VARUN WOODI RAGHAVENDRA

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SUMMARY

Experienced Machine Learning and AI professional with over 3 years in designing and deploying AI solutions, specializing in Large Language Models (LLMs) and deep learning systems. Proven track record in fine-tuning multimodal LLMs, deploying AI-powered products in healthcare, and leading end-to-end model development from research to production. Adept at leveraging cloud infrastructure, MLOps, and data-driven insights to solve complex challenges.

TECHNICAL SKILLS

Languages	Python, R, MATLAB.
Frameworks	TensorFlow, PyTorch, LangChain, Apache Spark, Airflow, Flask.
Libraries	OpenCV, Pandas, NumPy, Scikit-learn, Seaborn, Hugging Face, Chainlit, Streamlit, Gradio, Deepspeed.
Machine Learning	Linear & Logistic Regression, Boosting, Bagging, SVM, Naive Bayes, PCA, Forecasting.
Deep Learning.	ANN, CNN, RNN, LSTM, Encoder-Decoder, Transformers, Computer vision, Natural Language Processing.
LLMs	Fine-tuning, Prompt Engineering, Retrieval Augmented Generation (RAG), Multimodal Learning.
MLOps	CI/CD, Docker, MLflow, Kubeflow, Model Monitoring, Version Control (Git)
Cloud Platforms	AWS (SageMaker, S3, EC2, ECR, Elastic Beanstalk)
Database	MySQL, PostgreSQL, MongoDB.
Mathematics	Statistics & Probability, Calculu

s, Linear Algebra, A/B testing, Hypothesis Testing.

Visualisation Tools	Power BI,Tableau.
Information Retrieval	Search algorithms, vector databases, retrieval-based NLP models
Hardware Platforms	Optimization on NVIDIA GPUs, deploying models on edge devices

WORK EXPERIENCE

INFOSYS Ltd, Bangalore, India **MAY 2021-AUG 2022**
SYSTEMS ENGINEER

- Conducted advanced time series analysis and optimization experiments, resulting in a **15% improvement** in forecast accuracy.
- Played a pivotal role in enhancing medical device safety through real-time performance analysis using AI-powered Python scripts, improving testing **efficiency by 30%.**
- Promoted adoption of ML and AI technologies across the team, mentoring colleagues and integrating AI techniques into business processes.

VARUN ENTERPRISES, Bangalore, India **SEP 2020-APR 2021**
DATA SCIENTIST

- Led the design, development, and **deployment of CNN-based models** for detecting manufacturing anomalies, **increasing revenue by 12%**.
- Successfully deployed research-focused DL models **using Flask**, reducing **false positive detection by 50%**, emphasizing practical deployment and scalability.

HCL TECHNOLOGIES, Bangalore, India **DEC 2018-DEC 2019**
SOFTWARE ENGINEER

- Maintained and optimized critical trading applications **with a 95% issue resolution rate** within 24 hours, ensuring operational efficiency.
- Developed SQL-based solutions that decreased system **downtime by 20%**, improving overall system availability and client satisfaction.

PROJECTS

Multimodal LLM-powered Medical Image Analysis **JAN 2024 – SEP 2024**

- Led the development of an AI-driven diagnostic tool using **Multimodal Large Language Models (LLMs),** transitioning from research to a scalable healthcare product.
- **Fine-tuned state-of-the-art models like IDEFICS2, LLaVA 1.5 7B, and LLaVA-Med** to enhance **brain MRI image analysis**, improving diagnostic accuracy by automating complex workflows.
- Designed and implemented an intuitive **Gradio interface** for seamless interaction with medical professionals, bridging the gap between cutting-edge AI research and practical healthcare applications.

End-to-End MLOps Project with ETL Pipeline - Building Network Security System **JUN 2024 – OCT 2024**

- **ML Pipeline Development:** Designed project structure and environment using VS Code. Built ETL pipelines with **MongoDB Atlas** for efficient data ingestion and transformation. Implemented logging, exception handling, and data validation to ensure data integrity.
- **Model Training & Tracking:** Trained models with hyperparameter tuning to optimize detection accuracy. Tracked experiments using **MLFlow**, with remote storage on **Dagshub** for version control. Developed training and batch prediction pipelines to streamline model updates.
- **Deployment & Automation:** Packaged the project using setup.py and automated deployment with **Docker** and GitHub Actions. Managed model artifacts with **AWS S3 and ECR**, and deployed the network security solution on **AWS EC2** for real-time threat detection.

EDUCATION

UNIVERSITY OF MASSACHUSETTS, DARTMOUTH **AUG 2024**
Master's in Data Science GPA3.97/4.0

NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY, Bangalore, India **JULY 2018**
Bachelor of Engineering in Electronics and Communication engineering GPA: 3.1/4.0