

# SANSHRAY GHORAWAT

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## EDUCATION

### University of California, Davis

B.Sc. in Mechanical Engineering

GPA: 3.47

Davis, CA

Graduation Date: June 2025

- **Relevant Coursework:** Principles of Design, Principles of Manufacturing, Mechanics of Materials, Thermodynamics, Thermo-fluid Mechanics, Automotive Infrastructure, Control Systems Design, Mechatronics, Probabilistic Systems Analysis

## SKILLS & INTERESTS

- **Software:** SolidWorks, SiemensNX, Fusion, ANSYS, Python, C++, MATLAB, Arduino IDE, Microsoft Office Suite
- **Hardware:** Machining (Lathe, Mill, Vertical Bandsaw), 3D Printing, CNC Manufacturing
- **General and Interpersonal:** Research, Project Management, Communication, Technical Writing, Public Speaking

## PROFESSIONAL EXPERIENCE

### Surface Moto

Special Projects Intern

New Delhi, India

Sep 2024 – Present

- Assisted a non-technical design team in transitioning from concept to production using engineering design principles and CAD design conventions.
- Leveraged SolidWorks and Fusion to redesign the C1 bike frame using DFMEA principles to reduce material volume costs by 12.5%, reduce production processes by 15%, and reduce production time by 2 hours per unit.
- Cross-collaborated remotely with two engineers to design and deliver prototypes for cargo extensions with FEA analysis and accessory attachments; tested and prototyped to last over 350,000 fatigue cycles.
- Repackaged and modified the bike assembly to cater to hyperlocal delivery businesses, leading to revenue generation of \$150,000.
- Worked directly under the founder to conceptualize the company's, and India's first domestically manufactured, commuter electric bicycle using SolidWorks Assemblies and Electrical 3D.

## LEADERSHIP AND EXTRACURRICULAR ACTIVITIES

### ECOCAR Challenge, University of California, Davis

Drivetrain Subsystem

Davis, CA

Sep 2022 – Feb 2025

- Enhanced the 2021 Cadillac Lyriq's drivetrain efficiency to 93% and reduced rear subframe's weight by 16% through cross-collaboration with 4 sub-teams, linking a new motor and high voltage wiring seamlessly.
- Refined frame vibrations by 20% through simulated FEA models on SiemensNX for cutting and welding operations; operated a vertical marble saw for adjustments to rear trunk frame and D-pillar.
- Optimized the integration of a Magna e-Drive motor to the vehicle's rear drivetrain by designing and CNC manufacturing half shafts and bearings, assisted in 3D printing mounting brackets for the modified subframe resulting in a 15% increase in structural stability.
- Awarded best Hardware-in-Loop for Year 2, demonstrating a commitment to quality and results-based engineering.

### Formula SAE

Powertrain Subsystem

Davis, CA

Feb 2022 – Feb 2025

- Engineered a differential sprocket design on SolidWorks, and iterated on ANSYS to withstand 150 Nm, while maintaining a Factor of Safety of 2.5, resulting in improved drivetrain performance and reliability.
- Designed and repackaged a water-cooling system for an externally sourced battery pack, reducing the maximum temperature by 15%, and significantly improved thermal management and battery performance using Simulink and MATLAB.
- Mastered the Harrison Lathe and vertical mill through comprehensive training modules and safety courses, leading to the assembly of the 2024 FE11 in record time, three weeks ahead of schedule.
- Competed and placed 6th in Cost, and 22nd Overall at the 2024 competition.

### EME 189L (Vehicle & Transportation Systems)

University of California, Davis

Davis, CA

Apr 2024 – June 2024

- Led a peer group of five engineers to develop a functional adaptive cruise control system, showcasing teamwork and engineering expertise in automotive technology.
- Developed block-diagrams and controller equations to generate actuating inputs to 3 feedback loops, ensuring enhanced driver safety and driving ease.
- Simulated 20 road and freeway scenarios and modeled precise lane centering and switching using Python (numpy), demonstrating usability and a consumer-centric approach to product development.