Chirag A. Patel

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Education

Rensselaer Polytechnic Institute [Troy, NY] **December 2019**

B.S. Aerospace Engineering - Spacecraft Concentration GPA: **3.57**/4.00

Work Experience

Undergraduate Researcher, *The Center for Flow Physics and Control [Watervliet, NY]* *Jan 2017 – Present*

- Aided in the development of active flow control actuators, formerly funded by The Boeing Company, that are intended to mitigate flow separation through boundary layer and flow instability manipulation.
- Designed actuators for fabrication via conventional machining and SLA 3D printing.
- Performed water tunnel analysis of actuators and comparing results to experimental wind tunnel data.
- Writing MATLAB code to visualize wind tunnel PIV data and calculate flow field TKE and vorticity.
- Designed a glycerin tunnel that will be used for facilitating time resolved PIV flow analysis.

Launch Engineering Intern, *SpaceX [Cape Canaveral, FL]* *Sept – Dec 2018*

- Supported the launch operations of the Dragon 1 and Dragon 2 vehicle fluid and propulsion systems.
- Wrote scripts to analyze fluid system data for standard use in Dragon 2 propellant loading operations.
- Wrote procedures and developed fluid GSE for performing a water seal leak check on a flight vehicle.
- Learned how to read, interpret, and create facility and flight vehicle fluid system schematics.
- Sized and selected fluid system components such as regulators, relief valves, orifices, and solenoid valves.

Mechanical Engineering Co-op, *NASA Jet Propulsion Laboratory [Pasadena, CA]* *Jan – Aug 2018*

- Performed and analyzed ambient and TVAC tests of Mars 2020 Rover Sampling & Caching hardware.
- Redesigned a testbed for characterizing interactions between the Rover Coring and Caching systems.
- Wrote MATLAB scripts to automate testbed code creation, cutting development time significantly.
- Wrote standard assembly and test procedures for various ground support equipment and testbeds.
- Set up a NI data acquisition (DAQ) system to collect data for a wind tunnel test of the Mar Helicopter.
- Learned about spacecraft mechanism test methods, setups, and data acquisition systems.

Mechanical Design Engineering Intern, *Teradyne [North Reading, MA]* *June – Aug 2016*

- Designed and tested a prototype circuit board liquid immersion cooling system.
- Produced and tested a prototype circuit board probing system using a UR3 collaborative robot.
- Redesigned sheet metal components of an existing power control unit to improve ease of maintenance.

Mechanical and Automation Engineering Intern, *Teradyne [North Reading, MA]* *July – Sept 2015*

- Designed 3D models detailing interactions between the company's and customer's products.
- Collected and analyzed vibration dynamics data using a NI DAQ, accelerometers, and MATLAB.

Clubs and Activities

Rensselaer Motorsport [Formula SAE] - Team Member *2016 – 2017*

- Worked with two other students to design an engine cooling system. Focused on the thermodynamics and fluid dynamics aspect of the project. Used SolidWorks, MATLAB, and Star CCM+ to iterate on designs.

Leadership Experience

Scholarship Chair and Executive Board Member, *Alpha Chapter of Theta Xi Fraternity [Troy, NY]* *Fall 2017*

- In charge of helping over 50 fellow science and engineering students maintain high academic standing by organizing study hours, mentorships, and personal tutoring sessions.

Skills

Software:	SolidWorks, Siemens NX, Autodesk Inventor, JMP, Fluent CFD, Nastran FEA, EPDM
Programming:	MATLAB, Python, LabView, LaTeX, Arduino, Embedded C, C++
Mechanical Design:	3D CAD, Design for Manufacturing, CNC Machining, Sheet Metal, GD&T, 3D Printing