

# Malvika D Shetty

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## Summary

Result-driven graduate student with a strong passion for analyzing large amounts of data. Experience working with a variety of data environments, showcasing strong statistical and analytical capabilities. Broadly skilled in **Data Science, Machine Learning, Data Mining, Data Modeling, and Visualization**. Seeking **full-time opportunities** in the field of **Data Science and Analytics**.

## Education

### University of Michigan, Ann Arbor

*Expected: Apr 2021*

MASTER OF SCIENCE IN COMPUTER SCIENCE AND ELECTRICAL ENGINEERING – *Specialization: Applied Data Science*

CGPA: 4.0

- Coursework: Data Manipulation and Analysis, SQL and Databases, Computational Data Science, Machine Learning, Computer Vision, Natural Language Processing

### National Institute of Technology Karnataka (NITK), India

*May 2019*

BACHELOR OF TECHNOLOGY IN ENGINEERING

CGPA: 3.85

- Coursework: Pattern Recognition and Machine Learning, Cryptography and Data Security

## Technical Experience

**Programming:** Python, MySQL, SQL, DataGrip, Django(in progress), Julia, MATLAB, PySpark, Jupyter, Google Colab

**Tools and Packages:** OpenCV, NumPy, Pandas, TensorFlow, Scikit-learn, PyTorch, NLTK, SciPy, JSON

**Technical Expertise:** Data Mining, Analysis and Modelling, Relational Databases, Time Series Forecasting, Computer Vision, NLP

## Work Experience

### Intrepid Control Systems, Troy, MI

SOFTWARE ENGINEER INTERN

*Jan 2021 - Present*

**Toolkit:** Python, SQL, Unittest

- Specialized in programming and troubleshooting of data analysis platforms that communicate with ECUs in vehicles
- Working with the Director of Engineering to create QA Blackbox tests for the company's data analysis product – Vehicle Spy
- Generating flashing scripts and configuration files from VSB, ASC, BLF files using Python and command line applications

SENIOR DATA ANALYTICS INTERN

*Jun 2020 - Dec 2020*

**Detecting Objects Using DataSpy / IPA Video Analysis Feature – [Video Link](#)**

**Toolkit:** Python (OpenCV, NumPy, Matplotlib), SQL, DataSpy

- Developed a new DataSpy video analysis feature to detect objects in images using the YOLO algorithm with OpenCV and Python
- Compared image statistics and signals from vehicles on a common timeline in DataSpy for better insight of the signal changes
- Conducted data analysis of the signals using SQL to query DB files to ensure data quality obtained from data loggers in vehicles

**Extracting and Analyzing Control Area Network (CAN) Statistics**

**Toolkit:** Python (NumPy, VSBIO, JSON), MS Excel, MS Office

- Designed a python script to extract, clean and model CAN signals from files containing vehicle transmission data
- Performed in-depth analysis of vehicular CAN network files to detect unique Arbid using the ICS-VSBIO python library
- Arranged, refined, and formatted the extracted data with data mining python script to store it as a table in MS Excel

**Advanced Data Visualization to generate Matplotlib Charts**

**Toolkit:** Python (NumPy, Matplotlib), SQL, MS Excel, MS Office

- Programmed a python script that overuses a given template excel file and overhauls its individual pages with matplotlib charts
- Collaborated with the Director of Business Development to enhance the company's data mining tool – DataSpy
- Utilized SQL to clean, format, and aggregate data from database files containing over 3 million records of raw data

## Projects

**SafeBot – Object Tracking for Safety – [GitHub Link](#)**

*Oct2020-Dec2020*

**Toolkit:** Python (OpenCV, NumPy, Matplotlib, TensorFlow)

- Detected objects in a live video stream using YOLOv3 deep learning model and tracked them using Deep SORT algorithm
- Led the team to design a Safety Warning System to issue warnings based on relative positions & velocities of objects detected

**Image Segmentation, Background Extraction and Feature Detection**

*Sept 2020-Nov2020*

**Toolkit:** Python (OpenCV, NumPy, Matplotlib, Scikit-Learn, SciPy)

- Implemented foreground-background image segmentation optimizing max-flow/min-cut over super pixels generated by SLIC
- Extracted image features (blob and corner detection) using difference of Gaussian scale space and Harris corner detector

**DNA base calling with Convolutional Neural Networks (CNN) & Gated Recurrent Units (GRU)**

*Jan 2020 – Apr 2020*

**Toolkit:** Python (PyTorch, NumPy, Pandas, Scikit-Learn)

- Worked with a team to implement configs of modified CNN models to build a computationally less expensive DNA base caller
- Successfully gained a 5x speedup within 90% of the state-of-the-art Bonito model's accuracy using the CNN+GRU model

**Surface Sensing Device using Support Vector Machines (SVM)**

*Jan 2020 – Apr 2020*

**Toolkit:** Python (NumPy, Scikit-Learn)

- Assembled a multi-frequency capacitive sensing system that detects different surfaces when touched by the human body
- Trained an SVM model on unprocessed signals obtained from various objects to be used for classification of the touched surfaces