NINAD MEHTA

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EDUCATION

CAE/FEA Master's Certification, Skill-Lync — June 2020 – April 2021
Master of Science, Mechanical Engineering, University of Colorado Boulder, *GPA 3.8/4* — May 2020
Bachelor of Technology, Mechanical Engineering, Vellore Institute of Technology, *GPA 3.45/4* — June 2018

SKILLS

- HyperWorks
- LS-Dyna
- ANSA
- d3VIEW
- Solid Mechanics
- Stress Analysis
- ABAQUS
- NASTRAN
- Python
- Finite Element Analysis
- FEniCS
- SolidWorks Simulation

PROFESSIONAL AND RESEARCH EXPERIENCE

Structural Analysis Engineer, Caterpillar Innovation Center — January 2022 – March 2024

- Assess the structural integrity of large mining truck frames using quasi-static linear & non-linear FEA.
- Perform non-linear bolted Joint analysis for frame mounted components to evaluate joint integrity.
- Work on durability/fatigue studies using unit load inertia relief technique with flexible body loads.

CAE Application Engineer, d3VIEW — June 2021 – December 2021

- Perform Material Calibration and subsequently create Material Cards based on LS-Dyna using workflows.
- Develop a workflow to automate GISSMO (Generalized Incremental Stress State Modeling) Failure Modeling for Materials.
- Work on vehicle model development in LS-Dyna and provide support in the field of crashworthiness.
- Create a workflow to convert hyperelastic material data to verified simulation worthy data by running uniaxial tests.

Research Volunteer, University of Colorado Boulder — June 2020 – April 2021

- Meshing and optimizing mesh quality of automotive components using various Mesh improvement tools.
- Conduct basic explicit and implicit analysis on component level problems.

PRODUCT ANALYSIS EXPERIENCE

Vehicle Crashworthiness Analysis using LS DYNA, HyperCrash, and RADIOSS — September 2020 – July 2021

- Effectuate CAE/FEA simulations to evaluate and enhance crashworthiness performance of automotive components.
- Hands-on experience of linear, non-linear, explicit, and implicit analysis simulations using LS-Dyna and RADIOSS.
- Executed low speed car crash analysis to evaluate Head Injury Criterion (HIC) using a pedestrian dummy head model.
- Setup frontal and side crash of Dodge Neon BIW Model according to FMVSS regulation 208 in HyperCrash and HyperMesh.
- Worked on material modelling of elasto-plastic and hyperelastic materials from raw data.
- Modelled reduced side impact crash test of Dodge Neon based on FMVSS 214P in HyperCrash.

Pre-processing for Structural Analysis using ANSA and HyperMesh — September 2020 - July 2021

- Meshed an Automotive Suspension Assembly and established connections while maintaining quality criteria.
- Modelled rigid elements, different types of welds, adhesives, spring elements and bolt connectors for FE models.

Natural Convective flow – Computational Fluid Dynamics — January 2020 - May 2020

- Illustrated the classical mixing of fluid for differentially heated square cavity for coupled temperature-fluid problem.
- Implemented time-varying Natural convection solver in FEniCS using Monolithic solve and Operator Split Solve.
- Demonstrated computational simulation of steady laminar convective flow around inclined plate geometries.

Re-design of a Measuring wheel – Design for Manufacturability — August 2019-December 2019

- Reverse engineered a surveyor's wheel and re-designed the product to reduce material usage.
- Utilized DFM and DFA to reduce the number components in the product and brought down the overall cost by 14%.

Research Assistant, Emergent Nanomaterials Lab, University of Colorado Boulder — August 2019 – March 2020

- Focused on synthesis, characterization of novel material – polyrotaxane for making glasses, gels, and polymer coatings.

Research Assistant, Composites lab, Vellore Institute of Technology — July 2016-May 2018

- Explored Dynamic, flexural and fracture characteristics of the flax fiber and jute fiber reinforced polypropylene honeycomb core sandwich panels.

PUBLICATIONS

Experimental Investigations on Flexural and Fracture Behaviors of Flax Fiber Reinforced Sandwich Panels

- Published in: *International Review of Mechanical Engineering, March 2018*

Microstructural Evolution, Structural Integrity, and Hot Corrosion Performance of Nitrogen-Enhanced Stainless-Steel Welds

- Published in*: Journal of Materials Engineering and Performance, July 2019*

Dynamic Characteristics of Honeycomb Sandwich Beam Made with Jute/Epoxy Composite Skin

- Published in*: Institution of Civil Engineers, January 2020*

CERTIFICATIONS

- Modeling and Simulation of Multibody Systems – Part I, (Credential Id: 7941edf6aeba490a8bb786bc85e0a860)
- Python for Everybody Specialization, Coursera – University of Michigan
- Crashworthiness Analysis using HyperMesh and Radioss, (Credential Id: 3f59t1qgp2xesoza)
- LS-DYNA for Structural Mechanics/FEA, (Credential Id: a21fd4q8bwpv60ck)
- Preprocessor for Structural Analysis using ANSA, (Credential Id: c7j61fuxho9nt382)
- HyperMesh for FEA Plastic and Sheet Metal Applications, (Credential Id: tu31ok60z9e8fhsp)
- Python for Mechanical Engineers, (Credential Id: 0tj36bh9o1ipwsa5)

COURSES

Computational Fluid Dynamics, Finite Element Analysis, Design for Manufacturability, Failure of Engineering Materials, Micro-electro-Mechanical Systems, Microsystems Integration, Polymers