# Mahadev S Hummanagol

**(AI ML developer)**

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## Summary:

AI/ML Developer with a proven track record in leveraging cutting-edge technologies such as Generative AI, Machine Learning, Deep Learning and Data Engineering to build robust, scalable applications. Passionate about transforming complex data into actionable insights and driving business growth through data-driven decision-making. Seeking a challenging role to apply my expertise, creativity and enthusiasm in developing innovative AI solutions.

## Education:

Bachelor of Engineering, SJBIT Bangalore (Visvesvaraya Technological University), *8/2012 –to 7/2016*

## Technical Skills:

Python | C| Sql| Html | JavaScript | CSS |Amazon Web Services | Databricks | AZURE | Hugging face| Wandb (weights & bias) | Mlflow | Docker| Terraform| Jenkins| Git | Pytorch | Pyspark| Kafka |Tensorflow | PowerBI | OpenAI | Anthropic | Cohere| Llama |Ollma| VectorDB (Pinecone) | Matplotlib | Plotly | Pandas | Numpy | Streamlit | Tensorflow | Opencv | NLTK| BERT| GPT| Sklearn| Pycaret | NXCad | Catia | MySQL | ANSA | StarCCM | Open foam |NVIDIA Omniverse |USD |

## Soft Skills:

Leadership, Communication, Proactive, Team Player, Time Management, Enthusiasm for continuous Learning, Positive Attitude, Maturity in approach, Problem-Solving, Analytical.

## Experience:

**Msbc Solutions Ind Pvt Ltd** | As a *AI ML Lead* | *– Ahmedabad, 6/2024- current*

- Worked in inhouse MSBC projects, built and deployed real time the chatbots based on domain knowledge, industry documentations, built webapps with Html, Css, Javascript, Fast API,FLASK API, Web socket api's. Used AWS Cloude formation, Jenkins to automate pipelines, Docker, AWS to deploy, monitor application.
- Utilized DVC ,MLflow, docker, AWS etc like different services to build the model, control the versions, monitor, logging, debugging and automating of pipelines. Used Performance Metrics to Evaluate LLM models using metrics like BLEU, ROUGE, perplexity, accuracy, depending on the task. Used Reinforcement Learning with Human Feedback (RLHF) to align outputs with ethical guidelines.
- Lead a team for a AI ML Development, collaborated, suggested, Brain stormed ,Innovated, Developed a real time applications.
- Worked on prompt engineering to solve company's inhouse problems (Glass, glazing and fenestration Industry). Developed recommendation systems. Utilized OpenAI Api, Gpt LLM models, Deep learning, Python, Pyspark, Machine learning, Vector Store, lang chain agents, assistants.
- Used the Hugging Face transformers, LLM and Fine-Tuning Pretrained Models for specific tasks. In sage maker created the pipeline for all experimentations.
- Using NVIDIA Omniverse to build real-time 3d designs, virtual environments, leveraged USD (Universal Scene Description) files, Unreal engine. Creating AI based and physics-based simulations

for product design.

**Tata Consultancy Services** | As a *Data Scientist, AI ML Developer* | *– Mumbai, 7/2022 -6/2024*

**Projects:**

1. MS Word Document Preparation with Generative AI tailored for legal applications:
   - Customized the models to understand and generate contextually relevant and accurate responses. Applied Generative AI and Natural Language Processing (NLP) (NLTK), deep learning, machine learning techniques to enhance chatbot applications. Leveraged GAN, Autoencoder, Transformer architectures in myprojects.
   - Incorporated advanced language models for precise and contextually relevant content generation. Used RAG, Langchain, LLM models ,Deep learning, Python, Machine learning and Vector Store for Legal Document Formatting, Tailored the generative AI model to understand legal terminology, language nuances and context.
   - Implemented Natural Language Processing (NLP) techniques for language understanding. Developed deep learning models using PyTorch. Used ROUGE, BLEU, GLEU, Accuracy, Cross Entropy, Meansquare error, Within-Cluster Sum of Squares (WCSS), Silhouette Score (Cluster similarity),as evaluation matrices. Adam, Adagrad, SGD as optimizers.
   - Utilized AWS services such as Sage Maker, Lambda, DynamoDB, Bedrock and Step Functions. Deployed Hugging Face pretrained AI models, BERT,GPT, jumpstart models as end point. ML flow to build, deploy ,test ,track, versionize models and analyze machine learning experiments. Used LLMops, MLops concepts in building pipelines.
   - Used RAGAS to evaluate RAG to assess Context Relevance, Faithfulness, Answer Correctness and Context Recall. Developed Web App, Dashboards and Automated tasks, utilized Docker forcontainerization, EC2 to deploy, Cloude watch, loggers to monitor the application.
   - Fine-tuned the model to generate legally accurate and coherent content.
2. Dynamic Data Insights Dashboard (Power BI):
   - Engineered an interactive and dynamic data visualization dashboard, integrating Power BI for comprehensive data reporting and insights. Used pyspark, pandas to preprocess the data.

**Capgemini** | *Machine Learning Engineer* | *– Chennai, 05/2021 – 6/2022*

1. Utilizing Databricks for Machine Learning, Data Processing and Big Data Handling:
   - Utilized Delta architecture and Pyspark , Pandas and NumPy in the Databricks platform for efficiently handle datapreprocessing, aggregations, transformation. Effectively handled big data and built data pipelines and machine learning pipelines
   - Utilized advanced time series analysis techniques to understand patterns, trends andseasonality in historical data.
   - Implemented various machine learning, deep learning, NLP techniques, including K-means clustering,KNN, SVM, PCA, logistic regression and Random Forest. Carried out anomaly detection and unsupervised learning to develop a robust system for identifying anomalies in time-dependent data.

**Hyundai Motors** | *Data Scientist , Hyderabad* | *– Hyderabad, 2/2018 – 4/2021*

1.Predictive Analytics Engine (scikit-learn, TensorFlow, PyTorch):
   - Developed a robust predictive analytics engine utilizing state-of-the-art machine learning frameworks such as scikit-learn, TensorFlow and PyTorch. Implemented advanced algorithms
   - Implemented algorithms such as ARIMA, LSTM, deep learning and Prophet to capture and model time-dependent behaviors. Used Python ,Pyspark, Deep learning concepts in

projects.

- Statistical Modeling, data analysis, testing methods to analyze and interpret complex datasets, deriving meaningful insights.
- A/B Testing: Conduct experiments to compare different deep learning models ,different strategies and also ran tests on other features of data.
- Leveraged clustering algorithms and outlier detection techniques to identify abnormal patterns in data.

2. Dynamic Data Insights Dashboard (Power BI):

- Engineered an interactive and dynamic data visualization dashboard, integrating Power BI for comprehensive data reporting and insights.
- With Data engineering preprocessed large data related to Automotive sector for CFD analysis like Aero dynamic analysis, Heat damage analysis of automobile components like Air conditioner, Radiator, Heat and ventilator system, Exhaust system, Car Engine etc. Used Python ,Databricks, spark to aggregate, transform data.

## Other Participations& achievements:

- Got a **Patent Ref: IP35982/BS/snk** (from K&S partners) for a Real-Time Automatic Tire PressureMonitoring System for cars.
- Involved in research papers blogs like Research Gate, Papers With Code to learn about state-of-the-art research papers, current trends.
- Certified in Industrial Automation and Robotics program conducted by **Robert Bosch.**
- Got a certification in Data science program with intern by **inueron.**
- Completed Quantum Computing program with **Qiskit** framework by IBM**.**
- Completed Udemy certified course on Generative AI, GAN to clip with Python and Pytorch. Also on ChatGpt4 prompt writing, AWS cloud certificates. Involving competitions like **Kaggle**.