

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.

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, Calculus, Linear Algebra, A/B testing, Hypothesis Testing.
Visualisation Tools	Power BI, Tableau.

WORK EXPERIENCE

INFOSYS Ltd Bangalore, India
SYSTEMS ENGINEER May 2021 - Aug 2022

- Conducted advanced time series analysis and optimization experiments, resulting in a 15% improvement in forecast accuracy leveraging statistical modeling and data mining techniques.
- Enhanced medical device safety through real-time performance analysis using AI-powered Python scripts, significantly increasing testing efficiency by 30% with the deployment of machine learning frameworks.
- Promoted the adoption of machine learning technologies across the team, mentoring colleagues in analyzing structured and unstructured data to integrate AI techniques into business processes.

VARUN ENTERPRISES Bangalore, India
DATA SCIENTIST Sep 2020 - Apr 2021

- Led the design, development, and deployment of convolutional neural network (CNN)-based models for detecting manufacturing anomalies, utilizing computer vision techniques to increase revenue by 12%.
- Successfully deployed deep learning models for research with Flask on cloud platforms, reducing false positive detection by 50%, emphasizing practical deployment and scalability, with an expertise in Python.


HCL TECHNOLOGIES Bangalore, India
SOFTWARE ENGINEER Dec 2018 - Dec 2019

- 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, LLVA 1.5 7B, and LLVaVA-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:** 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 Daghub 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, Data Science	GPA 3.97/4.0
NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY, Bangalore, India	Jul 2018
Bachelor of Engineering, Electronics and Communication engineering	GPA: 3.1/4.0