

# Rutej Talati

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## EDUCATION

**Pennsylvania State University**, University Park, PA. (Graduation: Dec 2025)

ME GPA: 3.5

Major: Mechanical Engineering, Minor: Physics.

**Dean's List:** Awarded for academic excellence in Summer 2023, and Summer 2024.

## EXPERIENCE

### Automotive Consultant

PwC Southeast Asia – Mumbai, India

(April 2025 – September 2025)

- Performed engineering benchmarking for Caterpillar, Kubota, and Tata-Hitachi platforms to identify performance and cost optimization opportunities.
- Analyzed hydraulic and drivetrain components to improve system efficiency and reliability in construction equipment.
- Supported Honda Motor Co. in its re-entry into the Indian market through Software-Defined Vehicle (SDV) localization analysis.
- Researched microchip supply chains and connected mobility systems to advise Honda on sourcing and integration strategies.

### Strategy & Market Research Intern

AIQ Space – Mumbai, India

(April 2025 – May 2025)

- Partnered with the CEO on six strategic projects, identifying three high-growth sectors for expansion.
- Assessed 12 drone-tech startups at IIT, recommending top candidates for GIS mapping investment in India.

## OTHER EXPERIENCE AND INVOLVEMENT

### Teaching Assistant, Mechanical Engineering (Thermodynamics)

(May 2024 - Present)

Pennsylvania State University, University Park, PA.

### Grader, Mechanical Engineering (Engineering Math)

(January 2024 – Present)

Pennsylvania State University, University Park, PA

## SOFTWARE PROFICIENCY

MATLAB      SOLIDWORKS      AutoCAD      Arduino      Excel

MSC ADAMS    CATIA            ANSYS        Fusion 360    Python

## LEADERSHIP AND INVOLVEMENT

### Autonomous Vehicle Team, Safety Technologies Lead

(August 2022- May 2025)

Nittany Motorsports Formula SAE Team, Chassis Lead

(August 2022 – March 2023)

Wind Energy Club, Member

(January 2023 – December 2024)

Society of Penn State Mechanical Engineers, Member

(August 2022 – Present)

## PROJECTS

### Research on the Aerodynamics of Formula 1 Cars

(January 2023 – March 2023)

- Researched aerodynamic efficiency of Formula 1 vehicles through CFD simulation and flow visualization for drag and downforce optimization.
- Analyzed how aerodynamic surfaces influence high-speed stability, cooling airflow, and acoustic behavior.
- Studied upcoming 2026 Formula 1 aerodynamic regulations, modeling rear wing and diffuser concepts aimed at reducing wake turbulence and improving following car stability.
- Published findings on ResearchGate; completed all CFD runs and documentation ahead of schedule by maintaining a detailed project workflow.

### Drive Axle Load Analysis – Dana Inc. / Shanghai Jiao Tong University (China)

(January 2025 – April 2025)

- Conducted static and dynamic stress analysis of drive axles to evaluate load-bearing capacity and fatigue life under cyclic conditions.
- Performed modal and frequency response studies to assess vibration sensitivity and NVH characteristics.
- Optimized geometry to reduce stress concentration by 6%, improving structural reliability and efficiency.
- Presented findings in the University Capstone Project; awarded People's Choice Award at the Capstone Showcase.

### Research Visit – Ola Electric (with Analysts from Bernstein Research)

(May 2025)

- Joined analysts from Bernstein Research on a research visit to Ola Electric's Krishnagiri Gigafactory to study large-scale EV manufacturing and battery integration processes.
- Met with CEO Bhavish Aggarwal and COO Hyun Shik Park to discuss localization, scalability, and innovation in India's electric mobility sector.
- Observed production operations, focusing on powertrain assembly, motor vibration isolation, and chassis integration.
- Collected technical insights on EV drivetrain design, acoustic behavior, and manufacturing practices for use in subsequent powertrain and NVH research.

### Powertrain and NVH Research – Ola Electric (Ola Roadster Program)

(May 2025 – August 2025)

- Conducted engineering analysis on the powertrain system of Ola's upcoming Roadster electric motorcycle to evaluate vibration, noise, and drivetrain smoothness under dynamic loading.
- Studied motor mounting architecture, transmission alignment, and damping strategies to enhance ride comfort and reduce mechanical noise.
- Assessed NVH performance across operating conditions using data from bench testing and simulation models.
- Provided recommendations for material optimization and isolation methods to improve acoustic quality and long-term reliability of the powertrain assembly.