CHIRAG GODAWAT

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CAREER OBJECTIVE

Looking for opportunities and challenging roles in Data Science and Artificial Intelligence, where I can apply my skills as well as passion to build impactful applications and data products, adding value to the organization I work for.

WORK EXPERIENCE

Sr. Artificial Intelligence Engineer, IBM, Bengaluru — *Oct 2023 - Present*

ML and Generative AI Pilots, Client Engineering – IBM Software Labs, WatsonX Team

- Document summarization with **Large Language Model (LLM) by Retrieval Augmented Generation (RAG)**
- Compliance check of financial annual reports with Indian Accounting Standards using Milvus vector database and Llama 2 - 70B parameter LLM model, **reducing manual task of months to few hours**
- Chatbot (using StarCoder LLM) to convert **natural language query to SQL** based on schema metadata
- Auto email response generation using Mistral LLM Model and keyword similarity in knowledge base

Sr. Machine Learning Engineer, Vista, Bengaluru (Remote) — *Jun 2021 – Sep 2023*

Data and Analytics Department – Pricing Domain

- Tech Stack - Python, PySpark, Airflow, Databricks, AWS, MLFlow, Snowflake, Akeyless, Terraform, Docker
- Designing of architecture and **implementing end to end ML pipelines/ MLOps** using MLFlow
- Built **Reinforcement learning based automated dynamic pricing** model along with Data Scientist in team
- Generating an impact of **~$1M/ year in profits** and saving huge amount of man-hours (**with just $6k/year operating cost**), from automated dynamic pricing, in the first year of its launch
- Scaling of dynamic pricing from **1 product to 1300+ products spread across 17 different countries**
- Reducing the cost of data products by 85% **(from $5000/month to $800/month)** by optimizing the databricks jobs cluster configurations and improving PySpark code
- Optimization of the snowflake data and tables, reducing storage used **from 57GB to 3GB, ~95% reduction**
- Used airflow for efficiently orchestrating jobs in databricks
- Worked on setting up data pipeline for getting competitor intelligence data
- Handled several issues related to artifactory package versioning, CI/CD pipelines, security etc.

Software Engineer – II, JP Morgan Chase and Co, Mumbai — *Jul 2019 – Jun 2021*

Corporate and Investment Banking Department (CIB) – Trade Processing System

- **Optical Character Recognition (OCR), Natural Language Processing (NLP) based application**
- Noun duplication removal task using **Spacy, OpenNLP, and Noun Classifier model** as per use case
- Task of process flow change on Kafka to make NLP service event driven
- **Long Short-Term Memory (LSTM)** models accuracy upliftment
- Created new hierarchy of link tables for the application in **SQL**

EDUCATION

Indian Institute of Management (IIM), Calcutta — *Jun 2023 – Present*

Executive Program in General Management (1 year, via TalentSprint as platform)

Liverpool John Moores University, Liverpool — *Jan 2022 – Aug 2022*

Master of Science (MSc) in Machine Learning and AI (via UpGrad as platform, immersion program in Liverpool)

Grade: Merit, 69%

Indian Institute of Technology (IIT), Madras — *Oct 2020 – Oct 2021*

Advanced Certification in Machine Learning and Cloud (via UpGrad as platform)

Grade: 3.66/4.00

SV National Institute of Technology (SV NIT), Surat — *Jul 2015 – May 2019*

Bachelor of Technology (BTech) in Electronics and Communication Engineering

Grade: 8.41/10.00

TECHNICAL SKILLS

Python, Machine Learning (ML), Deep Learning, Generative AI, TensorFlow, Keras, Amazon Web Services (AWS), Airflow, MLFlow, MLOps, Akeyless, Terraform, PySpark, Hive, Hadoop, SQL, Big Data, Data Modeling, Data Warehousing, Exploratory Data Analysis (EDA), Feature Engineering, Docker, Flask, Snowflake, CI/CD, Databricks, Pandas, NumPy

PUBLICATION

License Plate Identification and Recognition for Non-Helmeted Motorcyclist using Light Weight Convolution Neural Network (CNN),

IEEE Xplore and indexing by Scopus Journal

- Deep Learning project to extract the license plate numbers of 2 wheelers whose riders are not wearing helmets, by capturing images through cctv cameras present on the road.
- Worked in a team of 4, to make an end-to-end solution comprising of 3 modules: License Plate Detection, License Plate Extractor, and feeding that to an OCR module
- Created dataset by collecting images of license plates and labelling each image manually
- Used transfer learning approach, on our dataset, for detection module
- Overall Test Results – Accuracy:91.24%, Precision: 0.9976, Recall: 0.8891

PROJECTS

Personalized Artificial Image Generation from Text Prompt using Generative AI *Nov 2022*

- Project to generate artificial images from text prompts
- Can be used to generate images of anyone (including non-famous personalities)
- 10 to 20 photos of the person/ subject are required, which are then augmented, using which a stable diffusion model is trained to generate artificial images of that person/subject based on the text prompt given
- Used hugging face library and Dreambooth method, built on a Google Collab Jupyter notebook

Gender and Age Prediction based on App Usage *Oct 2021*

- This project was to predict gender and age based on data of app usage, location and device information which can be used by marketing teams to launch campaign accordingly.
- Dataset of size 10GB was used (100M+ rows in csv file)
- It was an end-to-end ML project which started with Data Ingestion from Amazon RDS and S3 into EMR.
- Then analyzing and transforming the data in hive and loading back to s3 (Completing the ETL step)
- Data was then cleaned and further analyzed (EDA) using plots like geoplot etc. followed by feature engineering
- Next, based on this final data, several models were built using stacking, hyperparameter tuning and various evaluation parameters like confusion matrix (Precision, Recall, Accuracy, F1 Score), log loss, roc auc etc.
- Finally, the best model was chosen and deployed by hosting application on EC2 instance of AWS using Flask and Docker

Gesture Recognition for Smart TV *Aug 2021*

- Project to identify gestures for a smart tv (swipe left, swipe right, pause, play, stop)
- Used Video frames and fed it to Conv3D architecture built in TensorFlow
- Achieved accuracy of 90% on validation dataset
- Leveraged the GPU of Apple M1 architecture for training model

Aircraft Engine Maintenance Prediction *Jul 2021*

- Predicting the failure/ Maintenance required for an aircraft engine using data gathered from 22 sensors
- Dataset included time series data for different aircraft engines, and number of cycles they ran without failure
- Made use of RNN, LSTM, and GRU to compare their training time and accuracy

E-Commerce Churn Prediction *May 2021*

- Project to predict whether a customer will buy a product or not after adding it to the cart
- Applied Exploratory Data Analysis (EDA) and Feature engineering techniques on a dataset with 42M records
- Created 3 models: Logistic Regression, Decision Trees and Random Forest; Evaluated each model to choose the best one as per use case. Random forest was the best performing out of the three
- Entire project done on EC2 instance of AWS, using PySpark, to efficiently process the huge dataset