Priyal Sheth

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Education

UNIIVERSITY OF MICHIGAN — **Expected Graduation: May - 2018**

M.S.: Masters of Automotive Systems — **GPA-3.66/4**

Courses: *Integrated Automotive Systems, Powertrain, Powertrain NVH of Electrified Vehicle, Hybrid Vehicle, Sensors and Actuators, Powertrain-2, Advanced Electric Drive Transportation.,*

NAVRACHANA UNIVERSITY — **GRADUATED-2016**

B.S.: Mechanical Engineering — **GPA-3.91/4**

Electives: *Systems Control, Robotics, Mechatronics System Design, Biology, Tribology, Kinematics and Dynamics of Machine, Operational Research*

Skills

LabVIEW, MATLAB, CATIA, SolidWorks, ANSYS, AutoCAD, Microsoft offices**, Freq. Order Analysis, Modal Analysis**, Team work,

Industry Experience

MECHANICAL INTERN | SIEMENS – INDIA — **May- 2015**

- Got the training on steam turbines, its layout and design considerations.

MECHANICAL ENGINEERING INTERN | FAG BEARINGS, SCHAEFFLER GROUP | — **May - 2014**

- Worked on the metallurgical process (Roller Heat Furnace) of the bearings and optimized the processing time of the heat furnace by 5 minutes to increase the per day productivity of bearing components. Participated in optimizing and cost reduction process.

Research Experience

- **Driver Drowsiness Alerting System (Research Assistant)** — **September 2016 - Current**

  Pursuing a research in Wearable Sensing and Signal Processing Lab on detection of micro-sleep and fatigueness of driver. It is driver assistive system, which uses physiological and vehicular data to detect drowsiness through EEG, ECG and OBD signals. Analyzing signals with MATLAB to find pattern.

- **Paper publication – Seat Belt Buckling detection system** — **Published: October - 2015**

  Developed an algorithm to detect the buckling or unbuckling of the seat belt for avoiding fatal injuries and adding a safety feature to cars. Incorporated two modes 1) City 2) Highway. Works on the principle of ignition lock.

  Published at: "*International Journal of Scientific and Research Publications (IJSRP), Volume 5, Issue 10, October 2015 Edition*"**.**

Projects

- **Powertrain Projects** — **September 2016-Current**

  - ✓ Studied Engine fuel map and designed gear ratios for most fuel-efficient point at engine wide open throttle (WOT). Performed force analysis and established torque relations using kinematics of planetary gear trains for FORD AXOD FWD 4-speed automatic transmission.
  - ✓ Analyzing 8 speed auto-transmission gearing ratios of planetary gears with different conditions of clutch, torque converters and designing of gears/clutches for specific gearbox. Learning the dynamics and transmission controls. Simulation of powertrain using Simulink and MATLAB. Computing the wheel force as a function of time for driving cycle.
  - ✓ Solving state variable equations for torque phase and inertia phase of shifts for 6 speed transmission. Modeling transmission in MATLAB. Considering Engine and car data optimize the clutch torque profiles for shift quality.

- **Electric Vehicle Projects** **January 2017-Current**
  - ✓ Simulating the SOC, Range, MPG and Motor torques and sizing the battery for the truck as per requirement, determining the battery status based on different drive cycles in MATLAB.
  - ✓ Recreating motor efficiency map in MATLAB with given data that computes the torque losses, Power losses, speed, and torque. Working on control strategies of Hybrid vehicle to increase the fuel efficiency.
- **Order and Modal Analysis** **September 2016-December 2016**
  - ✓ Performed order analysis of the engine sound, found the absorption coefficient and Sound Transmission Loss of various materials.
  - ✓ Compared the results of modal analysis of plate in Ansys and experimentally.
  - ✓ Performed Acoustic analysis of Muffler in Ansys and performed experiment to find acoustic intensity of motor in anechoic room
- **Autonomous Vehicle (Powerwheel: Intelligent System Club)** **September 2016 - Current**

  Designed and developing an Autonomous single seater vehicle. Planning to use sensors like stereo Camera, Lidar, and image processing to create localize map. Am working on CAD modelling and 3D printing the stuff for the car. Also, trying to incorporate four-wheel drive with four-wheel steering. Designing wheel hub for hub motor.
- **FSAE Combustion team** **September 2016 - Current**

  Working in an electrical team for developing a car & competing in SAE formulae. Making car's wire harness, CAN bus communication and Data Acquisition setup.
- **3 Degree of Freedom Car Simulator** **August 2015 - May 2016**

  Designed, manufactured, and assembled the car simulator setup, that had pitch, yaw and heave motions using Linear actuators. Controlling actuators and acquiring data from sensors using LabVIEW and Arduino. Furthermore, Virtual reality headset was used as a display device. Automation was one of the major feature.

- **All-Terrain Vehicle (ATV Mega-championship)** **December 2015- March 2016**

  Led a team to design and fabricate "All-Terrain vehicle", which has the capability of toing 2200 lbs. and rescuing people during natural calamities. I particularly worked on the powertrain of the vehicle. Hands on experience of all machining and welding processes.
- **Internet of Things (summer project)**

  Developed the system using LabVIEW, Arduino and other electronics to control the all appliances of house using mobile application. It was closed loop system, getting feedback from sensor and was capable to take decision.

Honors, Awards, and Leadership Skills

- Awarded title **Difference Maker** of University of Michigan Dearborn.
- **Wolverine Cohort** and **Diversity Ambassador** at University of Michigan.
- Part of **Student Government** at University.
- Active participants of **Talent Gateway** at University of Michigan, for developing soft inter-personal skills.
- **President** and **founder** of "Automotive Club" at Navrachana University.
- Received an Award of **Overall Performer of the year - 2014** at Navrachana University.
- Completed certified online course on **3D printing** from University of Illinois Urbana-Champaign.