Maruthi Prasad Bantu

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Qualifications Summary

Detail-oriented individual with background in CRASH Analysis, CAE engineering, NVH and mechanical design, dedicated to providing innovative engineering solutions for project success and organisational growth.

Core Competencies

- **CAE Engineering:** Expertise in CAE engineering and crash analysis techniques for safety of vehicles, particularly within the automotive sector
- **NVH Engineering:** Expertise in NVH measurement and analysis techniques, particularly within the automotive sector.
- **Mechanical Design:** Proficient in using CAD software (SolidWorks) to create designs, models, and drawings for mechanical components.
- **Simulation Modelling:** Skilled in developing simulation models using CFD tool ANSYS Fluent and executing aerodynamic simulations to validate designs and enhance product performance.
- **Finite Element Analysis (FEA):** Conduct FEA to assess structural integrity, thermal behavior, and vibration characteristics using tools like LS-Dyna.
- **Collaboration:** Effective in collaborating with diverse teams to deliver innovative projects within established timelines.

Career Highlights

RICKS VEGETARIAN LTD, Oxford, UK   JAN 2025 – Jan 2026
Process Improvement Engineer (Contract)

- Re-engineered facility floor layout using time-motion studies, reducing service cycle time by 65% (18 min to 7 min).
- Analyzed inventory data to identify wastage patterns, reducing Cost of Goods Sold (COGS) from 57% to 31%.
- Implemented labor forecasting model based on demand KPIs, cutting labor costs by 37%.
- Authored Standard Operating Procedures (SOPs) for equipment handling and safety compliance.

BMW MINI MANUFACTURING PLANT, Oxford, UK   NOV 2023 - JAN 2025
Quality Control Engineer (Contract)

- Inspected BIW (Body in White) chassis points and pivot joints for dimensional accuracy on high-volume production lines.
- Detected and logged 100+ non-conformities (misalignment, torque deviations) using GD&T tools.
- Conducted Root Cause Analysis on recurring assembly defects, reducing line rework by 15%.
- Verified torque settings and weld integrity against BMW engineering specifications.

Simulations Lab India, Hyderabad   June 2022 – July 2022
CAE Engineer

- Designed an aerofoil wing and simulated its performance in a virtual wind tunnel using CFD tool ANSYS Fluent, achieving a 20% improvement in aerodynamic performance.
- Maximised accuracy and efficiency by validating performance improvements in collaboration with a team of 15.

Application Development Associate   Sep 2021 – June 2022
Accenture Solutions, India

- Tested backend functionality for displaying merchant offers on a bank application and performed test validations.
- Conducted automation, functional, and regression testing across 50+ test cases using Tricentis Tosca and Selenium, identifying and resolving over 100 bugs to improve application stability.

Internship Experience

Tata Technologies, Hyderabad   Feb 2019

PLM Intern

- Gained expertise in all aspects of automotive lifecycle management from inception to disposal.
- Boosted efficiency by 15% by mastering PTC Windchill and 3D Experience (Enovia) and enhancing Bill of Materials (BOM) and lifecycle management procedures.

Key Projects

Crashworthiness Analysis of EV Battery Module

- Modeled lightweight battery tray (110kg) in SolidWorks; simulated impact in LS-Dyna.
- Validated structural integrity at 13.86 mm/ms impact; optimized enclosure reduced side deflection by 96% (256mm to 9.3mm).

NVH Acoustic Analysis on Audi A3

- Designed Audi A3 cabin in SolidWorks, optimized mesh size (0.2 m to 0.05 m), achieving accurate non-zero frequency modes.
- Reduced structure-borne sound frequencies (87.6Hz to 67.936Hz) using absorber materials.

Composite Bone Fracture Fixation Plate

- Decreased plate thickness by 4mm and elevated patient comfort by creating 3D models of fracture bone fixation plates and screws in SolidWorks.
- Achieved 13% reduction in predicted bone plate failure rates and improved bone healing via finite element analysis.
- Executed stress-strain distribution analysis using ANSYS under various loading conditions (up to 10 m/s) to simulate real-world impact scenarios.

NVH Absorber Design

- Designed tuned vibration absorber for a beam, achieving target frequency (76 Hz) and reducing flexural vibrations.
- Optimized absorber mass position for 76.067 Hz resonance, improving vibration suppression by over 85%.

Design & Fabrication of Formula 3 Racing Car

- Directed team of four in establishing and optimising powertrain system for SAE Supra car.
- Utilised custom-mounted 2015 Honda CBR 150R bike engine, developed fuel and coolant systems through Creo, and performed thermal analysis with ANSYS.
- Maintained a maximum speed of 105 km/h and raised power efficiency by 15% through real-world testing.

Education

Masters in Automotive Engineering with Electric Vehicles   Sep 2022 – Sep 2023
Oxford Brookes University, UK

Bachelors in Mechanical Engineering   July 2017 – May 2021
MLR Institute of Technology, Hyderabad, IN

Certifications

MATLAB on-ramp, MATLAB Academy (MathWorks), 2024

Simulink on-ramp, MATLAB Academy (MathWorks), 2024

CFD Through Centrifugal Pump, CFM - Airflow Around a Spoiler, Coursera, 2024

SolidWorks, CADD Craft Solutions, 2022

Accomplishments

- Created a personal portfolio website and integrated AI chatbot by leveraging HTML, CSS, and JavaScript.
- Enhanced user interaction and automation capabilities by designing personal AI voice assistants with Python.

Technical Proficiencies

ANSYS, NVH Analysis, GT-Suite, LS-DYNA, Crash Analysis, MATLAB, Solidworks, GD&T, Ansys Fluent.