JEYADITYA BABU

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ABOUT ME

I am an energetic and research-driven MS (Research) student in Applied Mechanics at IIT Madras, with a solid foundation in mechanical engineering and a keen interest in solid mechanics, CFD, and AI integration. A quick learner with strong analytical skills, I thrive in interdisciplinary environments and enjoy taking initiative in both academic and team settings. My experience spans high-impact simulation projects and technical research, and I bring a proactive mindset, leadership ability, and a consistent focus on learning and growth to every challenge I take on.

EDUCATION

Master of Science by Research (2025-Present)
Indian Institute of Technology Madras
Bachelor of Technology in Mechanical Engineering (2021-2025)
Vellore Institute of Technology, Chennai, CGPA: 8.31
CBSE, Class XII (2020-2021)
Sri Chaitanya Techno School, K R Puram, Bangalore, Percentage: 82.4

CBSE, Class X (2018-2019)
Vagdevi Vilas School, Marathahalli, Bangalore, Percentage: 87.6

SKILLS

- **FEA –** ANSYS (APDL, Workbench)
- **CFD –** ANSYS (Fluent, CFX)
- **CAD –** Solidworks, Siemens NX, Fusion 360
- **GCODE-** CNCTRAIN
- **Python**
- **Java (Basics)**

PROJECTS

- **CFD STUDY ON CO2-DILUTED OXY-FUEL COMBUSTION (PRESENTED IN iMECHON'25, VIT Chennai)**
  Developed a CFD model in ANSYS Fluent to simulate non-premixed turbulent jet flames and replicate experimental results of CO_2-diluted oxyfuel combustion using a methane-hydrogen blend; analysed concentration profiles of key species (O_2, H_2O, H_2, CO).
- **A COMPARATIVE STUDY OF CFD AND PHYSICS-INFORMED NEURAL NETWORKS FOR AIRFOIL SELF NOISE PREDICTION**
  Compared CFD and Physics-Informed Neural Networks (PINNs) for airfoil noise prediction; performed CFD simulations in ANSYS Fluent and validated results with experimental data; developed a PINN model to achieve faster predictions with comparable accuracy.
- **A PYTHON-BASED EVALUATION TOOL FOR COST-PER-KWH ANALYSIS IN COMBINED CYCLE POWERPLANTS**
  Developed a Python tool to automate gas turbine selection for 1x1 combined cycle power plants based on user inputs (capacity, fuel type); evaluated fuel and O&M costs to compute total cost per kWh for informed decision-making.
- **STUDYING BAUSCHINGER'S EFFECT USING ANSYS**
  Simulated the Bauschinger effect in mild steel using ANSYS as part of B.Tech Finite Element Analysis coursework; modelled cyclic loading with nonlinear material behaviour to study yield strength reversal, comparing isotropic and kinematic hardening.

PROFESSIONAL EXPOSURE

- **CFD-Based Design Optimization of a Pitot-Static Tube**
  Intern, MISOCHAIN | Sept 2023 – Dec 2023
  Developed a CAD model of a pitot-static tube based on theoretical principles and literature review. Conducted CFD simulations in ANSYS to study pressure errors at high angles of attack, and used the results to optimise the nose of the pitot tube to reduce pressure error. This was part of a project funded by HAL.
- **Intern – Hyundai Motor India Limited, Sriperumbudur** | *August 2023*
  Observed and studied vehicle assembly operations in one of India's most advanced and efficient automotive manufacturing plants. Suggested changes based on observation to reduce errors made during the final assembly process.

WORKSHOPS

- Attended a two-day online national workshop on Finite Element Analysis Tools- ANSYS APDL – Multiphysics (May 2023)
- Attended a conference on "Supercritical Thermal Power Plants" In VIT Chennai (January 2023)
- Visited VIKI INDUSTRIES PVT LTD in Chennai (2022)

HOBBIES

Badminton, Basketball, Sketching, Poetry and Short story writing.