

# Dhawal Joshi



## Contact

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## Skills

### Languages

Python, MATLAB, SQL

### Database

MySQL

### Data Analytics

Anomaly Detection,  
Timeseries Analysis,  
Predictive Analysis, Data  
Mining

### Pyhon Libraries

pandas, numpy, scipy,  
sklearn, matplotlib, adtk

### Other

MS Office, Latex, Git

## Environment

Ubuntu Linux, Windows

## Awards

Senior design group won a runner-up prize in a state level project exhibition and competition in an industrial sponsored category for "Design and Fabrication of Doubly fed Synchronous Reluctance Motor"

Outstanding Graduate  
Assistant

Motivated Scientist/Engineering professional ideally suited for a challenging role as an energy analyst. Skilled at developing ML algorithms for timeseries analysis, data processing and data mining.

## Experience

11/2018 – 05/2020 **Research Assistant**

University of North Carolina Charlotte

- Developed anomaly detection models for power grid sensor data
- Successfully built statistical models to analyse paint droplet size distribution
- Lead role programming Micro Phasor Measurement Unit via LabVIEW FPGA

12/2017 – 07/2018 **Assistant Engineer**

Energize Sustainable Solutions Pvt. Ltd.

- Worked in an Agile environment
- Successfully managed system compliance along with system integration design for Solar Water Dual Pumps and Solar Irrigation Pumps
- Worked on SQL scripts using MySQL to load CSR client data fetch relevant reports
- Conducted significant corporate client interactions to communicate social welfare created by system
- Communicated technical details of Solar Rooftop design and installation with more than 20 clients.
- Ensured engineering system to meet the technical and financial requirements – within the course of 6 months, secured 2 out of 5 tenders

## Education

08/2018 – 05/2020 **M.S. Applied Energy & Electromechanical Systems** University of North Carolina Charlotte

**GPA: 3.6 Coursework:** System Dynamics, Energy Generation/Conversion, Energy Transmission/Distribution, Energy Systems, Energy Markets

08/2012 – 05/2017 **B.E. Electrical Engineering**

Savitribai Phule Pune University

**GPA: 61/100**

**Coursework:** Power Systems, Power System Protection and Control, Control Systems, Numerical Methods and Computer Programming, Renewable Energy Systems

## Research and Projects

08/2019 – 05/2020 **Unsupervised Anomaly Detection to Analyze Grid Sensor Data**

- Developed unsupervised anomaly detection ML models such as isolation forest and adtk using python to detect possible events on the electric grid without prior grid topology and labelled event record information
- Implemented a meta heuristic technique; Particle Swarm Optimization to improve the detection accuracy of isolation forest algorithm
- Implemented a change point detection technique; Singular Spectral Transformation to capture oscillatory behavior in timeseries data

09/2020 – 11/2020 **Short Term Load Forecasting**

- Built predictive models such as regression, random forest, and neural networks for short term forecasting
- Provided with improvements in electrical load forecasts using recency effect
- Created advanced visualizations to validate predictive models using matplotlib, seaborn and plotly

01/2020 – 05/2020 **Statistical Modelling for Paint Droplet Size Distribution**

- Developed statistical models for the analysis of paint droplet size distribution
- Used visualization tools to present the results
- Developed a MATLAB executable to deliver results according to the user inputs

11/2018 – 07/2019 **Programming Micro PMU for obtaining grid parameters**

- Programmed NI compactRIO chassis via LabVIEW FPGA to make it suitable for obtaining the campus grid parameters
- Identified the need and promoted the development of machine learning algorithms for better understanding of the situation from the field sensors.