Gayatri Sagavkar

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SUMMARY

A motivated, dynamic and skilled Mechanical Engineer with 5 years of professional experience in product design and analysis. Ability to efficiently work with teams and handle multiple projects with minimal supervision. Possess strong analytical approach with creative problem- solving skills and communication skills. Proficient in Product design, Virtual tools and Script writing towards facilitating product development. Recognized as a key contributor in continuous improvement, on time delivery and design concepts to improve efficiency and reduce cost.

- Product design | DFA | DFM
- 3-D CAD: Catia V5, SolidWorks, NX
- 2-D drawings with GD&T, BOM
- Plastic and sheet metal design
- Feasibility review | DFMEA | DVP&R
- Finite Element Analysis (FEA)
- Production Processes
- Scripting in Matlab & FORTRAN
- Computational Fluid Dynamics (CFD)

EDUCATION

Master of Science, Mechanical Engineering **GPA: 3.83/4.0** **Aug 2014-May 2016**
Arizona State University

Bachelor of Engineering, Mechanical Engineering **First class with distinction (70.69%)** **Aug 2010- May 2014**
University of Mumbai, Mumbai, India

TECHNICAL SKILLS

- CAD/ CAE Tools: CATIA V5, SolidWorks, NX, PTC CREO, AutoCAD, Pro-Engineer, Inventor, ABAQUS, ANSYS
- CFD Simulation Tool: ANSYS FLUENT, STAR CCM+
- Programming Languages: FORTRAN, LabVIEW, MATLAB, C++
- Project Management: MS Project, Jira, Word, Excel, PowerPoint,

PROFESSIONAL EXPERIENCE

Design and Release Engineer, Ford Motor Company through Ciber Global LLC, Dearborn, MI **Oct 2020 – Dec 2020**

- Responsible of Design and Release **upper body structure** parts which include sheet metal body side and roof system components on new generation automobiles.
- Design, innovate and develop B-bows, NVH bows, Rear Header components through product development milestones while delivering feasibility, weight, cost, and quality targets.
- Created designs using **DFA** and **DFM** principles, considering packaging, stamping and ergonomics constraints using **CATIA V5**.
- Develop robust designs which can fulfil vehicle dynamics, noise vibration and harshness (NVH), durability and crash conditions.
- Interact with cross-functional teams to ensure the product design and functional requirements are met.
- Create and track all program related data (program definition, change documentation, BOM etc.) using internal tools.
- Interface with supplier to drive the product development of the components from design to launch phase.

Design Engineer – Feasibility, Ford Motor Company through Ciber Global LLC, Dearborn, MI **Mar 2019 – Oct 2020**

- Develop 2D sections from 3D CAD and surface data of a vehicle, using **CATIA V5** to investigate the **feasibility of Class-A surface** considering packaging, safety, stamping, ergonomics constraints and annotate the resultant sections to provide appropriate direction to Design Studio and application engineers.
- Engineer a **feasible proposal** for a vehicle surface and/or engineering, in order to provide an optimized design solution to resolve an issue and modify/mature surface for upcoming Feasibility Checkpoint (FC) Milestone.
- Work with exterior **plastic** and **sheet-metal** components.
- Construct 2D sections for Exterior surfaces to study surface feasibility, tolerances and prepare design intent to provide direction to modify Class A surfaces to Design Studio.
- Analyze the master section construction sections and modify the design intent as needed. Work with cross-functional departments such as NVH, Ergonomics, Packaging, and Design Studio to update the CAD design per their requirements.
- Work with craftsmanship engineers to determine accurate margins and flushness specification requirements which are to be conveyed to the studio for the following surface releases.

Component Validation Engineer, General Motors through CSM Software USA, LLC, Warren, MI **Apr 2018 - Dec 2018**

- Responsible for design Validation of **plastic** and **metal** brackets for various automotive programs in General Motors.
- Developed a comprehensive and detailed plan to test and validate the assigned component to its technical requirements.
- Developed and approved **ADVP&R** for the testing of components for various programs.
- Led Validation discussions at PDT meetings, experience with **NX** and **Team Center**.
- Worked with design team, CAE team, supplier and plant to ensure validation of component per testing specifications.
- Supported **PPAP** sign off by approving the validation status.

- Maintained and tracked the validation status of components throughout the program timing including **DV and PV**.
- Communicated with supplier representative for discussion and resolution of any issues.
- Supported the program team meetings and escalated the issues to internal team.

Product Engineer, United Systems Group (Tube Wright Inc.), Brighton MI **Aug 2016- Dec 2017**

- Design and development of radiators and oil coolers in engine cooling for automobile and off-road vehicles.
- Worked on every component & hardware component of radiator including part and assembly design.
- Worked in **life cycle product design**- from design to production launch of the radiators including, concept design, pre-production, prototype, feasibility reviews, detailed design, **DFMEA and DVP&R** documents and production drawings.
- Developed designs using **DFA** and **DFM** principle and considering **tolerance stack-up** in assembly to ensure mechanical fit.
- Created **3-D design and 2-D drawings** with Bill of Materials **(BOM)** and Geometric Dimensioning and Tolerancing **(GD&T)** in **SolidWorks.**
- **Cost Reduction**- Suggested design solutions in new product design to save $200 per part.
- Supported **feasibility review and DVP&R** signoffs.
- Designed **tooling**- Assembly Gauge and Leak test fixture for the radiators with low cost, low weight and operator-friendly.
- Communicated with manufacturing team, testing team and customers to outline design modifications and ensure product meets the design requirements and standards

Teaching Assistant- **SolidWorks,** Arizona State University, Tempe, AZ **Aug 2015- May 2016**

- Adapted to 140 undergraduate students, guided them with coursework and assignments in **SolidWorks**.

Solar Analyst and Engineer, Oculus Studio, Phoenix, AZ **June 2015-Aug 2015**

- Designed Solar Canopy project in SolidWorks and PV systems for various commercial projects in AutoCAD & PVSyst

CERTIFICATION: Transitioning to IATF 16949:2016 for Automotive Auditors by AIAG, USA.
Master Diploma in Product Design and Analysis by CADD CENTRE, India.

PROJECTS

DOE-optimum design and thermal analysis of riser for sand casting. *(Team Lead)* **May 2013-May 2014**

- Designed and optimized the riser dimensions using **SolidWorks, Taguchi method and ANOVA**.
- Analyzed the effectiveness of riser with the help of **thermal simulation** in **ANSYS** by examined the hotspot location.
- Concluded that Convective heat transfer coefficient has maximum i.e., ~85% contribution in deciding the hotspot location.

Experimental design and validation of hybrid parabolic trough collector **Sept 2014-Dec 2014**

- Adapted Photovoltaic mirror with parabolic trough to make **PV-Concentrating Solar Power** (CSP) hybrid system.
- Performed an **experimental** analysis using **data acquisition software LabVIEW and MATLAB**.
- Concluded that hybrid system provides thermal storage and increases efficiency by ~10% using a copper receiver tube.

Thermal Analysis of Rotating Heat Sink **Mar 2015-May 2015**

- Analyzed the possible alternative to heat sink as rotating heat sink for 150W heat rejection in **NX and ANSYS-CFX**
- Verified the simulation results with analytical analysis in Engineering Equation Solver (EES) and concluded that it is better than conventional heat sink.

Analysis of a rotating rod with FEA, MATLAB and ABAQUS **Mar 2016 – Apr 2016**

- Determined and plotted the displacement and strain field of the rod in **MATLAB**.
- Computed the rate of convergence and achieved parallel results in an analytical solution, **MATLAB** and **ABAQUS.**

CFD-Study of Aerodynamic effects in a Virtual Wind Tunnel in ANSYS FLUENT **Oct 2015- Nov2015**

- Analyzed flow over a body placed inside a virtual wind tunnel using **HPC clusters in ANSYS** and determined lift and drags.
- **Mesh adaption** is done to obtain accurate results and **UDF** was written in C++ for non-uniform inlet velocity.

CFD-Transient simulation of multiphase flow using Volume of Fluid method in ANSYS FLUENT **Sept 2015 – Oct 2015**

- Analyzed **multiphase problems** such as mixing of engine oil and water, water injection in empty tank, mixing of natural gas in air.
- Calculated velocity of mixing fluids using **Linear square fit technique** and numerical stability was maintained.

PUBLICATION: International Journal of Student Research in Technology and Management, Vol1(2) **Apr 2013**
Vibration Analysis of drilling operation, by Amit Vani, Gayatri Sagavkar and Vaibhav Bhat