Shikhar Varshney

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EDUCATION

University of Washington — **Seattle, USA**
Master of Science in Mechanical Engineering. GPA:3.8 — *September 2018 – December 2019*
Jamia Millia Islamia — **Delhi, India**
Bachelor of Technology in Mechanical Engineering. GPA:3.6 — *August 2013 – June 2017*

SKILLS

- **Design** – SOLIDWORKS, AutoCAD, CATIA,
- **Programming –** Python, MATLAB, CUDA, NUMBA, LabVIEW
- **Bioengineering**: Biomechanics, Bioframeworks, Neural Engineering, OpenSim 4.0
- **Robotics**- MyRIO, Arduino UNO, ROS basics, Robust Control, Digital Control, Linear Systems
- **Misc-** Lightroom, Photoshop, Biodesign, PUGH, QFD, FDA regulation analysis, Intellectual Property Analysis

EXPERIENCE

CathAlign — **Seattle, USA**
Controls Engineer — *January 2019 –January 2020*

- Worked with Clinicians from the U of Washington Medical Center. Worked with CoMotion UW to file provisional patent
- Performed Stakeholder Analysis, Calculated Critical to Customer (CTC) and Critical to Quality (CTQ) functions, LEAN canvas, Value Proposition, Quality Function Deployment (QFD) Analysis, Regulatory analysis, Intellectual Property analysis
- Prototyped on Arduino UNO, Rapid prototyping on FDM and SLA, Threshold-based control using LIDAR and IMU sensor
- Secured $6,875 as prototype funding and business plan development from the University of Washington

NU Summer Intensive Program in "Emerging Technologies in the Automotive Industry." — **Nagoya, Japan**
Study Abroad Student — *June 2019 – July 2019*

- Studied the emerging technologies in the Automobile Industry with students from all over the world in the 40 days long program. The lectures were given by industry professionals and professors in the institute
- Toured different labs and spaces where self-driving cars and safety is being researched
- Presented the final project on "Active Safety Systems" in class at the end and submitted the paper

General Motors — **Talegaon Dhabade, India**
Project Trainee — *June 2016 – July 2016*

- Analyzed and resolved the recurring defect on the crankline machining
- Collected and analyzed daily part data on Powerpoint
- Studied the process flow in Power Train, Crankline, Task Information Sheets, Set-up change

General Motors — **Halol, India**
Project Trainee — *June 2015 – July 2015*

- Studied the process failure mode and effect analysis technique on 'Stature – a live document connecting all the GM plants and performed PFMEA on engine mounting station
- Studied the process flow in GA, BPD board, Standard Operation Sheets, and Job Evaluation Sheets
- Studied the Process Failure Alert (PFA) and solved the PFA for one of the vehicles
- Carried out the Spot Weld Gun Parameter Audit in Body Shop – MED

PROJECTS (Other projects on LinkedIn)

2019 System Level Synthesis: Introduction, Tutorial and Application to Satellite Constellations

- worked in a team of 4 graduate students to explain the method of system level synthesis Using J.C. Doyle's 2017 paper
- Modeled the satellite constellation problem into a state-space model by referring to Y.Ulybyshev's paper on "Long Term Formation Keeping of Satellite Constellation using LQR" 1998 and implemented the SLS algorithm using MATLAB.
- Presented the results in the class and submitted the report at the end of the course as the deliverable.

2019 Digital Control System Design using MyRIO and LabVIEW

- designed PID control for second and fourth-order plants, and loop shaping control and notch filter for the fifth-order plant.
- Implemented the algorithm in LabVIEW on a National Instruments MyRIO device.

2019 The Parallelization of Rapidly-exploring Random Tree Algorithm and its extensions

- Parallelized the Bi-RRT path planning algorithm in python using CUDA and NUMBA libraries.
- In a team of 4, parallelized basic RRT, Bi-RRT and also devised the via-RRT algorithm.
- Compared to the parallel implementation with the serial implementation and presented to the class at the end of the quarter.