

Sukumar Hirani

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SUMMARY

- 7+ year of professional experience in the field of Product Designing & Development.
- Strong CAD modeling skills of plastic, sheet metal parts and automotive assemblies with design for manufacturing (DFM) intentions.
- Hands on experience with the tools of FEA to perform stress, static, dynamic, heat and mass transfer and noise and vibrations analysis.

TECHNICAL SKILLS

Software: Solidworks, Catia V5, Hypermesh, LsDyna, Labview, Ardiuno, Stature, XFRACAS, Minitab, SAP, SAS, Agile

Hands-On: Mechanical testing, Prototyping, Static, dynamic, fatigue and thermal analysis, DFM&A, DOE, Quality and process control.

CERTIFICATIONS

- Certified Solidworks Professional, Dassault Systems, 2020
- Certified Hyperworks/Optistruct Professional, Altair Inc., 2016
- Certified DFMEA/PFMEA Practitioner, Sphera, 2019

EXPERIENCE

Siemens Healthineers, Norwood

Product Engineer III

Mar' 18 – Present

- Spearheading Product designing and development activities using CAD, FEA, Product Lifecycle management and project management tools.
- Skill used: Solidworks, Minitab, LabView, Stature, DFMEA, Additive Manufacturing, DFSS, SAP, FEA, RGT, RDT, ALT.
- Performing thermal, fatigue and creep analysis using Finite element methodologies.
- Creating test fixtures, to validate performance of different subassemblies using LabView and Ardiuno.
- Conducting Reliability testing using different testing techniques as Growth testing, Lifecycle testing, Demonstrations testing etc.
- Effectively managing and executing multiple projects and responsibilities at the same time, while simultaneously working cross-functionally with Operations, Regulatory, Sales and Clinical teams.

Integra Technologies LLC, Wilmington

Design & Product Engineer (R&D)

May' 17 – Feb'18

- Participated in initial mechanical design, 3D modeling and creation of production drawings and maintenance of design data.
- Skill used: Catia V5, Minitab, Abaqus, Hypermesh, SAS, sheet metal & plastic parts designing, FEA, NPD, DFM.
- Supported teams for New Product Introduction (NPI) and Current Product Improvement (CPI) activities.
- Performed structural system analysis and simulation for structural integrity, transient thermal effects, machine vibrations and force responses.
- Utilized mathematical equations to perform heat transfer, stress and vibration analysis and doing statistical analysis on the design data for the research and validation purpose using SAS tools.

Outset Medical, San Jose

R & D Engineer

Oct' 16 – May' 17

- Designed, re-designing and doing static & fatigue analysis of electro-mechanical components using CAD & FEA tools.
- Skill used: Solidworks, Labview, Minitab, Agile, Hypermesh, VBA, DFMEA, PFMEA, DFM, DOE.
- Participated in entire NPD process including designing, testing, design finalization & supplier quality management.
- Conducted DOE, using SPC tools for quality control, performing root cause analysis and Cp/Cpk reviews of mechanical parts.
- Worked cross functionally to conduct V&V tests & set up new testing methods for different mechanical, thermal & electrical components.

Advance Human Modelling Lab, Detroit

Research Assistant (Internship)

Feb' 15 – May' 16

- Finite element analysis of Crash Reconstruction and Occupant Safety designed test fixtures for crash testing.
- Skill used: Hypermesh 13.0, LsDyna, Nastran, Ansa, Mimics, Catia V5, NVH, Hyperstudy, DOE.
- Performing durability, crash, NVH analysis and structural optimization of aluminum and steel structure.
- Studied vehicle crash behavior, occupant injury analysis & application of countermeasures to improve vehicle crashworthiness in small overlap.
- Modelled & validated FE model of Upper extremities of elderly female for side & front airbag impact injuries.

Tata Motors Pvt. Ltd.-Pune, India

CAD Engineer

Mar' 13 - May' 14

- Validated and designed various vehicle components such as suspensions, engine mounts using Catia.
- Skills Used: Catia V5, Thermal structures designing, FEA, GD&T, DMF&A, FMEA, surface & part modeling.
- Gained knowledge of Vehicle Integration, design for manufacture and assembly & plastic injection molding.
- Experienced in designing of vehicle components & BIW, in conducting FMEA and generating DVP&R.
- Pioneered in tasks of creating BOM to support planning of production, fabrication and inventory management.
- Accomplished tasks of FE structural analysis of chassis for different load cases as road bump load case, power spectrum density analysis.

D & H Secheron Electrode Pvt. Ltd.-Indore, India

Quality Engineer

Aug' 12 - Feb' 13

- Used SPC tools for gauging variation in processes and to control quality.
- Skills Used: Auto CAD, Machine Designing, Mechanical Testing, Material Science, Cp/Cpk.
- Designed fixtures like machining tools, jigs, clamps considering mechanical forces and designing guidelines.
- Successfully redesigned a plant layout to increase the efficiency of work and to decrease the cost incurred.

EDUCATION

**Master of Science in Mechanical Engineering,
Wayne State University GPA: 3.30/4.0**

May' 16

**Bachelor of Engineering in Mechanical Engineering,
Malwa Insitiute of Technology GPA: 3.70/4.0**

Jun' 12

PROJECTS

Development of Motorcycle Helmet using FEA:

Jan' 12 - Apr' 12

- Successfully modeled & meshed FE helmet model.
- Skills Used: Hypermesh, Blast Wave Simulation, Impact Biomechanics.
- Simulated effect of Blast wave impact over human head to measure brain injuries.
- Used iterative tools to measure the effectiveness of materials & design to reduce injuries.

Modeling of car using blueprints:

Nov' 11 - Dec' 11

- Successfully created model of a car with accurate dimensions using blueprints.
- Skills Used: Catia V5, Surface Modeling, Sheetmetal designing.
- Used surface modelling tools to model dynamics of car and all parts from roof to rims.
- Workbenches as Sketch tracer and Freestyle were used for modeling in CatiaV5R20.

Designing of an ATV, Baja SAE, India:

May' 10 - Oct' 10

- Successfully developed a roll cage model of an ATV and performed FEA to optimize the design.
- Skills Used: Catia V5, Hypermesh, FEA.
- Team scored 3rd position in virtual BAJA SAE competition.