Maruthi Prasad Bantu

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Qualifications Summary

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

Core Competencies

- **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

Hampton by Hilton (Part time) **October/2023 - Current**
Guest Service Manager

- Spearheaded initiatives that boosted guest satisfaction scores by 20% through personalized service and efficient problem resolution.
- Managed front desk operations, optimizing check-in/check-out processes, which resulted in a 15% reduction in average wait time.

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

Acquired in-depth knowledge of BMS, electric vehicle design, and advanced powertrains. Increased understanding of vehicle dynamics, crash impact, and NVH (Noise, Vibration, and Harness). Collaborated with fellows to complete class assignments and accomplish tasks within set time.

Assignments:

- Crash Impact Analysis: Developed crashworthy battery enclosures for EVs, reducing side impact deflection from 256.94 mm to 9.356 mm and front impact deflection from 231.94 mm to 6.356 mm through LS-Dyna simulations.
- Advanced Vehicle Dynamics: Optimised vehicle stability through derivative analysis and ADAMS simulations, achieving enhanced ride comfort and stability with damping ratio of 0.5.
- Efficiency Gains & Emission Reductions: Enhanced fuel economy by 7.69% and decreased emissions by 12% in hybrid powertrains through comprehensive drive cycle analysis and GT-Power validation.

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 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

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

Technical Proficiencies

ANSYS, NVH Analysis, GT-Suite, LS-Dyna, MATLAB, Simulink, SolidWorks, GD&T, Python, Ansys Fluent