ADITYA KEDAR BHALERAO

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EDUCATION

North Carolina State University, Raleigh, USA **Expected May 2026**
MS in Mechanical Engineering
Courses: Advanced Precision Manufacturing, Micro/Nano Electromechanical Systems, Finite Elemental Analysis.

D J Sanghvi College of Engineering, Mumbai, India **June 2024**
Bachelor of Technology in Mechanical Engineering l Minor in Data Science. **CGPA 8.16/10**

PROFESSIONAL EXPERIENCE

Teaching Assistant, MAE Department, NCSU **September 2024- December 2024**
Grader-Mechanical Aerospace Department

- Grading assignments and projects for the subjects MAE 435- Principles of Automatic Control.
- Assisting Dr. Fen Wu in maintaining academic records for the course.

TATA Power Company LTD., Mumbai, India **June 2023- August 2023**
Internship Trainee– Mechanical Maintenance Department

- Overviewed the preventive maintenance of the sea water booster pumps.
- Assisted in the daily inspection of the instruments and reported it to the field engineers.
- Performed calculations to find heat rate in an open cycle and combined cycle in the peak summer and peak winter at different load variations.
- Worked closely with the Performance department and operational department to generate essential data for the heat rate fluctuation study.

PROJECTS

DJS Skylark SAE Aero Design Team

- Secured 3rd rank worldwide in regular and Micro class SAE Aero Design East 2022. Designed the wing skeleton of the two flight-worthy aircraft, using SolidWorks.
- Researched various methods to reduce stress and strain on the wing skeleton, to deal with load fluctuation.
- Overviewed the assembly of aircraft, designed servo mounts and fabricated them using a 3D printer.
- Generated essential data by performing CFD analysis on Ansys to design and optimize aerodynamics of plane.

Mechanism for an Adaptive Nozzle

- Designed a thrust vectoring augment for an RC plane jet engine(JETCAT P 60 SE) which provided operational variability from 0° to 15°.
- Developed a mechanical control system using ball socket and slider crank mechanisms, enabling precise directional and nozzle exit area control.
- Achieved 4% increment in maximum jet velocity by performing CFD iterations on ANSYS.

Design and Development of Economic Bladeless Fan

- Collaborated with a team to create a detailed model of Bladeless Fan on SolidWorks.
- Utilized interpolation on XFLR5 and implemented CFD analysis using Abaqus software to enhance airflow efficiency.
- Employed 3D printing for rapid prototyping.
- Reduced the cost of the product by 40%.

Automated Gate Opening Mechanism

- Programmed an automated gate-opening mechanism on Arduino for the classroom doors.
- Implemented ultrasonic sensors, motors, motor controllers and proximity sensors to enable seamless communication between the gate control system and user interface.

TECHNICAL SKILLS

- CAD Software: SolidWorks, Inventor, AutoCAD.
- Simulation Software: ANSYS Fluent, XFLR5, Abaqus.
- Codding Languages: Arduino, Python, C++, MATLAB.

COURSES AND CERTIFICATIONS

- EdX– Introduction to aerospace structures. (August 2023)
- NPTEL– Rocket Propulsion. (April 2023)
- NPTEL– Advanced Robotics. (April 2023)
- NPTEL– Aircraft Propulsion. (October 2022)