

Vinyas Naidu Karri

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EDUCATION

NORTHEASTERN UNIVERSITY, Boston, USA
Master of Science in Data Science and Analytics

Dec 2025
GPA: 4.0/4.0

WORK EXPERIENCE

ZS Associates (Full-Time), Pune, India, Data Scientist

Jan 2022 – Dec 2023

- Led data science modelling projects for AbbVie Healthcare Client, focusing on optimizing market share and improving prescriber and patient engagement.
- Developed a **predictive analysis** model for **Brukinsa adoption**, achieving a **2% market share increase** through targeted segmentation of high-risk healthcare providers (HCPs).
- Applied **logistic regression** and **bivariate analysis** to identify drivers of **JAKAFI persistency**, improving therapy adherence by 93% through tailored dose management and therapy gap analysis.
- Created a **Key Account Management (KAM) strategy**, optimizing HCP targeting using a weighted framework, resulting in a 50% improvement in Jakafi claims visibility.
- Developed a **marketing mix model** for multi-channel analysis, optimizing business resource allocation across professional and consumer promotional channels.
- Utilized **Bayesian models** and **Generalized Linear Models (GLM)** to analyze promotional impact, improving forecasting accuracy for marketing investments.
- Managed **Amazon Redshift** databases to handle and process large promotional datasets, ensuring efficient data storage and retrieval.

PROJECTS

End-to-End Text Summarization System Using Hugging Face and Fast API: [Link](#)

- Engineered and deployed a text summarization tool by fine-tuning Hugging Face's Pegasus model, utilizing Google Colab for development and FastAPI for real-time API deployment.
- Developed a robust data processing pipeline and conducted rigorous model training and evaluation, consistently monitoring ROUGE metrics to assess and improve summarization performance in production environments

End-to-End RAG LLM App Using LlamaIndex and OpenAI

- Developed a sophisticated LLM application using LlamaIndex and OpenAI, focusing on retrieval-augmented generation to enhance querying capabilities and manage multiple PDFs
- Integrated cutting-edge NLP technologies from OpenAI, optimizing indexing techniques for improved retrieval accuracy and high-quality outputs

End-to-End Machine Learning and ETL Pipeline Development for Dynamic Data Processing and Network Security

- Developed and deployed an end-to-end ML and ETL pipeline, utilizing Python, MongoDB Atlas, and Docker for robust data ingestion, validation, and transformation processes (Data pipelines).
- Engineered and optimized machine learning models using hyperparameter tuning; managed experiments and lifecycle with MLflow and integrated DagsHub for enhanced project tracking and Logging.
- Automated CI/CD pipelines using GitHub Actions to streamline model training, evaluation, and deployment phases with source control, unit testing, ensuring consistent and scalable production environments on AWS EC2.
- Leveraged GitHub for version control and collaborative development and set up real-time batch prediction systems for dynamic data analysis and decision-making [Link](#)

Machine Learning Algorithm Development (Developed Algorithms from scratch): [Link](#)

- Implemented **Linear Regression, Logistic Regression, and Naive Bayes classifiers** using Python, coding the mathematical foundations of each model.
- Tuned hyperparameters like **learning rate, regularization (λ),** and batch sizes, achieving optimized results
- Improved accuracy, precision, and recall by removing outliers, experimenting with gradient descent variations (SGD, batch GD), and incorporating techniques like Laplace smoothing in Naive Bayes.

Human Activity Recognition using CNN and LSTM (Video Data): [Link](#)

- Developed human activity recognition system using ConvLSTM and LRCN, achieving 87% test accuracy
- Processed 5,000+ video frames using OpenCV for frame extraction, resizing to 64x64, and normalization
- Optimized a model with 1.2M parameters using dropout (0.4), max pooling, and early stopping to prevent overfitting
- Tested on 10+ YouTube videos, achieving 90% accuracy in real-world activity recognition

TECHNICAL SKILLS

- **Programming & Machine Learning:** Python, pandas, sklearn, tensorflow, Pytorch, langchain, Machine Learning Algorithms, TensorFlow, PyTorch, CNN, RNN, LSTM, Transformers, LLMs, Huggingface, Natural Language Processing, fine-tuning
- **Data Engineering & Cloud Technologies:** AWS (EC2, S3, RDS), Docker, Apache Airflow, Astronomer, PostgreSQL, Amazon Redshift, DVC, ETL, Alteryx, CI/CD, Git, GitHub, DagsHub, MLflow, Flask API, Fast API, code reviews, Kubernetes, MapReduce
- **Analytics & Data Science:** data wrangling, machine learning, A/B Testing, objected-oriented programming, Tableau, Power BI, Excel, SQL, NoSQL, Pyspark, Hive, Hadoop, Redshift, Snowflake, MS Azure Cloud, MS Azure DataBricks.

