooler line to reduce takt time and increase production by 8%.