

# HARSHITA VEMULA

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## EDUCATION

### The University of Texas at Austin

M.S. in Operations Research and Industrial Engineering.

Aug 2018 - Dec 2020

GPA - 3.85/4.0

Coursework: Applied Probability, Linear Programming, Linear Models, Time Series and System Analysis, Applied Stochastic Processes, Reinforcement Learning, Statistical models for Big Data, Integer Programming, Decision Analysis.

### National Institute of Technology, Nagpur

B.Tech in Mechanical Engineering.

Aug 2014 - May 2018

GPA - 8.92/10

## EXPERIENCE

### Data Science Intern, Dell

May 2019 - Oct 2019

- Identified different operating states of a server from the telemetry data obtained for a server license with revenue potential of \$200M per year; feature is used for intrusion detection, optimal scheduling of jobs etc.
- Implemented Mean Shift Clustering algorithm to define a baseline; augmented data using SMOTE and trained an Autoencoder to obtain reconstruction error for novelty detection.
- Executed Bayesian hyper parameter optimization to identify hyper parameters for the Autoencoder.

### Student Consultant, Affinity Answers

Jan 2019 - May 2019

- Analyzed purchasing patterns of the client and built a collaborative filtering based recommender system to suggest new audience segments.
- Heuristically identified high-performing audience segments and clusterized matrix factors to extract similar segments; calculated trends, seasonality of the new segments suggested to be added to the shelf using google trends data. Boosted the sell through rate of the segments on shelf by 1.5 times.

## ACADEMIC PROJECTS

### Building a Reinforcement Learning agent for efficient energy management.

Oct 2019 - December 2019

- Designed an agent to minimize the cost of energy consumed from the grid. State, action spaces and reward functions were formulated. Implemented function approximation and policy gradient methods.

### Modeling of hourly energy consumption in the state of Virginia.

Apr 2019 - May 2019

- Forecasted the hourly energy demand using ARMA models in the state of Virginia utilizing PJM's data.
- Confirmed anticipated seasonalities using parsimonious models and concluded against stationarizing the data due to the highly unstable nature of the underlying system; analyzed errors to identify change points and model drift.

## TECHNICAL SKILLS

**Software and programming languages:** Python | Tableau | Excel | R | Matlab | Docker | SQL |

**Packages:** Numpy | Pandas | Matplotlib | Seaborn | Sci it-learn | Pyomo | Hyperopt | H2O | Tensorflow |

**Statistical methods:** Hypothesis testing | Point and interval estimation | Ensemble learning | Dimensionality reduction | Resampling methods | Tree based methods |

**Machine Learning:** Classification | Regression | Clustering | NLP | Deep learning and Neural Networks | Recommender systems | Anomaly detection | Time series analysis |

## ACHIEVEMENTS

### Microsoft Azure Hackathon - Winner

Apr 2019

- Forecasted rental demand at kiosks of a bicycle sharing company using Random Forests; predicted hourly position of 5000 bicycles using stochastic modelling.
- Formulated a dynamic pricing framework for the network and proposed a relocation strategy.

## LEADERSHIP EXPERIENCE

### Student Mentor, NIT Nagpur

July 2016 - May 2017

- Coached 20 freshmen students to understand the challenges and opportunities present in the Institute and counseled academically weak and troubled students cope with academic, extra-academic and personal problems.

### Core Coordinator, Entrepreneurship Cell, NIT Nagpur

May 2016 - May 2017

- Collaborated with a 13-member team to organize a 3-day Entrepreneurship Summit; Headed the corporate relations team.