

Pranav Gupta

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Education

Duke University, B.S.E in Mechanical Engineering | B.S in Computer Science | Aerospace Certificate Graduation: May 2027

- GPA: 3.74/4.0
- **Coursework:** Thermodynamics, Mechatronics, Dynamics, Statics, Materials, Fluids, Design I, II, Operating Systems, Computer Architecture

Experience

Powertrain Lead, Duke Motorsports (Formula Student) – Durham, NC Aug 2023 - Present

- Led 10-member subsystem to design and manufacture full Powertrain package (intake, exhaust, fueling, shifting, oiling) for FSAE race car, yielding an 8% gain in horsepower.
- Developed engine model using GT Power to evaluate design decisions, using outputted power curves that were within 5% of real-world testing data.
- Utilized Solidworks and ANSYS Fluent to redesign the intake manifold and restrictor by optimizing the volume and runner length, achieving an improvement in acceleration time by 10%.
- Designed dynamometer test bench using Solidworks and ANSYS Mechanical to allow for more refined engine tuning, successfully gearing down engine output torque to be within dyno max torque.

R&D Intern (Product Design & Development), Procter & Gamble – Boston, MA May 2025 – Aug 2025

- Developed new razor using existing razor design using Siemens NX and testing data utilizing rapid prototyping methods to reach minimum viable product (MVP).
- Designed new type of cartridge using Siemens NX and consumer research with design for manufacturing (DFM) methods to create minimum viable prototype for internal testing.

Software Engineering Intern, The George Washington University – Washington DC May 2024 – Aug 2024

- Created AI-based flight path optimizer utilizing ChatGPT API framework to select best flight path for unmanned aerial vehicles (UAVs) with 98% accuracy.
- Spearheaded design of initial framework for autonomous vehicle testing research using CARLA simulation.
- Published paper in digital avionics journal: <https://shorturl.at/XCTx3>

Engineering Lab TA, Duke University – Durham, NC Aug 2024 – May 2025

- Advised 30 first-year engineering students, assisting and teaching them to use various woodworking and metalworking tools, and helping them debug arduino circuits and code.
- Designed custom gear diagram using Solidworks and manufactured using 3D printing methods to educate first-years on different gear types and their uses.

Engineering Mentor, Valence Robotics – Durham, NC Aug 2023 – Present

- Educate 40 High School students from the Durham community on the design and manufacturing of a Worlds qualifying FRC robot using Onshape and various metalworking tools.

Intern, NASA Langley Research Center – Hampton, VA August 2021 – July 2022

- Collaborated on a simulated Mars mission with NASA mentors and students, focusing on mission planning, environmental constraints, and interdisciplinary team design.

Technologies

Software: Siemens NX | Solidworks CAD + FEA | ANSYS Workbench + Fluent | Autodesk Inventor & Fusion 360 CAD + CAM | C | Java | Python | GT Suite | Teamcenter | GD&T

Manufacturing: CNC Mill | CNC Lathe | 3D Printer | Waterjet Cutter | Laser Cutter | MIG Welding

Interests: Rock Climbing | Formula 1 & NASCAR Racing |