

PROFESSIONAL SUMMARY

A seasoned AI engineer / data scientist with 11+ years of experience in machine learning, deep learning and Artificial Intelligence. Highly skilled at analysing large datasets and deriving meaningful insights by employing state-of-the art algorithms.

SKILLS

GenAI, Multimodal, LLMs, Llama, OpenAI, GPT, Langchain, Langsmith, RAG, Python, Machine Learning, Deep Learning, Tensorflow, Neural networks, Computer vision, ML ops, SQL, AWS, MLOPS, Docker.

EXPERIENCE

AI Developer

Jul 2023 - Present

IBM Labs

- Engineered responsive chatbots for call centres using LLMs and prompt engineering, achieving a 30% increase in customer satisfaction ratings.
- Fine-tuned models with WatsonX and ChromaDB, resulting in a 25% improvement in processing speed and accuracy. Developed chatbots using IBM Watson for close audiences.
- Developed and fine tuned OpenAI and meta based LLM to chat with PDF and web data for HR and Payroll systems.
- Implemented Retrieval-Augmented Generation (RAG) methodology to develop context-aware systems, enhancing user engagement by 40%.
- Developed chains utilizing LangChains and Langsmith capabilities, leading to a 20% increase in AI interaction efficiency.
- Applied Transformer and self-attention mechanisms to create foundation models, improving model performance by 15%.
- Leveraged advanced techniques such as LoRA and QLoRA for model optimization, reducing training time by 35%.
- Utilized Diffusion Models and Vision Transformers (ViT) for innovative AI applications, resulting in a 50% increase in project delivery speed.
- Collaborated on Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs) to generate high-quality synthetic data, improving data diversity by 60%.

Principal Machine Learning Engineer

May 2022 - Jul 2023

Accolite

- Developed transfer based a natural language processing (NLP) model that translates manual language queries into SQL, querying databases set.
- Developed object detection algorithms with Detectron2 and Mask R-CNN, achieving 95% accuracy in identifying lumbarin DICOM images.
- Applied advanced noise reduction techniques using autoencoders and CLAHE, enhancing image clarity by 30% for improved analysis.
- Implemented an autoencoder for outlier detection, boosting data integrity and decreasing false positives by 20%.
- Trained RetinaNet and UNet models, achieving 90% precision in detecting instruments within bones in X-ray images.
- Designed and deployed a computer vision project utilizing EfficientNet and YOLO, enabling real-time object detection and reducing processing time by 50%.
- Created a real-time object detection pipeline with YOLOv5 for industrial safety monitoring, facilitating immediate on-site alerts through edge device integration.
- Orchestrated MLOps processes using Jenkins, GitHub, Docker, Kubernetes, and AWS CI/CD Pipeline, streamlining deployment and cutting time-to-market by 40%.

Lead Machine Learning Engineer

Deloitte

May 2019 - May 2022

- Developed and implemented object detection models using CNN, Transpose Convolution techniques, point-wise and depth-wise convolutions.
- Trained and fine-tuned state-of-the-art models like Mask R-CNN, MobileNet, ResNet, EfficientNet, and YOLOv3 for object detection, image segmentation and image classification tasks.
- Deployed TensorFlow Lite models on edge devices for low-latency, on-device inference in mobile and IoT applications for a healthcare client.
- Developed custom data augmentation techniques to enhance model robustness and generalization, improving accuracy in real-world scenarios by 15%.
- Implemented real-time video analysis systems for anomaly detection, leveraging techniques such as optical flow and background subtraction to monitor environments for security and safety applications.
- Designed and deployed AWS CI/CD pipelines using Git, ECR, Jenkins, Docker, and Kubernetes for seamless integration and continuous delivery.

Machine Learning Engineer

Jun 2017 - May 2019

eClerx

- Developed Named Entity Recognition (NER) models using Word2Vec, TF-IDF, and BERT to accurately identify and classify entities in text data.
- Created LSTM based models for Text summarization models for dialogue and documents summarization.
- Built and fine-tuned BERT-based models for advanced text classification and NER tasks, improving the accuracy and performance of NLP applications.
- Designed and implemented text classification models using Bag-of-Words, TF-IDF, and word2vec techniques for categorizing emails and PDF documents.
- Created a topic modeling pipeline using Latent Dirichlet Allocation (LDA) to identify themes and trends in large text datasets.

Data Scientist

Feb 2017 - Jun 2017

Synechron

- Developed and implemented regression and time series forecasting models, boosting sales trend prediction accuracy by 15% through rigorous Dickey-Fuller tests.
- Implemented advanced ensemble methods, such as stacking and boosting, to combine multiple forecasting models, resulting in a 25% improvement in prediction stability and accuracy across various seasonal trends
- Streamlined Git repository management and designed efficient data and machine learning pipelines, cutting deployment time by 30% and enhancing team collaboration.
- Conducted performance evaluations and fine-tuned models, achieving a 20% increase in accuracy while creating Tableau dashboards that enhanced data visualization for stakeholders.

Data Scientist

Aug 2016 - Feb 2017

InfoBeans

- Executed data cleaning, exploratory data analysis (EDA), feature selection, and feature engineering, resulting in a 20% improvement in model performance.
- Developed interactive EDA dashboards using Plotly and Dash, enabling stakeholders to dynamically explore data patterns and insights, which facilitated data-driven decision-making and improved project alignment with business goals.
- Addressed imbalanced datasets by implementing K-Fold cross-validation and SMOTE, enhancing model reliability by 15%. Designed and optimized classification and regression models, achieving a 30% increase in accuracy for predicting the number of alerts.

Backend Engineer

Feb 2013 - Aug 2016

CGI

- Implemented log-shipping and database mirroring in SQL Server Management Studio, ensuring 99.9% data availability and reliability.
- Optimized performance tuning and query execution, reducing average query response time by 30%.
- Developed a robust data pipeline using Python, Hadoop, SQL, and Hive, processing over 1TB of data daily.

ACHIEVEMENTS

Recognised by IBM leaderships with Blue points.

Received PAT ON BACK Award by Deloitte leaderships.

Promoted to **Manager** at Deloitte, recognizing excellence in AI and ML.

CERTIFICATIONS

Tensorflow Developer Certification

Generative AI with LLM [AWS]

Nvidia Deep Learning

Deep Learning Specialization by deeplearning.ai.

EDUCATION

Scaler

Specialized in Data Science & Machine Learning

MS in AI and ML

2024

RGPV Bhopal

BE/B.Tech/BS

2011