Harsha Rai

harsharai931@gmail.com +91 7795751015 Mangalore, Karnataka, India

linkedin.com/in/harsha-rai

A skilled, inquisitive, and growth-oriented mechanical engineer with a multi-disciplinary approach to problem-solving. Committed to making a positive impact, I strive towards building a more sustainable future through my work.

EDUCATION

B.E. Mechanical Engineering, *NMAM Institute of Technology* 2017 – 2022
Affiliated to Visvesvaraya Technological University, Belgaum Karkala, India
CGPA - 7.82

Intermediate (PCMS), *Mahesh PU College* 2015 – 2017
Affiliated to PU Board of Karnataka Mangalore, India
Percentage - 89%

SSLC, *Canara Girls High School* 2015
Affiliated to State Board, Karnataka Mangalore, India
Percentage - 90%

PROFESSIONAL EXPERIENCE

Project Assistant, *Indian Institute of Science* 10/2021 – present
Combustion, Gasification and Propulsion Laboratory (CGPL) Bangalore, India
Project - Performance Analysis of a Polymer Electrolyte Membrane fuel cell (PEMFC) and Solid Oxide Fuel Cell (SOFC)

- Worked on establishing test facilities for PEMFC and SOFC testing.
- Performance analysis tests for single-cell and stack PEMFC and SOFC with hydrogen from biomass gasification.
- Temperature, humidity, hydrogen concentration, and air-fuel ratio metric analysis for optimal efficiency and power output.
- Electrochemical Impedance Spectroscopy for cell characterization,
- Numerical analysis and model development for comparative studies.
- In-depth research on fuel cell technologies to enhance performances..

Software Trainee, *Dlithe Consultancy Services Pvt. Ltd* 2020
Bangalore, India

- Gained proficiency in programming with Python 3 and enhanced my problem-solving skills using the language.
- Participated in hands-on exercises and projects, applying Python 3 to solve real-world problems and gaining practical experience

Summer internship, *Fins N Feathers* 2019
Bangalore, India

- Estimation of thrust for determining and designing propeller length, in order to ensure maximum efficiency and performance.
- An extensive study of various design mechanisms applied to UAVs was conducted to optimize the Hexacopter for agricultural use.
- Development of a Hexacopter prototype for agricultural use, including modeling, analysis, 3D printing, and testing.

PROJECTS

Bachelor Thesis - Performance Analysis of a single cell Solid Oxide fuel cell (SOFC), *Indian Institute of Science, Bangalore* 02/2021 – 05/2021

Combustion, Propulsion, and Gasification Laboratory (CGPL)

- Worked on numerical and experimental analysis of a single-cell Solid Oxide fuel cell (SOFC)
- Numerical investigations were based on the COMSOL Multiphysics 5.4 module for optimizing efficiency and power output by varying temperature, air-fuel ratio, and hydrogen concentration.
- Experimental tests were conducted by varying the temperature, air-fuel ratio, and hydrogen concentration.
- Conducted a detailed literature survey on fuel cell technologies, reaction kinetics, and thermodynamics.

CERTIFICATIONS

- Google Data Analytics Professional Certificate, Coursera
- Python basics, Coursera by University of Michigan
- Python programming by Dlithe Consultancy Services Pvt. Ltd
- Aircraft Structures-1 NPTEL by IIT-Kharagpur
- Introduction to Data Analytics using Microsoft Excel, Coursera Guided projects
- Basic programming using Python offered by FOSSEE , IIT-Bombay
- CFD workshop using OPEN-FOAM by ISTE, Nmamit

SKILLS

Software Skills
Python, SQL, MATLAB

Soft skills
Content writing, Critical thinking

Design
PTC Creo parametric, SolidWorks

Other tools
Microsoft Office, COMSOL Multiphysics, Tableau

CO-CURRICULAR ACTIVITIES

Magazine committee head, *Dept. of Mechanical Engineering, NMAMIT* 2021 – 2022
Responsible for leading a team of students in the creation and publication of a high-quality, student-run magazine.

Team Incridea, *The annual fest of NMAM Institute of Technology* 2019 – 2021
An active member of the organizing and publicity committee for three years.

Team Overhaulin', *Technical fest of the Mechanical Engineering branch* 2019 – 2020
A core member of the fest organizing committee.

Internal Hackathon, *Smart India Hackathon* 2020
Presented a project in the competetion.

Trainee, *APEX HI-TECH Institute* 12/2019
Training Programme on Material Handling systems using SIEMENS S7-PLC

Volunteer, *Make a Difference (MAD), A Non-profit organisation* 2017
Volunteered as a science educator for underprivileged 8th and 9th-grade students.