UTSAV PATEL

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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.
- **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

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

Thermal Homeostasis in buildings via e-powered heat pump system *(Thesis)* **January 2019 – Present**

- The project pertains to the designing and modeling of an electric-powered heat pump system using ***Energy +*** for building cooling and heating with dual heat sources with a device for Thermal Energy Storage (TES) unit, serving as the centerpiece for managing and coordinating heat extractions. *[Concept paper]*

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 Gird-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]*

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.