Achyuta Prasad N M

Multi-body Dynamic Simulation Engineer
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ABOUT ME

CAE Analyst Intended to develop career with leading corporate with technology oriented, committed and dedicated people. To progress in the technically oriented career that will provide an opportunity to learn explore myself fully and realize full potential. Take up challenging tasks of the Engineering world and to solve those using skills, intellect, determined efforts, new strategies & tactics.

Achievements

- **Developed a multi-physics methodology** for the **NVH** performance of an **E-machine**
- **Developed a methodology** to validate the **high performance vehicle virtually**
- Contributed correlation to **physical testing** and key insights for the development of methodology

WORK EXPERIENCE

Module Lead

Equilibrium Solutions Pvt. Ltd [01/2022 – 05/2023]

Development of powertrain:

- With coordination with NVH durability, Structural team & 1D (GT-suite) team, developed the powertrain of a Straight-twin engine and reduced the unbalanced force by 90%

Multi-body model development of E-machine:

- Built a complete model of E-machine → Flexible housing and shafts, Gears and detailed Bearings

Simulation of Full vehicle for optimization of powertrain components:

- Vibration analysis using simulation of the entire vehicle (powertrain, driveline, differential, and suspension) on a test rig with various gas force definitions

Senior Simulation Engineer

Actalent services, (Deputed to MBRDI) [04/2020 – 12/2021]

Methodology development for virtual validation of electric cars with respect to Test data:

- Developed CRG road profile using Matlab in the CRG environment and correlated the generated road with the scanned road profile
- Tuned the Multi-body simulation model and tuned the vehicle with respect to the Test vehicle driven in terms of mass and Kinematic and compliance (K&C) data
- Involved in correlating the simulation results with the Test data from the counter part with an acceptable tolerance
- Got approval for the method developed from the Testing team (Germany)

Simulation of cars of different class for studying vehicle dynamics:

- Simulation of complete car model on the developed CRG road and evaluating the load

Simulation Engineer

Merritt Innovative Solutions PVT. Ltd [03/2018 – 03/2020]

Development of sewing machine:

- Involved in concept building by guiding the Design team
- Developed the numerical model of sub-assemblies and assembled to simulate and validate the design in order to check if the required stich pattern was attained
- This model consisted of several components whose precise kinematic movement decides the stitch pattern
- Designing of crank for balancing
- Worked on mass distribution in the crank for minimum unbalance in the system
- Modeled the crank in cad and checked the stress and its natural frequency by FEM and simulated to check the unbalanced force
- Assembled the manufactured crank and measured the vibration and validated with the simulation result

CAE Consultant

APSG Engineering Pvt. Ltd [06/2015 – 03/2018]

Design and analysis of gears:

- As per customer requirements, calculated the required gear ratio, for the required output velocity and torque and designed and analysed for stresses in the gear tooth and bearing reactions for defined duty cycle using Romax Designer
- Optimised the gear profile from the noise perspective

Crash analysis of sedan:

- Prepared the solver deck for Full frontal impact, Frontal offset impact, Pedestrian safety (Head impact) and was run on LS Dyna

SUV Chassis:

- Built an FE model for an SUV chassis and prepared the solver deck for optistruct and checked the Inertia Relief modes, Global Modes of the chassis

New product development of an EV:

- Involved in design, analysis and simulation of a new EV for short commutes for different loading (road conditions)

Weight optimization of suspension spindle of Golf cart:

- Built a Higher order tetra (FE model) of existing spindle and analysed for weight reduction
- 10% weight reduction was reduced with 7 iterations

CAE Trainee

ProSIM R&D Pvt. Ltd, Bangalore [01/2015 – 06/2015]

Multi-body Dynamic Simulation of front axle for extracting the load on Kingpin bearing:

- Built a Multi-body finite element model of front axle and imported using standard SIMPACK Automotive database
- Applied the load on the kingpin bearing at maximum steer angle by applying the pressure at knuckle using SIMPACK (Kisssoft bearing module)

Multi-body Dynamic simulation of a Four-Wheel Drive Gearbox:

- Prepared a Multi–body finite element model of gearbox and imported to SIMPACK using standard SIMPACK Automotive database
- Torque and velocity inputs were given at the input shaft (for different gearing cases)
- Order analysis was done for different gearing conditions and was studied by plotting Campbell diagram in SIMPACK
- Extracted loads at hard points for structural analysis
- Extracted velocities and accelerations on the surface for Acoustics analysis

TOOLS

Simpack / Optistruct / Ansys Workbench / Matlab / Basic Python / Romax Designer / Motion Solve

EDUCATION AND TRAINING

Bachelor of Engineering: Mechanical Engineering

Visvesvaraya Technological University - India [2011 -2014]

Diploma in Mechanical Engineering

Smt L. V (Govt.) Polytechnic – India [2008 - 2011]

LANGUAGE SKILLS

English – Business Proficiency

German – Basic Proficiency