MERCY SOUMYA VAGIRI

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SUMMARY

Seeking a fulltime position as a Mechanical Engineer with emphasis in the field of design, analysis and analytics of products. I would like to pursue a challenging career in the field of Mechanical and Industrial engineering and be a part of a progressive organization that enables me to grow both professionally and personally while adding value to the organization. I am a team player, quick learner and passionate about any task delegated.

TECHNICAL SKILLS

- Designing Tools: ANSYS workbench, Pro E, Catia V5, Revit, Auto CAD, Solid works, Sheet Metal Design, GD&T
- Analysis Tools: ANSYS (Static structural, fluent, rigid dynamics, and transient thermal), Abaqus
- Analytical Skills: Lean Six Sigma tools, FMEA, FEA
- Software Tools: MS-office suite
- Programming languages: C, C++
- Operating Systems: Linux (Ubuntu), MacOS, Windows

PUBLICATIONS

- Published a paper in IJMET titled "Design Considerations of Radomes: A Review"
- Published a paper in IJMET titled "Design and Finite Element Analysis of Air Borne Radome"

R&D EXPERIENCE

Fault Detection and Diagnosis of HVAC   **August 2019 – December 2019**
- Implemented various fault detection techniques to identify the exact flaws in the HVAC.
- Installed FDD product and the verification tools with the help of certified HVAC technician
- Developed classification and regression techniques to identify the defects in HVAC, which improved the losses by 14%

CFD Analysis of a Centrifugal Pump   **January 2019 – May 2019**
- Studied the pressure variations in a centrifugal pump when subjected to a varying a range of velocities, rpm and fluids in ANSYS Fluent.
- Fluent is setup for an existing geometry of a centrifugal pump; model used was Viscous-Realizable k-epsilon scalable wall function.
- Defined the boundary conditions and material properties involved in the project.
- Inspected the contours of pressure and velocity magnitude to analyze the behavior of a centrifugal pump.

Design and Analysis of an A-Arm for the Car Suspension System   **August 2018 – December 2018**
- Designed a lightweight A-Arm without altering the design criteria while having constant damping frequency and total stress value.
- Used various mesh control settings and materials to attain reduction in weight of the A-Arm from 25kgs to 3.63kgs.

Powering Stirling Engine Using Dual Axis Tracking System   **January 2018 – May 2018**
- Designed and developed a system for solar power generation through stirling engine with the aid of Fresnel lens
- Employed Dual Axis Solar Tracking system to concentrate the solar radiation on the Fresnel lens all throughout the day
- Improved the engine efficiency by 13% resulting in the increase of overall efficiency by 17%

Analysis of Aerospace Cable Attachment Bracket   **January 2018 – May 2018**
- Analyzed different combinations of aerospace cable brackets and materials to zero down on the one which offers maximum safety and the lowest weight.
- Performed material assignment, mesh generation and defined the boundary conditions for various brackets.
- Studied the deformation and equivalent contours of all the iterations.

Design and Manufacturing of Vertical Axis Wind Turbine (VAWT)   **June 2017 – December 2017**
- Modeled a VAWT system to improve the airflow by increasing the rpm while reducing the turbulence
- Designed the blades in Solid works to optimize the initial rotational speed
- Simulated in ANSYS using fluent and computational fluid dynamics modules to validate the designs
- Manufactured a working prototype using FRP (fiber reinforced plastic) material with a tolerance of 0.2cm

Structural Analysis of Composite Radome   **January 2017 – May 2017**
- Designed a Radome which is a structural member that protects airborne antennas from environmental loads.
- Assigned a suitable material to the radome and defined the structural analysis inputs.
- Performed finite element analysis in Abaqus software to study the pressure variations and flow trajectories.
- Iterated the analysis with different values of wall thickness of the radome and studied their deformation, stress plots and natural frequencies to achieve an optimal model of the radome.

Air Brake System of Coaching Stock in Indian Railways   **April 2016 – May 2016**
- Studied the construction and working of air brake systems in Indian Railways.
- Validated the usage of Pneumatic braking system for improved efficiency when compared to air brake system.

Mechanical Engineer Intern, Bharat Heavy Electricals Limited   **May 2015 – June 2015**
- Studied the operation of boiler feed pumps and smart water technologies used in pumping of hot feed water from deaerator to the boiler of a thermal power station.

EDUCATION

Master of Science in Mechanical Engineering from **University of New Haven, West Haven, CT (GPA: 3.48)**   **December 2019**
Bachelor of Technology in Mechanical Engineering from **Jawaharlal Nehru Technological University (GPA: 3.5)**   **April 2017**

ACTIVITIES AND ACHIEVEMENTS

- German Language A1 level