ANSHUMAN CHAURASIA

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EDUCATION

Indian Institute of Technology (BHU), Varanasi, 2021 - present
Integrated Dual Degree in Mechanical Engineering CGPA : 8.57

Higher Secondary School Certificate (HSSC), 2020
Central Board of Secondary Education 86.4%

Secondary School Certificate (SSC), 2018
Central Board of Secondary Education 86.6%

SKILLS

Software	SolidWorks, ANSYS, Simulink, Simscape, Microsoft Office
Area of Interest	Computational Mechanics, Industrial Design, Mechatronics, and Mechanical Design with Machine Learning Integration
Languages	C, C++, Python, MATLAB

EXPERIENCE

Research Intern - Design Engineer May 2023 - Jul 2023
Robert Bosch Centre for Cyber-Physical Systems, Indian Institute of Science *Bengaluru, India*

- Studied the kinematics of the gearbox to analyse the parameters such as Gear Ratio, Face width, and Modulus.
- Implemented a Python program to optimize the number of teeth to achieve an impressive gear ratio upto **32.6**.
- Reduced the weight of gearbox by **20%** by optimizing the face width of the existing gearbox of STOCH 3.

Design and Simulation Engineer Jun 2023 - Jul 2023
Vayv Energy Pvt. Ltd *Remote Internship*

- Conducted a literature review of NREL resources to select an **S288** airfoil and relevant parameters.
- Simulated the constant flow of **2 m/s** across the turbine in ANSYS FLUENT to extract the parameter curves.
- Validated the simulation using the data from **Journal of Mechanical Engineering and Sciences**.
- Developed mathematical models for the Coefficient of Torque and the Coefficient of Power using MATLAB

PROJECTS

The Robotic Charging Challenge (by JLR), Jan'23-Feb'23,
A team project for INTER IIT Tech meet 11.0 (Project)

- Engineered an autonomous robotic arm for EV charging,covering **97.86%** of workspace with minimal linkages.
- Developed a unique power transmission system utilizing gear, pulleys, and belts for optimal control.
- Designed a kirigami-inspired end effector enabling **omnidirectional socket movement** with exceptional flexibility.

Design and development of laboratory scale Tornado simulator, Jan '23-Mar'23,
A project by BRNS under Associate Professor Dr Arnab Sarkar (Project)

- Developed tornado simulator for structural vulnerability test, using guided airflow for swirling effect.
- Conducted ANSYS Fluent analysis to visualize tornado formation's pressure, velocity and vorticity regions.
- Fabricated a physical model of the tornado simulator, achieving **78%** accuracy in results as compared to simulated values.

Integrating Art of Origami in Structural Mechanics, Jan '23-May'23,
An exploratory project under Associate Professor Dr Amit Tyagi (Project)

- Developed innovative origami structures with negative Poisson's ratio to absorb and distribute impact forces.
- Explored applications in softening sudden jerks, particularly in quadruped robots prone to actuator damage from abrupt movements.

SUPRA SAEINDIA: Formula Student Racing Car, July '22-present,
Design and Analysis of Chassis for FSAE Car under SAE, IIT (BHU), Varanasi (Project)

- Designed Formula Student Car Chassis, optimizing strength, weight reduction ergonomics
- Conducted FEA of chassis in Ansys, achieving weight reduction by 15% and increased strength by 97%.
- Chassis fabrication with AISI 1018 steel pipes, employing arc welding and utilizing pipe end profiling and fixtures.

RELEVANT COURSES

- **MA 201**: Numerical Techniques
- **ME 214**: Mechanics of Materials
- **ME 223**: Kinematics of Machines
- **ME 224**: Mechanics of Deformable Solids
- **ME 261**: Metal Machining & Machine Tools
- **MA 202**: Probability and Statistics
- **EC 422**: Artificial Intelligence
- **ME 231**: Fluid Mechanics and Fluid Machinery

LEADERSHIP

Joint Secretary: Society of Automotive Engineers, IIT (BHU) Varanasi July 2023 - Ongoing,

- Managed human resources and finances while leading an innovative RC Car automation project.
- Played a vital role in the Formula Student Car chassis team and provided guidance to freshmen through SolidWorks and Ansys workshops.

Training and Placement Representative, IIT(BHU) July'23- present,

- Successfully administered hiring drive of internships and full-time role by coordinating 50+ processes hassle-free.
- Communicated with HR of companies and helped them with on-boarding the placement and internship process.

HONOURS AND ACHIEVEMENTS

- 1st Runner up in Throttlepedia of Technex'22, IIT (BHU)
- 1st Runner up in Bravo Airfoil Challenge- intra-fresher, IIT (BHU)
- Amongst top 50 teams in Boeing's National Aeromodelling Festival'23-North Zone, IIT K
- 1st Runner up in PMx of Udgam'23, IIT Guwahati
- Secured AIR 7221 in IIT-JEE Advanced'21 among one million+ students.