ROHAN SHENDE

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EDUCATION

University of Pennsylvania; Philadelphia, PA **May 2024**
Master of Science in Mechanical Engineering, Specializing in Design and Manufacturing; GPA: 3.53
Coursework: Design of Mechatronic Systems, Design for Manufacturability, Materials and Manufacturing for Mechanical Design, Industrial Design, Feedback Control, Failure Analysis of Engineering Materials

K. J. Somaiya College of Engineering; Mumbai, India **May 2022**
Bachelor of Technology in Mechanical Engineering; GPA: 3.62 (8.78/10)
Coursework: Production Engineering, Product Lifecycle Management, Robotics & Artificial Intelligence

SKILLS

Computer Aided Design SolidWorks (Professional Certification), Creo, Onshape, AutoCAD
Finite Element Analysis Ansys, Hyperworks
Programming C++, Python, Arduino, MATLAB, Simulink
Fabrication 3D Printing, Machining, Laser cutting, GD&T, DFMEA, PFMEA

EXPERIENCE

Mechanical Engineering Intern – TA Instruments, Waters Corp. (*New Castle, DE*) **Jun 2024 – Present**
- Ideating and **developing proof of concepts** for next generation Differential Scanning Calorimeters through **design reviews, rapid prototyping** and testing.
- Conducting analysis of results to assess compliance with functional and performance requirements.

Mechanical Engineering Intern – TA Instruments, Waters Corp. (*New Castle, DE*) **Jun 2023 – Dec 2023**
- Developed and tested thermal analysis instruments through **design of experiments**, fabrication, testing, data acquisition and troubleshooting.
- Utilized force sensors and PID controlled heaters to analyze the behaviour of batteries under extreme conditions.

Research Assistant – Rehabilitation Robotics Lab (*University of Pennsylvania, PA*) **Nov 2022 – Dec 2023**
- **Designed** and **fabricated** a robotic toy for detecting and classifying interactions using 12 optical force sensors connected to a **teensy 4.1 MCU** to identify neuro-developmental delays in infants.
- Designed a PCB with 12 sensing circuits to enhance testing robustness and repeatability.

Research Assistant – AltruMed LLC (*Philadelphia, PA*) **Nov 2022 – May 2023**
- Created compact **auto-injection mechanisms** for a self-driven wearable medical device, executed prototyping through **3D printing**, and validated efficacy on artificial muscles.

Steering Lead, Inventory Manager – Team RedShift Racing India (*Mumbai, India*) **Aug 2021 – Aug 2022**
- Successfully spearheaded the **design and manufacturing** process of the steering system for an All Wheel Drive All Terrain Vehicle, resulting in an improved vehicle handling and **20% reduction in assembly time**.
- Leveraged expertise in **Ansys (FEA)** to optimize components achieving a significant **weight reduction of 2.5 pounds** while reducing manufacturing cost by 15%.

Mechanical Design Intern – Godrej and Boyce Mfg. Co. Ltd. (*Mumbai, India*) **Jun 2021 – Jul 2021**
- Developed a 3D CAD model of a watertight hatch from 2D sketches using **Creo Parametric**. Modelled and assembled linking mechanisms to facilitate opening and closing of the hatch.

Suspension and Steering Engineer – Team RedShift Racing India (*Mumbai, India*) **Aug 2019 – Jun 2021**
- Collaborated with raw material suppliers, OEM vendors and manufacturing workshops for material procurement, provided detailed and dimensioned part and assembly technical drawings for machining.

SELECT PROJECTS

Autonomous Robot Vehicle: Designed a robust battle bot using **ESP 32**, **low-cost sensors** & **motor drivers**, capable of autonomous navigation, object detection & wireless communication. Implemented PID controlled drive and infrared detection using Op-amp comparator circuit, showcasing mechatronic design and integration skills.

Smart Agricultural System using IOT: Built a working prototype of an automated agricultural system by connecting sensors and a water pump to a Node MCU and programming them using Arduino.