**Maruthi Prasad Bantu**

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# Summary

Dynamic and results-driven Automotive Engineering graduate with expertise in Finite Element Analysis (FEA), CAD design, and NVH Acoustic Analysis. Proficient in using MATLAB, Simulink, ANSYS, SolidWorks, Creo, DFMEA, and GT-Suite for complex engineering projects. Demonstrated ability to improve performance metrics and lead innovative projects in automotive engineering. Eager to apply academic knowledge and project experience in a challenging entry-level engineering role.

# Key Skills

**Technical Skills**:

* Finite Element Analysis (FEA), ANSYS, GT-Suite
* Computer-Aided Design (CAD), Battery Management System (BMS)
* NVH Acoustic, Crash Impact, Thermal Analysis
* MATLAB & Simulink
* ANSYS, SolidWorks, Creo
* DFMEA, GD&T
* HTML, CSS, JavaScript, Python, SQL(Basics)

**Soft Skills**:

* Project Management
* Problem-Solving
* Team Collaboration
* Analytical Thinking

# Professional Experience

**CAE Engineer (Online Intern)**  
***Simulations Lab India***  
*May 2022 - July 2022*

* Designed an aerofoil wing and simulated its performance in a virtual wind tunnel using ANSYS Fluent, achieving a 20% improvement in aerodynamic performance.
* Collaborated with a team of 15 to validate performance enhancements, ensuring accuracy and efficiency.

**PLM Intern**  
***Tata Technologies***  
*February 2019 - March 2019*

* Trained in PTC Windchill and 3D Experience (Enovia), streamlining Bill of Materials (BOM) and lifecycle management processes, improving efficiency by 15%.
* Gained comprehensive knowledge in automotive lifecycle management from concept to disposal.

# Projects

**Composite Bone Fracture Fixation Plate**

* Designed 3D models of fracture bone fixation plates and screws in SolidWorks, reducing plate thickness by 4mm, making them lighter and more comfortable for patients.
* Reduced predicted bone plate failure rates by 13% through FEA, enhancing bone healing.
* Conducted stress-strain distribution analysis under various loading conditions using ANSYS (up to 10 m/s), representing different impact cases in real-world situations.

**AI Driven X-Ray Baggage Scanner**

* Developed an AI-based system to automate the detection of harmful items in luggage, increasing efficiency by 40%.
* Collected 5 GB of data, cleaned, and labelled thousands of X-ray images, including multiple categories of harmful items (gun, knife, blade).
* Implemented YOLO and Faster R-CNN algorithms, achieving 92.85% accuracy using a comprehensive dataset of labelled X-ray images.

**Design and Fabrication of Formula 3 Racing Car**

* Led a team of four in designing and optimizing the powertrain system for an SAE Supra car.
* Used a custom-mounted 2015 Honda CBR 150R bike engine, designed fuel system and coolant system using Creo, and performed thermal analysis using ANSYS.
* Achieved a maximum speed of 105 km/h and improved power efficiency by 15% through real-world testing.

# Education

**Masters in Automotive Engineering with Electric Vehicles**  
*Oxford Brookes University*  
*September 2022 - September 2023*

* **Course works**: BMS, Electric Vehicle Design, Advanced Powertrains, Vehicle Dynamics, Crash Impact, NVH (Noise, Vibration, and Harness).

**Bachelors in Mechanical Engineering**  
*MLR Institute of Technology, Hyderabad*  
*August 2017 - May 2021*

* Honors: Graduated with First Class.

# Achievements

* **AI Voice Assistant**: Developed a personal AI voice assistant using Python.
* **Portfolio Website**: Created a personal portfolio website and introduced an AI chatbot using HTML, CSS, and JavaScript.

# Certifications

* MATLAB on-ramp, MATLAB Academy (MathWorks) – 2024
* Simulink on-ramp, MATLAB Academy (MathWorks) – 2024
* CFD through Centrifugal Pump, Coursera – 2024
* CFM - Airflow around a spoiler, Coursera – 2024
* SolidWorks, CADD Craft Solutions – 2022