Mayur Kishor Kumar

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EDUCATION

NORTHEASTERN UNIVERSITY Boston, MA
Master of Science in Artificial Intelligence Jun 2024
Relevant Coursework: Machine Learning; Data Mining; Artificial Intelligence; Data Visualization; Computer Vision; Human-Computer Interaction; Game AI; Algorithms; Programming Design Paradigm; Data Analytics; Deep Learning; Natural Language Processing

SKILLS

Languages: Python, R, SQL, C, C++, Java, JavaScript, HTML/CSS
Frameworks: TensorFlow, PyTorch, Keras, Scikit-Learn, XGBoost, Hugging Face, OpenCV, NLTK, SpaCy, Flask, Django, Firebase
Data Viz & Analysis: Matplotlib, Seaborn, ggplot2, RShiny, Plotly, D3.js, Tableau, Power BI
Cloud, DevOps & Databases: AWS, Google Cloud, Azure, Git, CI/CD, Docker, Kubernetes, Terraform, MongoDB, MySQL

WORK EXPERIENCE

BEAR BROWN AND COMPANY Boston, MA
AI Engineer and Researcher Sep 2024 – Present
- Automated Gen AI data pipeline processing 100,000+ weekly data points, boosting team output from 10 to 15 use cases per month.
- Deployed 3 custom transformer models for computational art, improving image quality by 40% via human evaluation.
- Improved model accuracy by 50% using optimized prompt engineering, documented in 25 reproducible Jupyter notebooks.

IG GROUP Bangalore, India
Data Science Intern Aug 2021 – Nov 2021
- Reduced fraudulent transactions by 40% using XGBoost and ensemble methods, increasing detection accuracy by 35%.
- Built real-time analytics algorithm processing 500+ trades/minute, enhancing trading performance with immediate market insights.
- Implemented Transformer model improving internal search relevance by 45%, reducing employee search time.
- Automated data pipelines with Apache Airflow, reducing manual intervention by 30%.

INDIAN SPACE RESEARCH ORGANIZATION(ISRO) Bangalore, India
Project Trainee Mar 2021 – Jun 2021.
- Developed predictive ML models using 10+ years of real-time temperature and humidity data, preventing server overheating incidents with zero downtime over 6 months.
- Boosted EMS system accessibility by 50% by creating a Web UI with HTML, CSS, JavaScript, and D3.js, reducing access time.
- Reduced emergency response time by 30% by implementing a Node.js Emergency Alert System with real-time event handling.

PROJECTS

EXPLAINABLE NBA GAME PREDICTIONS
- Designed an AI system using XGBoost, Llama, Mistral, and BERT for NBA game outcome predictions, achieving 85% accuracy through advanced feature engineering and model tuning.
- Increased user trust by 40% with SHAP and LIME for model explainability, visualizing results with Matplotlib and Seaborn.

AUTOMATED STOCK FORECASTING PIPELINE WITH AWS AND AIRFLOW
- Engineered an ETL pipeline with AWS Glue to process stock data from S3, integrated with a CNN-LSTM model, achieving 93% forecasting accuracy.
- Reduced processing time by 50% and manual effort by 60% by automating scraping, preprocessing, model integration, and reporting using Apache Airflow and QuickSight.

BRAIN TUMOR CLASSIFICATION AND SEGMENTATION PIPELINE
- Integrated a ResNet50-based classifier with 95% accuracy for distinguishing brain tumor types and a ResUNet model with 98% accuracy for tumor segmentation in MRI scans.
- Achieved segmentation accuracy by 15% using Tversky and Focal Tversky loss functions and enhanced interpretability by 20% with Grad-CAM visualization for better diagnostic insights.

CUSTOM AI-POWERED DOCUMENT QUERY SYSTEM WITH VECTOR DATABASE INTEGRATION
- Created an AI-driven document query system using Ollama's Dolphin-Mistral, Google Generative AI Embeddings, and Chroma vector database, achieving 95% query accuracy.
- Optimized document processing with RecursiveCharacterTextSplitter and Chroma, reducing processing time by 30% and improving embedding efficiency by 40%, with a 25% improvement in user engagement speed via a Streamlit interface.