RAJESH KANNA V

Full-Stack Data Scientist

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EDUCATION

Applied Data Science: Leveraging AI, *MIT Professional Education* **02/2024 – 06/2024**
Natural Language Processing Specialization, *DeepLearning.AI* **04/2023 – 07/2023**
MSc in Artificial Intelligence & Machine Learning, *University of Birmingham* Birmingham, UK **09/2021 – 09/2022**

WORK EXPERIENCE

Data Analyst / Assistant Team Lead – Amazon Logistics Birmingham, UK **10/2023 – 01/2025**
AMAZON

- Coordinated and monitored workflows in a fully Amazon Robotics-controlled warehouse, optimizing task distribution and resource management to maintain peak efficiency.
- Managed key operations involving inbound/outbound shipments, inventory tracking, and quality assurance, leveraging robotics systems and advanced data visualization tools.
- Led real-time problem-solving initiatives to quickly resolve disruptions in robotic systems, ensuring operational continuity and minimizing downtime-contributing to the successful daily delivery of ~45,000 shipments.
- Collaborated with logistics and data teams to generate insights for system optimization and performance improvements, driving continuous enhancements in warehouse efficiency.
- Utilized SQL, Python, and PowerBI to analyze large datasets, delivering actionable insights on inventory flow, process bottlenecks, and system performance to senior management.

Data Scientist - TTH Industry Advisory Group Chennai, IN **06/2017 – 10/2021**
TATA CONSULTANCY SERVICES

- Designed and deployed machine learning and NLP models to enhance operational efficiency and deliver personalized experiences for travel and hospitality clients.
- Developed and fine-tuned Generative AI models for tailored travel recommendations and automated customer support, reducing manual handling by 35%.
- Built and streamlined data pipelines and MLOps workflows using AWS SageMaker, Lambda, and Step Functions, cutting model deployment times by 40%.
- Integrated ML-driven personalization features into airline booking platforms, improving user engagement by 20%.
- Implemented pricing and revenue optimization models for transportation clients, increasing revenue by 15% through dynamic pricing strategies.
- Architected and maintained large-scale data ingestion pipelines with Spark and AWS, accelerating feature processing by 30% and enabling real-time analytics.

TECHNICAL SKILLS

- **Machine Learning & AI:** Deep Learning, NLP, Generative AI, Conversational AI, LLMs, RAG
- **Programming Languages:** Python, SQL
- **Frameworks & Tools:** TensorFlow, PyTorch, HuggingFace, Scikit-learn, Keras, NLTK
- **Cloud Platforms:** AWS (S3, SageMaker, EMR, Glue, EC2, Lambda), Microsoft Azure
- **MLOps:** CI/CD, Docker, Kubernetes, Jenkins, Git, Agile
- **Data Visualization:** Tableau, Power BI, Seaborn, Plotly
- **Databases:** MySQL, PostgreSQL, MongoDB, DynamoDB, AWS Redshift

SELECTED CERTIFICATIONS

- **ChatGPT Prompt Engineering for Developers**, *DeepLearning.AI*
- **Natural Language Processing Specialization**, *DeepLearning.AI*
- **Azure AI Engineer Associate**, *Microsoft*

SELECTED PROJECTS & ACHEIVEMENTS

- **NLP System for Last-Mile Enhancement –** AWS SageMaker, BERT, TensorFlow, Python, Data Quality, Predictive Modeling
  - Led an NLP system development to enhance last-mile delivery for a European logistics client.
  - **NLP Model:** Built a BERT-based sentiment analysis model with 92% accuracy on 500K customer feedback entries. Evaluated performance using F1-score (0.91) and confusion matrix to identify misclassifications.
  - **Pipeline Deployment:** Implemented an end-to-end pipeline on AWS SageMaker, boosting customer satisfaction by 30%. Monitored model performance using AWS CloudWatch for real-time error tracking and latency measurement.
  - **Impact:** Enhanced customer satisfaction by 15% and reduced operational costs by 10% across 300K monthly deliveries.
- **Retrieval-Augmented Generation (RAG) System for restaurant recommendation –** OpenAI GPT 4.0, Elasticsearch, Hugging Face, Python, NLP, Recommendation Systems
  - Designed and implemented a RAG system to enhance query-based restaurant recommendations.
  - **Data Sourcing:** Leveraged MongoDB/whatscooking.restaurants dataset from Hugging Face for realistic restaurant data.
  - **Embedding & Model Integration:** Integrated "thenlper/gte-small" embedding model from Hugging Face and "OpenAI/gpt-4o-mini" for enhanced text vectorization and generative response.
  - **Vector Search Mechanism:** Built a search system to toggle between ES-based vectorization and self-vectorization.
  - **Impact:** Potential for improving search relevance and user satisfaction in information retrieval applications.
- **Event Log & Parcel Distribution Optimization –**AWS Lambda, Glue, Redshift, SageMaker, EMR, PySpark, PostgreSQL, Power BI, SQL, Data Governance, Predictive Analytics, Operational Data Management
  - Orchestrated a data science initiative to improve parcel distribution for a European logistics client.
  - **Data Management:** Processed 40M+ records using PySpark and EMR, cutting processing time by 40%. Utilized Apache Spark's DAG visualization to optimize job execution and monitor performance.
  - **Predictive Modeling:** Developed a Prophet-based forecasting model, reducing delivery times by 15%. Evaluated the model using Mean Absolute Percentage Error (MAPE: 8.5%) and Mean Squared Error (MSE) to ensure accuracy.
  - **Real-Time Analytics:** Deployed Power BI dashboards integrated with Redshift for real-time decision-making. Used key performance indicators (KPIs) such as on-time delivery rates and cost per parcel to measure success.
  - **Outcome:** Improved delivery accuracy by 18% and reduced costs by 12%, affecting over 300K parcels monthly.
- **Travel Recommendation System Based on Customer Activities –** TF-IDF, LSTM, GPT, RAG, Docker, Kubernetes, Azure, AWS EC2, S3, Python, Risk Modeling, Data Engineering
  - Conceived and implemented a personalized travel recommendation system using customer social media data.
  - **Feature Engineering:** Applied TF-IDF for feature extraction, achieving 95% feature relevance. Assessed feature importance using SHAP values to ensure model interpretability.
  - **Model Development:** Fine-tuned LSTM and GPT models using the Retrieval-Augmented Generation (RAG) method, increasing recommendation relevance by 25%. Evaluated models with F1-score metrics to optimize performance.
  - **Deployment:** Deployed the system on AWS EC2 with Docker and Kubernetes for scalability, monitored using Prometheus for metrics collection, and utilized Azure for specific data integration tasks.
  - **Outcome:** Boosted travel bookings by 20% and user engagement by 25%.

HONOURS & AWARDS

- **Raising the Bar - Amazon:** Recognized for improving team performance and meeting KPIs consistently for two consecutive quarters.
- **Star of the Month - TCS:** Devised and delivered a sophisticated Facebook messenger-based Conversational AI Chatbot solution within a short time committed frame.
- **Digital Cadre - TCS**: Recognized for exhibiting competent performance and consistent delivery.
- **Star Performer - TCS:** Awarded for being a role-model to freshers' group of 50+ associates in leading & monitoring tasks

MEMBERSHIPS

- **Data Science Fellow:** Royal Statistical Society (RSS) – United Kingdom.
- **Science and Technology Member:** Computer Science Society (CSS) - University of Birmingham.