Shourya Sahdev

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*Available for **full-time internship** from June 15, 2024, to January 15, 2025*

Education

- **University of Illinois Urbana-Champaign (UIUC)** Expected May 2025
  Master of Engineering in Mechanical Engineering GPA: 3.68/4.00
  Coursework: Computational Mechanics, Applied Aerodynamics, Computational Design and Dynamics of Soft Systems, Experimental Stress Analysis, Carbon Capture and Storage, Finite Element Analysis
- **Delhi Technological University (Formerly DCE)** August 2017 - June 2021
  Bachelor of Technology in Production and Industrial Engineering GPA: 3.06/4.00
  Coursework: Solid Mechanics, Fluid Mechanics, Thermodynamics, Robotics, Mechatronics, Quality Eng.

Technical Skills

- **Software:** Solidworks, ANSYS Static Structural, ANSYS Fluent, Fusion360, AutoCAD, Star CCM, MS Office
- **Programming Languages & Libraries:** C, C++, Python, MATLAB, Numpy, Matplotlib, HTML, CSS, Arduino
- **Processes:** Mechanical Design, Vehicle Architecture, Design for Manufacturability, GD&T, Rapid Prototyping

Work Experience

SLB (Formerly Schlumberger) | Capstone Project February 2024 - May 2024
Topic: Shock Damper Design Champaign, IL

- Conducted a comparative study to identify the optimal damper design for shock mitigation within a drill

Delhi Technological University | Mechanical Engineering Intern December 2021 - January 2023
Topic: Aerodynamic and Structural Optimization of a Fixed Wing UAV Delhi, India

- Carried out Multi-Disciplinary Optimization of a Fixed-wing UAV design, focusing on electric propulsion
- Implemented governing equations in Python to select optimal airfoil parameters (Cl, Cd) for airfoil selection
- Optimized wing size, wing sweep, tail size, and tail position for balanced cruise and takeoff performance

Delhi Technological University | Mechanical Engineering Intern June 2020 - January 2021
Topic: Evaluating the effect of process parameters on FSP of AL5083 alloy using ANSYS Delhi, India

- Constructed 3-D thermomechanical model of FSP of Aluminium 5083 using FEA in ANSYS 18.1
- Studied impact of 4 process parameters, identified optimal parameters for desired stir zone properties
- Reviewed over 40 publications on FSP, documented a comprehensive report on process optimization, development, and applications, and published the study in Annales de Chimie - Science des Matériaux 2021

Maruti Suzuki, India | Industrial Engineering Intern June 2019 - July 2019

- Researched application of 4 types of bearings used in spindle assembly
- Identified 7 failure modes observed in a spindle assembly to help reduce lead time and maintenance costs

Academic Projects

Human Powered Vehicle (Team Raftaar, DTU)

- Leveraged expertise in multi-wheel **vehicle dynamics** to design a low-racer recumbent bike and tadpole frame, featuring a 40% lower frontal area, and optimized vehicle ergonomics, aerodynamics, and handling
- Designed aerodynamic fairing with NACA airfoil, minimizing flow separation and enhancing performance
- Improved the mold **manufacturing** process, reducing costs by 60% through innovative use of styrofoam for pattern creation and implemented vacuum-assisted resin infusion for manufacturing **carbon fiber** fairing

Mobile Robotic Arm

- Designed a flexible cost-efficient mobile robotic arm system capable of performing pick up and place operations suitable for Small and Medium Enterprises (SME) manufacturable using **3D Printing**
- Enhanced the robot's design by optimizing its weight and strength by applying **Topology Optimisation**, reducing the overall weight by 50%. Applied Pugh's selection process for material selection

Unmanned Aerial Vehicle

- Developed a mathematical model in **Simulink** to analyze rotational and linear dynamics of the vehicle
- Integrated PID control in Simulink, to study the impact of environmental disturbances on vehicle control
- Fabricated vehicle using **additive manufacturing** and compared simulation results to real-life performance

Leadership Experience

Team Raftaar, DTU | Vice-Captain

- Guided a team of 20 students through the design and development phase of the human-powered vehicle
- Achieved speeds of up to 50 mph using only human power during vehicle testing phase