Ratnam Patel

Mechanical Engineering Student

ratnampatel13@gmail.com

+918780353157

http://www.linkedin.com/in/ratnam-patel-524790197/

RESEARCH INTEREST

- CAD
- 3D Printing
- Finite Element Analysis
- Fluid dynamics
- Highspeed Aerodynamics

SKILLS

- 3D CAD Modelling using Fusion360 and SpaceClaim
- 3D modelling and animation using Blender
- Meshing using ICEM
- Fluid Simulation using ANSYS Fluent
- FEA of parts using ANSYS Mechanical
- Wing stability and lift analysis using Xflr5

EDUCATION

BITS Pilani, Goa Campus 8.1/10 (current)
B.E. Hons Mechanical

Anandalaya Education Society 92/100
Higher Secondary School

PROJECTS

Research Project under Prof. D.M. Kulkarni (January 14, 2022 - May 27, 2022)
CFD Simulation for heating of spacecraft during reentry

CFD analysis using Ansys Fluent and ICEM software. Where we simulated turbulent fluid flow over a spacecraft and its heating effect on the interior environment of the craft. This was to determine the thickness and material required for the insulation of the spacecraft.

Course Project in Microfluidics
Flow Simulation and optimization for microdroplet generators

Created 3D and 2D models for microdroplet generating devices which do not have any moving parts and analyzed changes in performance due to variation of scale, fluid composition and velocities.

Research Project under Prof. Ranjit Patil
Turbulent cyclic fluid flow analysis

Worked on “Effect of Variation of Geometry and Configurations on Performance of Cyclone Separator” using CAD modeling software, ICEM(for the meshing), and ANSYS Fluent for solving.

Study Project on Computational Fluid Dynamics (January 16, 2021 - May 24, 2021)
CFD Analysis

Worked on sample problems for FEA, heat transfer, and fluid flow simulations in ANSYS Workbench. Gained a deeper understanding of the mathematics involved in CFD and what happens behind the scene in software like ANSYS Fluent.

EXPERIENCE

Viram Technologies (May 29, 2021 - Present)
Engineering Intern

Performed FEA using ANSYS on a pressure vessel lid to check whether the weld thickness was sufficient. Learned about industry standards like ISO and ASME for reporting designs and applied the knowledge to create a detailed report about FEA findings. Mesh Independence, Global Equilibrium, etc checks were performed to validate results.

National UAV Design Challenge
Team Member

Design and analysis of Fixed-wing UAV with payload optimization monitored by a flight score. National rank: 6th

AIAA Design Competetion 2022 (August 01, 2021 - May 20, 2022)
Senior Member

Assisred junior team members in working with ANSYS, Solidworks, ICEM, Xflr5 and other modeling and analysis software as well as guided them during the physical building of the aircraft.

HOBBIES

- Photography
- Reading
- Animation
- Travelling
- Sketching
- Digital Art
- Swimming
- Badminton

LANGUAGES

- English
- Gujarati
- Hindi

POSITIONS OF RESPONSIBILITY

Media and PR Head (June 30, 2020 - July 29, 2021)
Aerodynamics Club

Handled all social media accounts of the club and created content for these pages along with coordinating work and events organized by the club and supervising various projects.

Sponsorship Head (July 31, 2021 - May 29, 2022)
Team Pegasus SAE Aero

Contacted various companies for sponsorships and subsidies on purchases of parts required for building aircraft for national/international competitions

TEACHING AND VOLUNTEER EXPERIENCE

Introduction to Aviation and Aerodynamics Course (December 31, 2020 - April 30, 2021)
Instructor

A course for freshmen students meant as a starting point for those interested in the aerodynamics and aviation industry and to equip them with the knowledge required to study further in these fields.

Peer Mentorship Program
Mentor

Guided first-year students in decision-making related to curricular and co-curricular choices.

Department of Photography (September 10, 2019 - May 26, 2022)
Core Team member

A part of event coverage and photo/video-editing team in the cultural fests of the college.