

Raj D. Singh

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EDUCATION

Cornell University

Ithaca, NY

Mechanical Engineering Major; GPA: 3.67 (Dean's List)

Expected May 2026

- **Relevant Coursework:** Mechanics of Materials, System Dynamics, Propulsion, Spaceflight Mechanics (Fall 25), Mechatronics, Heat Transfer, Fluid Dynamics, Thermodynamics, Dynamics, Linear Algebra, Differential Equations

EXPERIENCE

Anduril Industries, Inc.

Costa Mesa, CA

Mechanical Engineering Intern

May 2025 – August 2025

- Designed and implemented drone full-vehicle long-life test stand
 - Designed large welded structure and performed modal analysis using Ansys to ensure structural stability
 - Designed and analyzed mechanical isolation system to ensure test stand would accurately simulate flight
 - Designed, built, and wired electrical enclosure to house data acquisition hardware, AC Power system, remote computer access, safety mechanisms, sensor instrumentation
 - Integrated electrical and mechanical systems to ensure usability, safety, future adaptability, autonomous operation
- Performed Ingress Protection Testing on battery pack
 - Built “snooping” apparatus to pressurize unit and locate air leaks, then prepared for MIL-STD-810 IPX7 Water submersion test
- Performed MIL-STD-810 Temperature Testing on charging enclosure
 - Wired heating elements, power supplies, e-loads, and thermocouples to simulate thermal load and measure cooling system performance. Recorded data using National Instruments Flexlogger software.
 - Used MATLAB to analyze data and validate system performance.
- Designed and implemented Vibration test fixture

Cornell Baja Racing

Ithaca, NY

Team Lead for ‘25–‘26 Season

October 2022 – Present

- Used Simscape and MATLAB to numerically model longitudinal performance of vehicle for first time in team history.
- Leading Overall Vehicle Testing for ‘25–‘26 season.
 - Performed full vehicle Longitudinal Acceleration Testing to quantify acceleration & power output, using an IMU, strain gauges, hall effect sensors, etc
- **Drivetrain Lead and Transmission Designer for ‘24–‘25 Season**
 - Led the design and manufacturing of our fully custom Continuously Variable Transmission (CVT), as well as peripheral components of the driveline (shafts, hubs, etc.)
 - Introduced mechanism to reduce belt friction on Primary post, facilitating a 5% increase in maximum torque and a reduction in power loss through increased belt tension while in idle position
 - Performed hundreds of hours of acceleration testing throughout the year (over 1000 acceleration trials)
 - Won 1st Place Hill Climb for first time in decade, 1st Place Overall, 1st Place Maneuverability against 100+ teams
- **Drivetrain Member for ‘23–‘24 Season**
 - Designed the Secondary Pulley of fully custom Continuously Variable Transmission
 - Utilized FEA to reduce mass by 4%, sheave deflection by 13.0%
 - Used MATLAB to more accurately model system efficiency and performance
- Prepared and performed testing to inform chassis & suspension load cases on ‘23–‘24 car
 - Applied and soldered strain gauges to critical points on frame and suspension links
 - Used Dewesoft data acquisition to collect strain gauge data
 - Used Wheel Force Transducer and data acquisition software
- Designed and manufactured reliable wire harnessing for the car’s brake light and engine kill switches on ‘22–‘23 car.

SKILLS

CAD

- Solidworks
- NX
- Fusion 360
- OnShape

Other Software

- Ansys
- MATLAB
- National Instruments DAQ
- Dewesoft DAQ
- Microsoft Excel

Manufacturing

- CNC Mill & Lathe
- Manual Mill & Lathe
- HSMWorks
- GD&T
- 3D Printing