Sumanth Bharadwaj Hachalli Karanam

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Education

New York University — **New York, USA**
Master's in Data Science — Sept 2024 - May 2026

National Institute Of Technology, Karnataka — **Karnataka, INDIA**
Bachelor of Technology, Mechanical Engg. and Electronics and Communication Engg., **GPA: 3.97/4.0, Rank: 7/180** Jul 2018 - May 2022
(***Member of the CSD-ROBOCON Team, Led the Mechanical Special Interest Group, Head of Events at IE-Visionnaire)***
Awards: *Pradeep Gundappa Merit Scholarship for academic excellence, NITK (2019,2020,2021)*

Skills

Languages: *Python, SQL, HTML, Javascript, C, MATLAB*
Libraries: PySpark, *Pandas, NumPy, Matplotlib, regex, tkinter, hugging face, OpenCV, Tensorflow, Keras, Scikit-Learn, LLMs,*
Analytical Tools: *MS Excel, Tableau, Power Automate. Power BI, Jupyter Notebooks*
Concepts: Numerical Methods, Quantitative Research, Probability Theory, Statistics, Econometrics, Risk Management

Work Experience

Wells Fargo — Bengaluru, India
Assistant Vice President - Quantitative Analytics Specialist — Jun 2022 – Present

- *Developed Natural Language Processing models to automate internal processes related to financial products of data management and regulatory reports , resulting in a reduction of manual hours by 30 hours per week and saving approximately $3,000 per week.*
- *Fine-Tuned Document-Intelligent Models to extract metadata from diverse layouts, employing vision transformers and Question Answering models like Flan-T5.*
- *Achieved an over 83% reduction in the turnaround time for transaction testing by implementing an automated data extraction process using OCR from scanned PDFs, making the entire process 6 times faster.*
- *.Developed a proof of concept utilizing semantic similarity algorithms to enhance data quality and streamline the defect management lifecycle, reducing data inconsistencies by 30% and decreasing defect resolution time by 25%*
- *Transitioned the data management lifecycle dashboard from Tableau to Power BI, increasing reporting efficiency by 40% and reducing data processing time by 25% through streamlined automation and improved visualization techniques*
- *Recognized for spearheading one of the best projects of the year aimed at enhancing operational efficiency, out of a pool of over 300 projects across the organization.*

Recent Projects

Reinforcement Learning based Deep-Q-Networks for Trading Strategies

- Developed a Q-Value Neural Network from scratch using Keras to train the network on S&P 500 data from Yahoo Finance.
- Implemented an agent that learns how to maximize the profit based on 3 state and action pairs, with a reward function.
- Utilized Matplotlib and PyPlot to visualize the signals given by the agent on the stock price chart.
- Working on building a pipeline to minimize memory usage and optimize the policy learning strategy and accelerate training speed to deploy the model real time.

Home Credit - Credit Risk Model Stability - **Kaggle**

- Developed model for prediction of default of customers based on various factors, besides from credit history.
- Implemented the ensemble of Light Gradient Boost and CatBoost Models with a final layer of Voting Model to make the prediction.
- Imported necessary libraries for data manipulation (numpy, pandas, polars), file handling, and utilities to handle almost 35 GB of data.
- Defined Pipeline and Aggregator classes for data preprocessing and feature engineering to reduce memory usage.
- Achieved a top 50 score in the competition across 27000+ participants and 3800+ Teams.

Patents

Quantifying Data Drift using a hyper-parameter for NLP Model*. (Under Legal Screening - at this stage)*

- *This method proposes quantifying drift by measuring the difference in embeddings of topics across historical datasets at various time points. This generates a single parameter representing drift, which can be utilized to anticipate model drift for improved adaptability.*

Certifications and Coursework

- *Python for Data Science - University of Michigan*
- *Introduction to Financial Markets - Indian School of Business*
- *Deep Learning Specialisation - DeepLearning.ai*
- *Data Analysis - Duke University*