Jay Patel

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Education

Rutgers University-New Brunswick May 2025

Bachelor of Science in Aerospace Engineering - GPA: 3.39/4.00

- Dean's List Recipient | Fall 2023 and Spring 2024 | GPA: 3.6 and 3.8

Experience

Data Analyst, P4 Diagnostix – West Caldwell, NJ August 2021 – April 2022

- Responsible for digitizing several hundreds of biological samples so that correct tests can be run and results can be sent back as soon as possible
- Following company protocol for proper lab safety, participated in the testing of biological samples, including separating plasma, bloods, and urine
- Compiled results from lab testing in an organized manner in preparation for further testing and analysis
- Increased overall work efficiency by approximately 15% by developing a streamlined and efficient procedure for training new hires focusing on data collection efficiency and accuracy

Projects

Bipropellant Liquid Rocket Engine June 2024 - May 2025

- Developed the first prototype of a Nitrous Oxide and Kerosene bipropellant rocket engine alongside a group of individuals in an effort to prove feasibility
- Prototyped several injector plate with injection methods ranging from basic angled impingement to radial injections and chose an optimal design utilizing a Pintle injection method based on simulated data gathered from ANSYS Fluent/Mechanical
- Manufactured Pintle Injector following correct engineering standards (ISO) to ensure optimal flow and a tight seal between other components, confirmed through cold flow testing using water as a medium
- Performed hydro-static testing on all components to determine structural integrity at the target chamber pressure as well as determine the source of any potential leaks
- Created an electronic relay system using Arduino as a medium to actuate a set of four solenoid valves, control an electronic match to initiate combustion, and serve as a hub to collect data (Pressure and Force)

Fin Design (L2 Model Rocket) October 2024 - November 2024

- Optimized a minimum-diameter rocket using a J-Class motor that focuses on maximizing apogee by evaluating different areas of the rocket (fin design and material selection)
- Contributed to material selection and factored in the final material selection into the proposed design to theorize a range of max velocities and altitudes
- Simulated streamline and fluid flow data tested under various initial conditions and compared under the criteria of least detrimental fluid flow (such as turbulence)
- Designed an optimal fin shape using SolidWorks and stress tested the proposed 3D model in ANSYS Fluent/Mechanical to evaluate its structural integrity by conducting a parametric study at several velocities

Skills

Technical Skills: CNC/Manual Machining, SolidWorks, ANSYS Fluent/Mechanical

Software: MATLAB, Microsoft Excel, Microsoft Office

Interpersonal Skills: Project Management, Conflict Resolution, Positive Influence