

# Sarthak Vajpayee

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## EDUCATION

The University of Texas at Dallas, Texas

Aug 2022 - May 2024

Master of Science - Business Analytics (Specialization in Data Science)

Dr. A.P.J. Abdul Kalam Technical University, India

Aug 2014 - Jun 2018

Bachelor of Technology - Electronics & Communication Engineering

## SKILLS

**Programming:** Python, R, SQL, NoSQL, MongoDB, JavaScript, C, MATLAB, SAS

**Libraries:** Scikit-Learn, Seaborn, Spacy, Tensorflow, Keras, OpenCV, PyTorch, Flask, Django, PySpark

**Software & Tools:** Git, Docker, Kubernetes, AWS, Azure, GCP, Hadoop (Hive, HDFS, Pig, MapReduce), Snowflake, Spark, Scala, Tableau, Excel, Salesforce, NetSuite, Jira, Kafka, ServiceNow, Confluence, CI/CD, Ansible, Grafana, Jenkins, SageMaker

**Courses:** Applied Machine Learning, Applied Natural Language Processing, Advanced Statistics, Applied Econometrics and Time Series Analysis, Big Data, Predictive & Prescriptive Modeling, Data Warehousing, MLOps

## PROFESSIONAL EXPERIENCE

AppSteer – Frisco, Texas, USA

May 2023 - Dec 2023

Machine Learning Engineer

- Streamlined development of **prompt engineering** for **Large Language Models**, significantly reducing error rates through collaboration with cross-functional teams utilizing **Langchain**, **Huggingface** and **PyTorch**.
- Developed **automation** tools with **Flask** and **Python** and **LLM** on **Azure**, integrating **Kubernetes** and **Spark**, reducing **app development** and **deployment** time from 4 days to under 2 minutes.
- Orchestrated over 50 cloud **deployments**, enhancing **CI/CD** processes with **Jenkins** to boost deployment rate by 20%.
- Led **API development** with **FastAPI**, achieving a functional interface in six weeks and thus enabling faster feature delivery.

Ernst & Young – Bengaluru, India

Dec 2021 - Jul 2022

Data Scientist

- Refined **predictive modeling**, leveraging **XGBoost** and **linear models** within Azure, surpassing 90% accuracy and enhancing **demand forecasting** for a leading FMCG company in the Nordic market.
- Engineered a Gen-2 **predictive system**, integrating **ARIMA** and **XGBoost** in **PySpark** over **Hadoop**, achieving 92% accuracy in 15 days and redefining benchmarks for international market analytics.
- Identified critical **demand trends** through **time-series analysis**, resulting in a 15% increase in forecast accuracy, leveraging **PowerBI** and **Vue.js** dashboards for **dynamic visualization**.
- Employed **Azure Databricks** for **data processing** and **Azure ML** for **feature engineering**, enhancing sales forecast models by 20% and yielding \$1.1M in annual cost savings.
- Excelled in **dashboard design** exploiting **Power BI**, enhancing decision-making in inventory and sales management.

Scaler – Hyderabad, India

Dec 2019 - Nov 2021

Machine Learning Engineer

- Architected a robust **Learning Management System** and online coding platform using **Docker**, **Django**, and **AWS**, integrating an **NLP-based ticketing system** increasing ticket resolution efficiency by 25%.
- Conceptualized and executed a cutting-edge **plagiarism detection** tool via advanced ML models (**Doc2Vec**, **BERT**, **Fast-Text**). This tool has been crucial in maintaining academic integrity across 20k+ code submissions.

## RESEARCH / PROJECT EXPERIENCE

- Research Project:** Reviewed 60+ studies on **prompt engineering** to optimize **large language models**, quantifying prompt techniques' impact on efficacy and responsiveness, and developed a framework improving AI text generation.
- Research Project:** Directed a **Transfer learning** enhanced research on a **RESNET-50** CNN for COVID-19 detection, achieving 0.96 AUC and 92.78% accuracy, on par with RT-PCR.
- Research Project:** Modeled a **diagnostics framework** for predicting mortality risk of liver cancer using MLP classifiers and **Random Forest** based **MICE imputation**, achieving a 90.02% accuracy.
- Kaggle:** Employed **BERT** and **Transformer Ensembles** to score in the **top 5%** in Google Q&A Labeling NLP Challenge.
- Kaggle:** Scored in the **Top 6%** in Mercari Price Suggestion Challenge through **linear models**.
- Credit Risk Analysis:** Orchestrated **Credit Risk Analysis preprocessing**, improving dataset integrity by 80%; developed models with **XGBoost** and **neural networks**, achieving 94% ROC-AUC.

## CERTIFICATIONS

LangChain for LLM App Development | Production Machine Learning Systems | Google Analytics Certification | Deep Learning Specialization | Image Understanding with TensorFlow on GCP | Advanced Machine Learning with TensorFlow on GCP