PUSHKAR K

PROFESSIONAL EXPERIENCE

- **Tech Mahindra LTD. (CAE Engineer) (May'24-Now)**
  - Working on **Mahindra and Mahindra LCV** project in close association of NVH team.
  - Performed **Modal, NTF, VTF, ODS, KB, KT and DPDS, ERP analysis** using using **SOL 101,103,108** and**111** on **Nastran** and **OptiStruct** with **full vehicle** system **modelling**.
  - Worked with **testing** team for **testing** activities finding **root cause** and result correlation**.**
  - Worked on **IMCR** projects, ensuring **timely execution** and **coordination**.
  - Applied **AI/ML** using **Altair Physics AI** to **reduce development time** and **enhance simulation efficiency**.
  - Carried BSR activities like **Solidity** and **SnRD** with assisting in **CPA**.
  - **Successful submission** of projects of **IMCR, Wind noise analysis, MBD and automation process by Matlab** in NVH as **project handler** and **coordinating** with **CFT's** also **working closely.**

- **Zuti Engineering Services PVT. LTD. (CAE Engineer) (Aug'22-May'24)**
  - Worked on **Mahindra and Mahindra LCV** project in close association of NVH team.
  - **FEM** of **Metal** and **Plastic** parts of vehicles and integration along with debugging of subsystem to full Vehicle using **Hypermesh** and **ANSA.**
  - **FEA for solutions like SOL 103,108,111 and 101.**
  - **Modeling** of **Vehicle subsystem** and **Full Vehicle** level **FE Models**.
  - **Coordinating** with **testing team** for better **correlation** of results and understanding the issue.
  - **Result Interpretation** and **report preparation** for optimum iteration.

- **Ascent Total Solution PVT. LTD. (Project Engineer) (Dec'21-July'22)**
  - Working as **Project Engineer** at MEP Consultancy Firm skilled in **Project, Design development, Client and Time Management**.
  - Understanding the **need of client** and **researching and developing** the **mechanical drawing** of **Piping, Mechanical Equipment** or **HVAC** according to the **process calculations/flow or heat load**.
  - Calculated **structural stress analysis** using **Ansys Workbench**.
  - **Calculation** related to **HVAC system design**, **Piping design** & **Mechanical Equipment**.

TECHNICAL SKILLS

- **Designing Software-** PTC Creo, Siemens NX, Revit MEP, Solidworks, AutoCad and Catia.
- **CAE Software-** Hyperworks Tools, ANSA, ANSYS, Metapost, etc.
- **CAE Solvers and AI tool –** Nastran, Optistruct, Simulink and Physics AI
- **Data or Project Management Software-** Siemens Teamcenter and DFMA
- **Programming Languages-** Matlab, Basic Java and Python.
- **Office Essentials-** MS applications and Power BI.

INTERNSHIP & TRAINING

- **Shipping Corporation of India (1 month)-**
  - Making 3D cad Models On Siemens NX like centrifugal pumps.
  - Used Teamcenter software for data management purpose.
- **JWL Cold Storage Pvt. Ltd. (1 month)-**
- Learned Scheduling of Maintenance and time to time supply delivery.
- Working in time constrain environment.

- **Necessary essential of NX and Teamcenter (Certified Training)-** Training on Siemens NX11 CAD Software drawing 3D CAD models from the diagrams given and learning Siemens Teamcenter PLM Software for data management. Certified training from Siemens Centre of Excellence.
- **Matlab OnRamp (Certified Training)-** Basics of Matlab and numerical calculations.

PROJECT

- **Mahindra & Mahindra NVH Projects-**

LCV Projects: -

PICKUP TRUCK –

An export vehicle project with activities involving Structural NVH, Wind NVH and Powertrain NVH. Carrying sub system level simulations for Normal Modal, Bending Stiffness, Torsional Stiffness and DPDS. Full vehicle model setup for simulations like Normal Modal, NTF, VTF, Panel contribution, ERP and BSR. Carrying Post processing and design modifications for target meeting. Coordinating with the testing team for target setting. Coordinating with the testing team for the tuned sample. Generating Full vehicle vibro acoustic models using 1D and 3D connections. Suggesting design modification to meet the required targets. Creating Project plan, task scheduling and arranging tuned samples as per simulation inputs or testing requirements. Collecting IMCR proposals and carrying proposal specific simulations and suggesting the NVH feedback and modifications. Coordinating with different teams to get other NVH attributes done like MBD, BSR and wind NVH. Worked closely with the PT NVH team on the physical vehicle understanding the proto vehicle causes and taking the simulation data and testing data to find the root cause got an very deep understanding of the powertrain system and factors effecting the NVH performance. Worked with the altair team to generate AI model using physics AI to obtain an automated model to suggest design changes for standard procedures.

Responsibility:
- **Structural Level FEA** on Subsystem and Full vehicle level.
- **Project handling** of various projects involving **IMCR**, **BSR**, **MBD** and **AI/ML**.
- Cooperating with the testing team for **root cause analysis** or **weak point analysis** along with **FI targets**.
- **Wind NVH activities** involving subjective testing and simulation.
- Suggesting **design modification** to meet **FI Targets**.

BOLERO –

Being an important member in IMCR (Integrated Material Cost Reduction) project aimed at optimizing vehicle design by reducing the weight of various sub-assemblies from NVH. The project involved close collaboration between the design COEs and the CAE team, where cost- and weight-saving ideas were generated, implemented into CAD, and subsequently validated through CAE simulations. My role involved coordinating with the IMCR and design teams to understand proposed concepts, managing the FEM and FEA activities through vendors, and performing post-processing and performance evaluations. I carried out design iterations and modifications based on simulation results to ensure that NVH performance targets were maintained while achieving weight reduction goals.

Responsibility:
- Submitting the NVH project budget and submitting the NVH development plan to the project team after estimation of the work.
- Getting the FEM and FEA done for the NVH DVP's from the vendor's. Major DVP's Normal Modal Analysis, Bending and Torsional Stiffness, DPDS, NTF and VTF.
- Post Processing and conforming the idea acceptability and suggesting design modification to meet the targets.
- Submitting the results and final report to the IMCR team.

VEERO –

Conducted comprehensive analysis of a Light Commercial Vehicle (LCV), starting with meshing of all components using HyperMesh for 1D, 2D, and 3D elements. Integrated all subassemblies into a complete vehicle model. Performed Normal Mode analysis at both component and subassembly levels using Nastran. Carried out acoustic analysis using Nastran to evaluate NVH (Noise, Vibration, and Harshness) performance. Optimization techniques were applied to enhance structural stiffness, thereby minimizing noise and vibrations across the vehicle structure.

Responsibility:

- Vibration Transfer Function (VTF), Noise Transfer Function (NTF) analysis and the targets were set to the upcoming vehicle.
- Good exposure to NVH Pre-processors, solvers and post processors like Hypermesh, Hyperview, Hypergraph and MSC-Nastran
- Various design changes have been proposed and got implemented for better products from NVH concern.

- **Educational Projects-**

  - **Design Optimization of Frame for Weight Reduction while Satisfying Stiffness Targets (Master's Project) –** In this one of the frame of the Mahindra legacy vehicle was optimized by reducing the weight of frame by means of different design parameters changes. Involving thickness reduction, part elimination and material change. The modified design was simulated for bending and torsional stiffness targets. The frame was optimized till the most optimized results were obtained the results were validated through test. **This project involved using LS Dyna for modelling and simulation.**

  - **Pellet Manufacturing and Testing Using Various Biomass Composition (Bachelor's Project)-** Increase the efficiency of biomass pellet that can be used for sustainable energy source. Manufactured efficient pellets that are competitive to the other biomass pellets in market. Found results through proximate and ultimate analysis showing better properties.
    Published paper in International Research Journal of Engineering and Technology (IRJET) Volume 8, Issue 5, May 2025

  - **Designing HVAC System for IT Company -** Designing HVAC system for an IT Building, Project under ISHRAE. Design the fire system according to the building infrastructure. Make a good efficient design with minimum energy consumption. Take part in the ISTL Competition to represent institution on national level.

EDUCATION

- **Master of Technology- Design Engineering, BITS Pilani WILP, CGPA 7.56 - (2025)**

- **Bachelor of Engineering in Mechanical Engineering, Bharati Vidyapeeth College of Engineering, Navi Mumbai, CGPA 8.16 (2021)**