M V D SATYA SWAROOP

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EDUCATION

University of Texas at Austin and Great Learning Institute Aug 2019 - Present

Post Graduate Program in Artificial Intelligence & Machine Learning, Courses: Exploratory Data Analysis, Statistics, Linear Regression, Support Machine Vectors, Logistic Regression, K-Means Clustering, Hierarchical Clustering, Neural Networks, CNN's, LSTM, Computer Vision, Gaussian Mixtures, Deep GMM's.

Indian School of Business Hyderabad Jun 2017 - May 2019

Technology Entrepreneurship Program, 2 year , Courses: Design Thinking, Strategy, Micro Economies, Business Model Canvas, Business Value Propositions, Supply Chain Channels and Management, Revenue Model and Advertising.

VNR Vignana Jyothi Institute of Engineering & Technology Aug 2015 - May 2019

Bachelor of Technology, Computer Science, Courses: Algorithms and Data Structures, Dbms, Big Data Computing , AI and Data Mining ,Linear Algebra, Numerical Analysis, Optimization Techniques, Advanced Calculus,Probability and Statistics.

EXPERIENCE

Self Employed Quantitative Analyst Jun 2020 - Present

- Currently developing Data Recording, Cleaning and Storage API of Candlestick Market Data.
- Developed high performance/ low latency trading components for algorithmic trading using strategies such as Open range break, Mean reversion, Weighted average price and efficient frontier portfolio optimization.
- Built a client network to start a fund to trade equities using algorithmic trading strategies.

Alsafe Cofounder & Software Developer May 2020 - Nov 2020

- Developed a web application beta using flask web development framework which leverages Siamese Neural Network to only allow unique user's to create an alsafe account. Project idea is to secure the user footprint and provide integrity, authenticity in order to ensure legitimate virtual interaction in digital space.
- Please find a working prototype **here**. This **link** directs to our code repository.

IIT Hyderabad Research Intern Feb 2020 - Jun 2020

- I worked as a research intern in a computer vision laboratory where I have implemented "Deep Gaussian Mixtures" for unsupervised scene understanding.
- Worked on developing "Gaussian Mixture Model" to solve the problem of action localisation into different label classes.
- Developed an idea based on semantic scene understanding from knowledge matrix to predict interaction among class labels. Helped a Phd student to develop her thesis on Unsupervised Learning for Scene Understanding.

Deloitte Analyst Jun 2019 - Jan 2020

- Worked on implementing a tool "Oscar" which is developed in C#, for automating workflow in Oracle Cloud ERP application.
- Oscar is an in-house tool which leverages API endpoints provided by Oracle fusion SaaS to automate the work of an Oracle security consultant such as assigning data security to users, create users in various instances, assign privileges to users etc. The tool directly helps reduce 2 million dollars annually in cost and indirectly reduced tiresome manual effort.

Deloitte Technology Analyst Intern Jan 2019 - Jun 2020

- As an intern at Deloitte I have worked on Oracle Cloud ERP by using cloud instances to provide digital security solutions for a fortune 500 company.
- Also worked on "Sail Point" tool to implement Privileged Access Management on User database and performed Integration testing and User Acceptance testing before deploying the Cloud Instance to production.

PROJECTS

Portfolio Optimization Using Efficient Frontier

- The idea of efficient frontier is to plot the risk adjusted return or Sharpe ratio and allocate maximum funds to stock with minimum risk and maximum return. I have implemented an efficient frontier by defining a random allocation function which computes the risk adjusted return in each allocation of BSE market data and our interest is in choosing the allocation with minimum volatility or risk and maximum Sharpe ratio.
- Please find the code repository **here**.

Algorithmic Trading Strategies

- This repository contains various trading strategies which use zerodha kite endpoints to make trade decisions given user authorised credentials. Please check out the code repository **here**, which contains implementation of long short beta, mean reversion, open range break and volume weight average pricing strategy.

Stock Volatility Model with Arch & Garch

- The ARCH or Autoregressive Conditional Heteroskedasticity method provides a way to model a change in variance in a time series that is time dependent, such as increasing or decreasing volatility. An extension of this approach named GARCH or Generalised Autoregressive Conditional Heteroskedasticity allows the method to support changes in the time dependent volatility, such as increasing and decreasing volatility in the same series.
- Implemented the project in python, please find the code repository **here**.

Buy/sell Stock based on tweet data

- The project states whether buying a particular stock is a good or bad investment based on recent 10k tweet's polarity based on the stock and historical performance of the stock.
- The Twitter sentiment analysis retrieves a list of the last 10000 tweets posted in english containing the symbol introduced and they are later stored in a list of Tweet class, defined in tweet.py with the tweet's text and polarity from TextBlob. Please check out the code repository **here**.

Covid Face Mask Detection

- Face mask detection using local camera frame by frame and classifies the frame with mask or without mask with probability and boundary box.
- I used 7959 images to train the models. The dataset is composed of WIDER Face and MAFA. Please check out the code repository **here**.

Credit Defaulters Classification

- Classification of credit defaulters using an Ensemble of Random forest, Ada boost and Gradient boost.
- We used a German credit dataset to Classify users who are defaulting loans. Using RFC feature importance, we have performed feature engineering to identify the important features. Using Ensemble techniques (Random forest/ Ada boost/ Gradient Boost) we are able to achieve an accuracy of 90% on Train and 85% on Test data. Please check out our code repository **here**.

Forecasting Food Temperature Time Series Data

- This is a live Project for a US Based Restaurant Chain. Our Client's requirement was to quantify the statistical significance between Manual untimely temperature checking and Sensor based Temperature Checking and its impact on quality of food.
- We used the Data obtained from Sensor Platform Platter and leveraged Traditional time series models such as ARIMA and SARIMA. We also employed the use of Machine Learning Algorithms (Decision Tree Regressor, Linear Regression etc). And deep learning techniques such as LSTM. We achieved a Model Accuracy of 90 percent using a sequential LSTM model. Please check our code repository **here**.

Emotion Classification Using Unstructured Voice Data

- As part of our major project we used Convolutional Neural Network to train our model on the Ravdess voice dataset, our model classifies each voice clip into one of 8 different emotions. As part of data preprocessing we first translated voice data into voice graph images using Librosa python library and then trained the CNN model on the image dataset.
- We classified the image graph data using our own CNN network architecture (2 conv layers, 2 relu, 1 softmax layer and 2 dropout layers), we used gradient descent to optimise the cost function of classification error. Please find our code repository **here**, this **link** redirects to our project documentation

Sarcasm Detection from News headlines Dataset

- Used Headline dataset to classify sarcasm level, instead of tweet dataset as Headlines are more professional and syntactic in nature.
- Created features from headline database and generated weight matrix using GloVe embeddings. Used a Bidirectional LSTM model to train the data based on the features computed from the dataset. Please check out the code repository **here**.

Amazon Recommendation System

- Project for recommendation system on Amazon Product Purchase Data set. A popularity based recommendation system. Created an instance of User Similarity based Collaborative Filtering model. Please check out our code **here**.

OPEN SOURCE CONTRIBUTIONS

Raptorfinance

- Raptor finance, is a python package which retrieves stock price via web scrapping of Yahoo Finance web application. This API supports to retrieve data especially works for NSE/BSE stocks. Please find API code **here**.

RaptorArima

- Raptor ARIMA, is a python package which is an implementation of Auto Regressive Moving Average Model from scratch in python. This API supports to model time series data using Box jenkins model. Please find API code **here**.

SKILLS

C++, Python, Data Structures, Algorithmic Problem solving, Algorithmic Trading Strategies, Machine Learning Algorithms, Deep Learning and Neural Networks, Sequential Models, Scipy, Scikit Learn, Data Preprocessing, Data Cleaning, Time Series Analysis, ARIMA model, Tensorflow, Keras, Sql, C, Git, Django framework, Flask, Java, Node.js, Microsoft excel.

COMMUNITY SERVICE

Chair Person Nature's Army VNR VJIET

- Worked as Chairperson of Nature's club of our college during my undergraduate degree. We have implemented several events throughout the year which was a throughly enriching experience , most importantly this exposure as a leader taught me how to bring people together towards a cause.
- We implemented a project called "Pool It", which is car pooling mobile application among college students aimed at reducing Air Pollution at college scale and builds strong social connections among students.
- We raised funds to purchase medicines, food and clothing for 2018 Kerala flood victims and distributed through Non government organisation.
- We have arranged several charity shows, cricket matches to purchase plan samplings and planted them outside our college.

Vice Chair Dramatrix VNR VJIET

- Worked as Vice Chair of our college's Drama club. I have enacted in several plays during my undergraduate years
- Enacted and directed a short film "Rao Gari Katha" in the year 2018.

HOBBIES & INTERESTS

- Solving programming challenges in Leet code and Hacker rank.
- Reading latest research papers in quantitative finance uploaded in arxiv.org
- Playing Cricket
- Watching TV shows