RAJAN MALEWAR

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PROFILE

Innovative and driven **Mechanical Engineering** professional with a strong background in mechanical technology and **product design**. Experienced in leading the development of advanced mechanical systems and utilizing cutting-edge **CAD design** and **additive manufacturing techniques** to enhance product functionality and performance. Passionate about working in dynamic, hands-on environments where creativity and technical expertise are valued to develop customized solutions for complex engineering challenges.

WORK EXPERIENCE

MECHANICAL TECHNOLOGY ENGINEER | Adsys MedTech Pvt.Ltd **September 2022- July 2023**

- Led the development of functional **optics** for CBC Scanner, enhancing the **design and prototyping** phases, which contributed to overall system **performance optimization**.
- Achieved a significant **70% reduction in device size**, aligning with industry demands for compact medical equipment.
- **Improved processing time by 35%,** directly impacting the efficiency and accuracy of medical diagnostics.
- Oversaw the management and utilization of **3D printers**, ensuring precise inventory management for seamless operation continuity

PRODUCT DESIGN ENGINEER | Trailer Louault India **June 2022-August 2022**

- Redesigned the chassis for French Trucks using **Unigraphics**, modernizing a 20-year-old design to meet enhanced performance and **durability standards**.
- **Supervised manufacturing processes** including welding and laser cutting, ensuring quality control and adherence to rigorous production schedules with a team of 60+ employees.
- Conducted regular **quality inspections** at affiliated manufacturers to ensure compliance with established standards and specifications.

MANUFACTURING LEAD | Team INFINIX **June 2021-December 2022**

- Led a team in the **design, structural analysis, and construction** of a Rover for NASA's Human Exploration Rover Challenge, demonstrating exceptional project management skills.
- Achieved a **1st place podium** position in an international competition, highlighting outstanding performance and innovation.
- Represented the university at an **international level**, competing against 86 teams globally.

EDUCATION

MASTERS IN MECHANICAL ENGINEERING | RWTH Aachen | 2.2 GPA **2023-2026**

- Continuum Mechanics
- Structural Mechanics
- Tensor Algebra
- Artificial Neural Networks and Computational Intelligence

BACHELOR OF TECHNOLOGY| Vellore Institute of Technology, Vellore | 1.46 GPA **2019 – 2023**

PROJECTS

Computational Intelligence for Predicting Structural Behavior in Porous Materials

- Developed machine learning and physics-informed neural network models (PINN) to predict nodal displacements in porous seat and cushion materials using finite element analysis simulation data.
- Performed advanced feature engineering on structural variables, including deformation gradients and stress tensors, and optimized models through hyperparameter tuning and cross-validation to reduce reliance on computationally intensive simulations.

Wing Performance Under Cumulonimbus-Induced Environmental Stresses

- Developed a comprehensive analysis to reduce the hazardous effects of icing on aircraft passing through cumulonimbus clouds, contributing to enhanced flight safety and operational protocols.
- Utilized advanced simulation software to create virtual severe weather environments, conducting parametric studies with various input combinations to optimize aircraft performance under critical icing conditions.

Functional Analysis and Tool Integration of an Industrial Robotic Arm

- Functional uses of the Industrial robotic arm, its part selection along with different tools provided. Functional efficiency and cost effectiveness of the overall setup and operations performed by it.

Next Gen Helmet

- With Artistic design and premium features, the latest technology is integrated in a single helmet. The GPS tracker and the safety alert feature which send out signals in case of emergency and wireless enabled connectivity for a ride without a glitch in the way. The material selection and product assembly for the whole product along with minimum capital investment.

ADDITIONAL QUALIFICATION

- **Technical Skills:** Data Analysis, Matlab, CAD-Software , Machine Learning, Process development, Finite-Element-Analysis (FEA), 3D-Printing, Quality Control.
- **Languages** : Fluent in English und Deutsch (B1)
- **Software:** SolidWorks, fusion 360, Creo, UGNX, AutoCAD, Catia, Ansys, MATLAB, Origin pro, Python, java, Simulink.
- **Research Paper**: Plug-in Biofuel-Electric Hybrid Vehicle Power Split Performance Enhancement based on advanced adaptive ECMS Controller
- **Awards**: Engineering Network Grant scholarship at RWTH Aachen, 1. Place worldwide – NASA Human Exploration Rover Challenge (2022)