

Harsh Desai

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EDUCATION

Vellore, IND

Jul'19 - Jul'23

Vellore Institute of Technology, Vellore

B. tech - Mechanical Engineering

Worked Majorly on: Computational Engineering & Simulations - CFD, CAE

SKILLS SUMMARY

Languages: Python, R, SQL, JAVA, MATLAB

Web: HTML5, JavaScript, Node.js, ReactJS, Flask

ML Frameworks: TensorFlow, PyTorch, LangChain

Data Tools: Tableau, Google Data Studio, QGIS, BigQuery, Google AppScript, AppsFlyer, PowerPoint

Mech Tools: ANSYS(GUI/TUI): Fluent, Mechanical, ICEM; PyFluent, OptiSlang, SolidWorks, Fusion 360, AutoCAD, Autodesk Inventor, MIDO, Xflr5, RocketPy, OpenRocket

WORK EXPERIENCE

Sep'23 – Present

Pune, IND

Predictive Insurance Modeling for Agriculture

Research Assistant, @ Christ University

- Deploying a TensorFlow model for comprehensive weather prediction using time-series data.

Objective: Enhance weather forecasting to refine insurance rate predictions for the Agricultural Sector.

- Leveraging GeoSpatial data with QGIS + image processing to analyze crop & soil for insurance risk assessment.

Goal: Optimize premium adjustments based on real-time climate insights and crop/soil health.

Jan'23 – Jul'23

Noida, IND

Marketing Analytics Intern

ET Medialabs Pvt. Ltd. - ETML

- Efficiently Executed Growth & HyperGrowth Strategies for a couple of clients - Urban Company, UAE & Dr. Ameet Parekh Coaching; enabling a sustainable rate of Customer Acquisition with a 7% MoM Organic Revenue Incrementality.

- Dealt with extensive Marketing Analytics and Consumer Pattern recognition to improve Marketing performance & Audience Targeting.

Dec'19 – Oct'22

Vellore, IND

Mechanical Lead

Team Sammard Rocketry

- Represented India at numerous International Aerospace Competitions- the SA Cup and CANSAT, building High-powered rockets capable of reaching 10,000 ft, breaking speeds of 0.9 Mach number.

- As Mechanical Lead, conducted project planning meetings to coordinate mechanical system designs with structural and Avionics teams, mitigated design conflicts, and harmonized delivery timelines.

Jun'22 – Jul'22

Visakhapatnam, IND

R&D Intern - Simulations for NSTL's IRSS

PEC Simulations

- Infrared Suppression: Developed an Infrared Suppression System model targeting a 50-60% IR signature reduction used in Naval ships for NSTL, India.

- Used ANSYS Fluent for simulations and OptiSlang for design optimization across extensive datasets, by conducting sensitivity analysis and Multi-objective optimization techniques.

Jun'22 – Jul'22
Visakhapatnam, IND

Project Intern

ROSYS Group

- Redesigned the Agri-assistant Hexacopter, IC Medium drone, focusing on aerodynamic performance enhancement through ANSYS Fluent simulations and PIDO flow optimization for optimal thrust.
- Designed and simulated multirotor drone propellers Optimization model using ANSYS Fluent to analyze thrust and efficiency, leading to an optimal design for various multi-spec drones.

PROJECTS

Aug'20 – Jul'21

CANSAT 2021(Organized by NASA & AAS)

Critical Design Review: [Link](#)

- Simulated an atmospheric re-entry vehicle in the CANSAT mission with two Maple Seed-inspired Monowing payloads for live telemetry; developed custom SRAD Ground Control Software.
- Created and optimized a Mono-wing design using transient simulation for flow analysis, employing a MATLAB script for maximum torque and efficiency.

Aug'20 – Jul'23

FAA Class II Solid Motor Sounding Rocket (@ SA Cup)

Project Technical Report: [Link](#)

- Built a Sounding Rocket targeting 10,000 ft. using a solid rocket motor capable of reaching 0.9 Mach. Successfully launched it this year at Spaceport America, USA.
- Dealt with exterior ballistics Design + Simulations, while coordinating mechanical system designs with Avionics, mitigating design conflicts, and harmonizing delivery timelines.
- Developed a PID-controlled payload with real-time pitch correction and integrated advanced avionics using dual-deployment altimetry and GPS tracking.
- Built an SRAD FSW + Flight Simulator capable of predicting trajectory based on design optimisation done via back-end CFD Simulation.

POSITIONS OF RESPONSIBILITY

Vellore, IND
Jan'21 - Apr'22

Association of Energy Engineers, AEE

Secretary

- Joined AEE as a technical member, leading research in wind and solar energy, optimized Horizontal Axis Wind Turbine using CFD sim based on Blade Element Theory analysis.
- As AEE Secretary, spearheaded technical workshops, industry-academia interfaces, and mentored engineers in renewable energy projects, addressing climate change awareness.

ACHIEVEMENTS

Special Achievers Award recipient 20219-22 ([Link](#))

- Recognized as a Special Achiever by VIT for outstanding international representation and performance.

SA Cup 2021 (organized by ESRA) ([Link](#))

- The team secured 23rd rank globally, being 5th in Asia-Pacific at our very first attempt.

CANSAT 2022 (Tethered Payload)-Organized by NASA & AAS ([Link](#))

- secured a personal best worldwide rank of 7th.

International CANSAT Competition 2021 (Organized by NASA & AAS) ([Link](#))

- Team Sammard secured a brilliant position of 13th globally and 7th in Asia-Pacific.