GAURAV JOSHI

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ACADEMIC QUALIFICATION

- **University of Washington** — Seattle, United States
Incoming Master's student in Aeronautics & Astronautics — *Aug 2024 - Jun 2026*
- **Sant Longowal Institute of Engineering [SLIET]** — Punjab, India
Bachelor of Engineering - Mechanical Engineering (Hons); GPA: 9.26/10 — *Jul 2018 - Jun 2022*

PROJECTS

- **Optimization of tractor production through strategic poka-yoke implementation:** Devised and implemented poka-yokes in a production facility handling over 100 tractor variants. Developed a barcode scanning system for part verification and integrated a comprehensive database with SAP's BOM. Collaborated with programming and stores teams to improve part identification, stacking, and tagging methods. This significantly mitigated the risk of incorrect part feeding. Training of operators on the new system led to enhanced production efficiency, reduced complaint reports, and improved product quality and customer satisfaction

- **Microstructural Mechanical and Corrosion Characterization of Additively Manufactured Stainless Steel**: Characterization of AISI 316L behavior manufactured via Wire Arc Additive Manufacturing (WAAM) through cold metal transfer for research. Utilizing Cyclic Potentiodynamic Polarization test (CPP), Electrochemical Impedance Spectroscopy (EIS), Double Loop Electrochemical Potentiodynamic Reactivation (DLEPR),Fatigue Crack Growth Rate (FCGR) tests, MATLAB and Simufact Additive for analysis

- **Investigations of deposition strategy on wire-arc additive manufacturing of austenitic stainless steel components**: Investigated metal deposition strategies in wire arc additive manufacturing for AISI 316 L stainless steel, employing the cold metal transfer method. It underscores the critical role of path planning in mitigating failures and financial losses. This establishes standardized welding parameters and pinpoints the optimal fabrication strategy, curtailing waste and distortion.

- **Suspension Design of All-Terrain Vehicle (ATV)**: Designed and developed an ATV's suspension system, decreasing sprung mass by 20% and improving ride characteristics in trails using MSC Adams, ANSYS-Static & Transient, Altair Hypermesh, Solidworks, Lotus SHARK; Performed DFMEA of the designed components

- **Optimization of Continuously Variable Transmission (CVT)**: Created the ATV's simulation model through SIMULINK Blocks and enhanced its effectiveness. Executed and confirmed the refined parameters obtained from the simulation by using CvTech LP3 CVT with Briggs & Straton BAJA Engine. Used MATLAB, Powertrain Blockset, and Simulink

- **Forward Kinematics of Robotic Arm**: Utilized MATLAB to create and analyze the forward kinematics of a 2R robotic arm using the Denavit-Hartenberg Transformation method

- **Simulating pendulum's transient motion using ode45 numerical solver**: Simulated the transient motion of a pendulum using the ode45 numerical solver in MATLAB. This involved creating a mathematical model of the pendulum and implementing the solver to simulate the pendulum's motion over time

- **Optimization using Genetic Algorithm in MATLAB**: Implemented a Genetic Algorithm in MATLAB for optimization tasks. This project required understanding of genetic algorithms and their application in optimization problems. The algorithm was successfully used to find optimal solutions for stalagmite functions

PUBLICATION: *Gaurav Joshi*, A.S. Shahi, Prediction of angular distortion in austenitic stainless steel welds using finite element analysis, Materials Today: Proceedings, Volume 62, Part 14, 2022, Pages 7517-7522, ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2022.04.285.

WORK EXPERIENCE

Mahindra & Mahindra Ltd., Chandigarh — **Assistant Manager** — *Aug 2023 – Mar 2024*

- Focusing on process and operations, responsible for ensuring the introduction of new products and processes, coordinating and working with cross-functional teams, developing, optimizing production processes, and ensuring the efficient implementation of new products within the manufacturing environment

Mahindra & Mahindra Ltd., Chandigarh — **Graduate Trainee** — *Aug 2022 – Aug 2023*

- Part of a dynamic team ensuring production of top-notch castings (ASTM CI Grade-25), overseeing production planning, scheduling, and manpower handling
- Addressing daily process issues, ensuring safety, implementing 5S, continuous improvements, Jishu hozen activities, and enforcing process compliance

Vehicle R&D Establishment (VRDE), Ahmednagar   **Intern**   *Feb 2022 – June 2022*
- Performed crucial numerical calculations to create a compact heat exchanger for a combat vehicle's power pack along with tackling challenges associated with heat signature and space constraints, emphasizing the reduction of thermal signatures for enhanced stealth capabilities. Considered various operational conditions essential for combat vehicle operation and used advanced methods, integrated computational fluid dynamics simulations with porous media techniques to design an efficient cooling pack

Training & Placement Department, Longowal   **Student Placement Representative**   *May 2021 – Feb 2022*
- Facilitated student placements into internships and employment opportunities. I established and nurtured relationships with a diverse range of employers expanding placement options for students. Providing personalized support
- Guided students through the placement process, assisting with resume preparation, interview coaching, and job search strategies. Additionally, I managed administrative tasks, ensuring compliance with placement policies and maintaining accurate records.

Tema India Ltd., Silvassa   **Intern**   *Jul 2021 – Aug 2021*
- Conducted an in-depth study on the ASME Boiler Pressure Vessel Code SEC VIII Div. 1 and SEC IX 2019 Edition, emphasizing Non-Destructive Examination (NDE) techniques, including Radiographic Testing (RT), Ultrasonic Testing (UT), Penetrant Testing (PT), Magnetic Particle Testing (MT), and diverse Quality Assurance methods

Junkyard Warriors, Longowal   **Team Lead**   *Jan 2019 – Dec 2022*
- Led the vehicle dynamics efforts, focusing on conceptualizing, designing, and fabricating an All-Terrain Vehicle (ATV). Conducted comprehensive research to understand vehicle dynamics principles, I optimized suspension, steering, and handling for peak performance. Utilizing simulation tools and extensive testing, I refined design concepts to ensure peak performance on rough terrains. Collaborating closely with teammates, I contributed to the development of a high-performance ATV that excelled in the challenges of the BAJA SAE competition. This experience enhanced my skills in project management, problem-solving, and teamwork.

Institute's Student Mentor, Longowal   **Mentor**   *Aug 2019 – July 2020*
- Supported a group of nine students, addressing academic concerns, and aiding in their adjustment to campus life. Through attentive listening and clear communication, I provided personalized guidance and solutions to foster academic success. Additionally, I offered counseling and resources to ease the transition to campus life, promoting a supportive environment. My role involved fostering effective study habits, time management skills, and connecting students with campus resources.

SLIET Alumni Association, Longowal   **Event Manager**   *Aug 2018 – Feb 2019*
- Coordinated and executed various student body events. My responsibilities included planning, organizing, and overseeing event logistics, creating engaging content for promotions and communication materials, and designing visually appealing graphics to enhance event materials. Through my multifaceted role, I contributed to the successful execution and promotion of events, fostering a sense of community and engagement within the SLIET Alumni Association.

ACTIVITIES/ACHIEVEMENTS/CERTIFICATIONS
- Best performer in training *"Operational Excellence for Young Engineers"*, Mahindra & Mahindra   *Sep 2023*
- Contributory talk, 9th International Conference on *"Advancements and Futuristic Trends in Mechanical and Materials Engineering,"* IIT Ropar   *Dec 2021*
- Participant, AIT 5-Minute Research Pitching, Asian Institute of Technology Thailand   *Oct 2021*
- Simulink for Mechanical and Electrical Engineers, MATLAB for Mechanical Engineers; Skill-Lync   *Nov 2020*
- *"Pride of Punjab"* Award, BAJA SAEINDIA, Society of Automotive Engineers India   *Mar 2020*
- Participant, Aravalli Terrain Vehicle Championship and Mega ATV Championship, Infileague motorsports and Autosports India, respectively   *Mar 2019*
- Participant, Regional-level, 24th National Children's Science Congress   *Oct 2016*
- Volunteer, Ministry of Jal Shakti, Dept. of Water Resources, India   *Sep 2019 - Nov 2019*