

UTSAV PATEL

700 Health Sciences Dr, Stony Brook, NY-11790

utsavp193@gmail.com || <https://uapatel.github.io/> || [LinkedIn](#) || +1 (732) 875-8277

EDUCATION

- ❖ **Master of Science (Thesis) – Mechanical Engineering** **GPA: 3.5/4.0** **August 2018 – May 2020**
Stony Brook University
 - *Specialization:* Thermal-Fluid Science and HVAC-Energy System.
 - *Research Assistant:* Working under Prof. Lin Shu Wang for an on-going thesis. [\[Concept paper\]](#)
- ❖ **Bachelor of Technology (Honor's) - Mechanical Engineering** **GPA: 3.61/4.0** **August 2014 - May 2018**
Dharmsinh Desai University
 - *Teaching Assistant (December 2017 to May 2018):* Course: Introduction to the Engineering Mechanics. Responsible for conducting lab sessions and grading assignments.

TECHNICAL SKILLS

Technical Skills: Design & development of HVAC system | Heating & cooling load calculation | Energy & cost analysis | Data acquisition | Mathematical modeling | Thermal CFD

Designing Software: Creo | SolidWorks | AutoCAD | ANSYS-Design Modeler | ANSYS-SpaceClaim

Simulation Software: Energy Plus | eQUEST | ANSYS-Workbench, Fluent, Thermal | CONVERGE-CFD | IC Engine-AFTP

Programming Software: MATLAB | C++

Others: Microsoft-Word, Excel, PowerPoint

ACADEMIC PROJECTS

Heat Pump Management of Low-Grade Heat in Buildings (Thesis) January 2019 – Present

- The project pertains to the designing and modeling of an electric-powered heat pump system using *Energy* + for building space heating with dual heat sources (Solar + Air), integrated with a Thermal Energy Storage (TES) unit. [\[Technology\]](#)

Comparative Study of Smart Grid-Interactive Water Heating System with Conventional Electric Water Heater and Electric-Driven Heat Pump Water Heater. August 2019 – December 2019

- The objective is to perform a Levelized Cost Of Energy (LCOE) and Life Cycle Assessment (LCA) analysis for a standard heat pump water heating system and Grid-Interactive electric water heating system and to provide a comparative study [\[Report\]](#)

Effects of Air-by-Fuel Ratio on Spark-Ignition Engine Performance February 2019 – April 2019

- The objective is to perform experimental and software simulations and make a comparison for a gasoline engine in order to improve its performance characteristics by increasing the equivalence ratio values [\[Report\]](#)

Self-Balancing Bicycle May 2017 - November 2017

- The project was to design and build a bicycle prototype that is capable of driving and balancing without a rider.
- Tools: Gyroscope, 3 axis Accelerometer, Angle sensor, Micro-controller unit, Arduino, Creo, MATLAB.

CFD PROJECTS

Advanced CFD using ANSYS Fluent

- Gate Valve Parametric Study [\[Report\]](#)
- *CHT analysis* of Exhaust Port as a part of an in-line four-cylinder engine [\[Report\]](#)
- *CHT analysis* on Graphics Card as a part of Electronic Cooling simulation [\[Report\]](#)
- Analysis of lubricant *sloshing effect* on gears [\[Report\]](#)
- Simulation of flow over an Ahmed Body [\[Report\]](#)
- Steady VS Unsteady flow over a cylinder, capturing Vortex Shedding [\[Report\]](#)

Converge-CFD

- Performance characterization of a centrifugal pump [\[Report\]](#)
- Simulation of Flow Over a Throttle Body [\[Report\]](#)
- Simulation of flow over a Backward Facing Step [\[Report\]](#)
- CHT simulation of flow in a pipe [\[Report\]](#)

TRAINING EXPERIENCE

ASHRAE HVAC Design Trainee (Headquarters-Atlanta, GA) November 2019

- Performed heating and cooling load calculation in order to size the HVAC unit for Carolyn and Dowan Gowant Center at ASHRAE Hq.
- Calculated the air changes and ventilation requirements in order to design a high-efficiency building performance.
- Read and understood floor construction plans of ASHRAE Hq. and K-12 grade elementary school.
- Familiarized with ASHARE codes and standards 55, 62.1 and 90.1 for building construction, design, safety, and comfort.

Mechanical Intern for Windsor Machines Ltd December 2017 - March 2018

- Gained hands-on experience with the manufacturing process of injection molding machinery along with its parts assembly process, machining, and automation.
- Performed the assembly process of pipe extruder in pipe plant and blow film extruder in blown film plant.