

PERSONAL INFORMATION

ABC

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Date of Birth: 31/12/YYYY

Nationality: djhfh

EDUCATION

09/2017- **Master of Science – Aerospace Engineering**

- TUV University, (USA)
 - GPA-3.9/4

08/2011- **Bachelor of Technology – Civil Engineering**

- XYZ (India)
 - GPA-3.2/4

PROJECT WORK

05/2018- **Independent Case Study - Hypersonic Combustion**

12/2018 Analysis of the flow and combustion parameters due to change in fuel inlet diameter, ramp height and angle of injection.

Mentor: Dr. QWE

- Adopted an existing scramjet design as base design to be modelled using Ansys Fluent.
- The based model was calibrated to match the experimental values within an acceptable percentage.
- The 2-d structured mesh consists of a backward step injector along the top wall and was simulated using a coupled implicit, steady-state Navier-Stokes equation with realizable K-epsilon and single step finite rate chemistry/ eddy dissipation for turbulence and combustion models.
- The ramp and strut height was incremented and the combustion efficiency, total pressure loss, species mass fraction and entropy generation was calculated along the axis of the scramjet.
- The results were plotted, and the optimal design was discovered for a specific configuration.

01/2017- **Experimental Course Work**

10/2017 Design Build and Test a transient heat flux sensor to measure the heat flux at the end wall of a rotating detonation engine.

Mentor: Dr. ASD

- Design and fabricate Thin film platinum RTD with MACOR as a substrate.
- Build a signal processing unit containing a constant current wheat stone bridge, transformer, OP-AMP, Data Acquisition.
- develop a MATLAB code to decode the impulse function using Infinite impulse response method.
- Measure the High frequency (1 MHz) Temperature profile to calculate the transient heat flux on the end wall of a rotating/pulse detonation engine

02/2015- **Undergraduate Thesis: *Effect of system pressure on heat transfer and Pressure drop characteristics of micro Channel heat sink using TiO₂ nano fluid***

08/2015 Department of Mechanical Engineering,

Mentor: Dr. ZXC

- Design a two-phase flow boiling circuit to calculate the effect of system pressure on the working of a microchannel heat sink.
- Fabricate a heater block from copper and a test section from PEEK housing with fiber glass top to create a 20mm channel
- Study the heat transfer and fluid flow characteristics for various pressures ranging from Vacuum to 2 bars.
- develop a MATLAB code to find a correlation between heat transfer coefficient and pressure and fit a curve for the data.
- compare data with CFD simulation done using ANSYS Fluent

WORK EXPERIENCE

05/2017- **TA – TUV university (USA)**

12/2018 TA for Engineering physics and Math for undergraduate students, responsibilities include:

- Elucidate and help students apply the concepts learned.
- Understand the problem faced by students in learning the concepts and advice new study plans and materials.
- Help the professor prepare the notes for subsequent classes based on the feedback from students

10/2014- **Research Intern - Indian Institute of Technology – Bombay**

01/2015 Surrogate based analysis and shape optimization of Aerostat envelope with Fins

Mentor: Dr. POI

- Working on a generic methodology for calculating the coefficient of drag of an aerostat as a function of envelope geometry.
- Develop coupled multi-disciplinary optimization algorithms to determine the optimum envelope shape from various considerations.
- eliminate the need for running numerically expensive CFD codes each time the shape is altered

04/2014- **Intern – HAL (Bengaluru, India)**

07/2014 Develop an Engineering Tool for Preliminary Design of Inlet for Supersonic Airbreathing Vehicles.

- Computational analysis of external compression, supersonic Air-breathing engine inlet
- Fortran was used to develop the engineering tool.
- user parameter for inlet Mach number, type and dimensions of the inlet,
- design optimized towards total pressure recovery and shock on cowl lip

LANGUAGE SKILLS

TAMIL Mother Tongue

ENGLISH Fluent (C2 according to CEFR)

COMMUNICATION SKILLS

- Excellent written and verbal communication skills in English from my long educational background.
- Cross-cultural communication skills from interacting with various people from my tutor job
- Professional public speaking and Excellent presentation skills from my internship at IIT-Bombay
- Great listening skills, Brevity, Clarity in my thoughts and decisions and Ability to Give Constructive Feedback from my interaction with students.
- Communicating via electronic media when in need, from helping students even on the night before exams

MANAGERIAL SKILLS

- Creating and keeping deadlines from my internship experience
- Delegation, Team management, Teamwork skills were acquired when I was head of the propulsion department at the experimental rocket propulsion lab.
- Strategize and implement decisions by analysing a complex problem to help solve problems from educational training.
- Project management, coordinating events, Team leadership from working as propulsion head of Experimental rocket propulsion Lab.
- Ability to multitask to maintain a healthy balance between work and personal DIY projects to maximize productivity

JOB SKILLS

- Proficient in Catia, MATLAB, Fortran, Python, Ansys fluent, Shell Scripting, C++, Star CCM+, Latex
- Can work in Windows, Mac OS, Linux distros comfortably.
- Well Versed in MS office applications

ADDITIONAL INFORMATION

PROJECT Application of Aerofoil Shape Optimization Method to Nullify Horse Shoe Vortex in Axial Turbine Vane Cascades.

- Design a loaded turbine stage for typical aero-engine turbine conditions using Bladegen.
- With the initial velocity triangles established, the stator inlet is analysed using Navier-strokes, SST turbulence model and upstream rotor exit conditions.
- The new boundary conditions give rise to new velocity triangle at hub and tip sections resulting in optimized redesign of aerofoil
- The redesigned aerofoil is simulated and compared with initial design and the results tabulated

PROJECT Propulsion Engineer – Rocket Propulsion Lab

Designed and fabricated the combustion chamber and nozzle of Hybrid rocket for Hybrid rocket motor challenge by Florida Space Grant Consortium.

- The design and final dimensions were based on extensive analytical work done in MATLAB, including a simulation of the regression over time of the fuel grain during a firing.
- HTPB fuel grain was mixed and cast in lab.
- combustion chamber and nozzle from graphite were milled in school using CNC
- Verified the design and help test fire the Vulcan(hybrid) and Aquila (Liquid) rocket engines used in other competitions