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	Other Software	Manufacturing
• Solidworks	• Ansys	• CNC Mill & Lathe
• NX	• MATLAB	• Manual Mill & Lathe
• Fusion 360	• National Instruments DAQ	• HSMWorks
• OnShape	• Dewesoft DAQ	• GD&T
	• Microsoft Excel	• 3D Printing