ASHWINRAJ MANIKANDAN RENUKA

AERONAUTICAL ENGINEERING MASTER'S STUDENT

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ABOUT ME

A results-oriented Aeronautical Engineering Master's student at Politecnico di Milano with a BTech minor in Data Science. Proven expertise in CFD simulations using ANSYS Fluent, 3D modeling in Solidworks and CATIA, and trajectory analysis with Python and MATLAB. Eager to secure a challenging aerospace internship to apply my skills in high-speed aerodynamics and computational analysis to real-world engineering problems.

EDUCATION

2025 - Present
Politecnico di Milano

Master of Aeronautical Engineering

2020 - 2024
Manipal Institute of Technology, Manipal

Bachelor of Technology in Aeronautical Engineering | 8.9 CGPA

EXPERIENCE

Jan 2024 - May 2024
Undergraduate Thesis

Analyzing Aerodynamic and Fuel Mixing Efficiency of Rocket-Based Combined Cycle Using CFD

- Conducted a six-month thesis project using ANSYS software for computational fluid dynamics (CFD) simulations.
- Analyzed the aerodynamic and mixing efficiency of a novel rocket-based combined-cycle engine by evaluating terminal shock positions, Total Pressure Ratio (TPR), and propellant mass fractions.
- Aimed to understand the impact of engine design on performance through quantitative analysis.

2020 - 2023
thrustMIT - Student Rocketry Team

Team Leader & Head of Aerodynamics

- Team Leader & Head of Aerodynamics: Managed and mentored a team of 40 members across multiple sub-systems, ensuring project milestones were met on schedule for a successful launch.
- Achieved an altitude of 10,331 feet (on a 10,000 feet target) at the Spaceport America Cup in the USA.
- Conducted extensive SUPERSONIC, TRANSONIC, and SUB-SONIC CFD simulations on ANSYS Fluent.
- Performed CFD and trajectorial simulations on airbrakes to optimise the rocket's velocity and trajectory.

2023
FOSSHACK 3.0

FOSSHACK 3.0 Hackathon

- Won ₹1,00,000(~$1100) as part of team Helios for developing a 6-DOF rocket trajectory simulator in Python.

2020 - 2023
IE-Aerospace

Advisory Board

- Developed and led a workshop teaching Flight Dynamics to first and second-year engineering students.
- Conducted a CAD design workshop using Fusion 360.

PROGRAMING SKILLS

- Python
- Solidworks
- MATLAB/SIMULINK
- Ansys Fluent
- Catia