**Naga Venkata Sai Bhargav Eleswarapu**

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**EDUCATION**

**Arizona State University** Tempe, AZ

M.S. in Mechanical Engineering. 3.48/4.00 May 2020

*Coursework*: Computational Fluid Dynamics, Turbulence, Fluid Mechanics, Energy Efficiency, Wind Energy, Experimental Methods: Thermal/Fluid Process (Particle Image Velocimetry), Partial Differential Equations, Linear Algebra.

**Jawaharlal Nehru Technological University** Hyderabad, India

B.Tech. in Mechanical Engineering. 8.53/10.00 May 2017

*Coursework*: Thermodynamics, Machine Design, Strength of Materials, Thermal Engineering, Finite Element Methods, Metallurgy and Material Science, Unconventional Machining Processes, Heat and Mass Transfer, Non-Conventional Energy Sources, Turbomachinery, Fluid Mechanics and Hydraulic Machinery.

**EXPERIENCE**

**Arizona State University** Tempe, AZ

***Graduate Research Assistant*** December 2019 – May 2020

* Designed an inclined open channel in **SolidWorks** to study water flow in a greenhouse drip system using 5 barriers placed in different orientations.
* Barriers designed based on **NACA 0012, NACA 0018, NACA 6409** and **NACA 2414** were placed in an open channel at different orientations to find an optimum design of the barrier that controls both flowrate and direction without creating turbulence.
* Simulated channel for **pressure-based multi-phase flow using the k-ε turbulence model in** **ANSYS Fluent**.
* Reducing velocity across barriers by 98.3% at 1.5 m/s using NACA 0018 as optimum, contributing to the design of **energy-efficient drip system** **greenhouse**.

**Arizona State University** Tempe, AZ

***Graduate Service Assistant*** September 2019 – May 2020

* Assisted professors in teaching 2 courses, MAE 501: Linear Algebra and MAE 589: Heat Transfer and graded weekly homework assignments.
* Conducted recitations and held office hours, providing students with personalized assistance and attention 2 hours per week.

**Rashtriya Ispat Nigam Limited, Vizag Steel Plant** Visakhapatnam, India

***Intern*** June 2016 – July 2016

* Shadowed each department in a steel plant to gain a comprehensive understanding of the material selection and fabrication processes involved in steel production and manufacturing.
* Studied extrusion in the rolling process to learn how rolls are used to manufacture various compositions of steel blooms into required shapes and then design rolls in CATIA and manufacture them using the CNC machining process.

**PROJECTS**

**Phase-Change Material Based Room Heating Using Solar Energy** August 2019 – December 2019

* Designed a room heating system in SolidWorks based on phase change material and solar energy. Simulated in ANSYS Fluent to determine the time taken for a significant rise in temperature.
* The PCM chambers are placed on opposite walls for a given space which would increase room temperature by 8°c in 27 mins.
* Calculated heat load and CFM using ASHRAE standards to estimate the size of the conventional room heater.
* Energy cost saving is estimated to be $270/year with a payback period as 3 years, when compared with a conventional heater.

**Incompressible Flow Analysis in a Chamber** January 2019 – May 2019

* Designed gas chamber and scripted **MATLAB code to solve 2D incompressible RANS** equation and calculated mass fraction with cell-centered mesh and velocity with staggered mesh.
* Improving chamber mixing rate about 15% by oscillating inlets between -π/3 to π/3 radians.

**Flow Analysis on Backward-Facing Step** January 2019 – May 2019

* Designed a 2D system of backward-facing step using ANSYS Workbench and simulated using **ANSYS Fluent** to study famous turbulence problem, **analyzing over various mesh sizes, wall and boundary conditions**.
* Compared results with **Driver and Seegmiller experiments** to analyze how model setup affects the outcome.

**Cost Analysis of Martha Vineyard Wind Farm** August 2018 – December 2018

* Calculated **the Levelized cost of energy (LCOE)** for the first offshore wind farm in the US, based on available data, predicting LCOE at $0.25/kW h and compared with LCOE at $0.06/kW h calculated by the **US Department of Energy Resources**.
* Documented and compared wind farm policies with those of European countries and China.

**Design and Analysis of Hoverbike** December 2016 – May 2017

* Designed a scale model for a low altitude hoverbike with a payload of 100 kg, working on mechanical design, airfoils, lightweight material research, and gyroscopic effects, and analyzed the structure and vibrational analysis using ANSYS Workbench.
* Designed a rotor based on **NACA 0009** symmetrical airfoil structure. Performed **Structural, Vibrational** and **Computational Fluid Dynamic Analysis using Fluent** over the rotor blade. Elected as one of the top 3 projects of the department.

**SKILLS & INTERESTS**

**Design Tools:** AutoCAD, SolidWorks, Catia V5, Ptc-Creo.

**Analysis Tools:** ANSYS Workbench, ANSYS Fluent, ABAQUS, Hypermesh, LabVIEW, PIVLab.

**Programming Tools:** MATLAB, Python.

**Skills:** FEA,GD&T, MS Excel, MS Word, MS Project, LATEX, Statistical Process Control, Lathe Operations, Drilling, Milling, 3D Printing, CMM, 3-axis CNC G-Code, Energy and Demand Cost Savings.

**Certification**: **Data Analysis with Python by IBM**