Rutvikk Kharod

Austin, TX | (945)-500-9248 | rutvikkutd@gmail.com| LinkedIn | Github

SUMMARY

Result-oriented Data Scientist with 4+ years of experience in leveraging advanced analytics and machine learning techniques to drive significant business impact. Proven track record in successfully delivering innovative solutions in diverse domains such as e-commerce, finance, manufacturing, and healthcare. My ability to translate complex data into actionable insights has consistently led to increased revenue, reduced costs, and enhanced operational efficiency. Experienced in leading teams, managing projects, and collaborating with cross-functional teams to achieve business objectives. Specialized in developing SOTA models, leveraging ML, deep learning, Reinforcement Learning, and GenAI to drive business innovation.

SKILLS

Languages: Python | SPARK | C/C++ | Java | JavaScript | Bash | Shell | R | MATLAB | HTML | CSS | React | REST API | SQL
Frameworks: PyTorch | TensorFlow | Scikit-learn | NumPy | Pandas | Spacy | HuggingFace | RAG | OpenCV | PySpark | LLM | NLP
Tools: Power BI | Tableau | AWS | Azure | Docker | Kubernetes | Airflow | CUDA | Linux | Django | Flask | Git | Agile | JIRA

EXPERIENCE

BAT-Specialty Tobacco Inc. Aug 2024 – Present
Data Scientist (Business Strategy) Austin, TX (Remote)

- Led development of AI-driven SaaS/PaaS solutions using Python, scikit-learn, and TensorFlow, managing a team for data research, model development, and delivery, improving operational efficiency by 25% and saving $2M for clients
- Improved fraudulent claims tracker using GenAI and data analysis techniques to reduce false claims by 25%, leading to actionable strategies and enhanced sales workflows across 120+ market entities, improving sales forecasting accuracy by 80-90%
- Developed and deployed an advanced recommendation engine utilizing deep learning algorithms for a client-focused personalized e-commerce platform, resulting in an 80% increase in sales, a 200% surge in online orders, and surpassing project goals by three months
- Modeled statistical and predictive analytics for new feature implementations, utilizing advanced causal inference to evaluate initiative effectiveness and presented results succinctly to non-tech customers via strategic dashboards, driving an 18% increase in company revenue
- Led the visualization of performance test results with 5 Tableau dashboards, enhancing raw data comprehension and presenting visual analytics to C-level executives, translating technical insights into actionable business recommendations

Advance Tech Holding LLC. May 2023 – May 2024
Data Scientist (Finance) Richmond, VA

- Utilized kNN, K-means, clustering methods, and Siamese network in PyTorch to identify credit defaulters on an unlabeled dataset, achieving 92% accuracy in prediction and performed model validation with Chi-Square, ROC curve, and RMSE comparison
- Collaborated in developing a Chat-Generative model for customer service using SOTA techniques (BERT, OpenAI GPT-3.5, RAG), Prompt Engineering, and Natural Language to Query, expected to generate $20M in annual revenue and improve customer satisfaction by 25%
- Developed a REST API integrated with Azure Cognitive Search, enabling efficient search and retrieval of data from DB server using Apache Spark and achieved an average search latency of 100ms and 95% accuracy in query results
- Developed and optimized ETL pipelines to streamline data extraction, transformation, and loading processes, leveraging Python, SQL, and Apache Spark, resulting in a 50% reduction in processing time and improved data quality for machine learning models.
- Leveraged Apache Airflow to optimize data workflow and overall efficiency, reducing pre-processing time from 96 to 7 hours

Matrix Comsec May 2020 – Aug 2022
Data Scientist (IPVS Camera Product) Gujarat, India

- Optimized manufacturing costs by 10% by eliminating hardware dependency for ambient light sensing using a SOTA CNN and YOLOv4-based algorithm, achieving 99% detection accuracy with PyTorch and PySpark, leading to significant cost-saving
- Enhanced product sales strategy on B2B E-Commerce by analyzing client requirements against product documents using Power BI and automating processes with Python, resulting in a 27% increase in sales for 8 SKUs
- Standardized and consolidated disparate data sources for Facial Time Attendance using data wrangling techniques with Python, Snowflake & SQL. Conducted feature engineering to transform/create new variables, enhancing the representation of data by 43%
- Partnered with sister teams to optimize data governance and data processing speed for ETL pipeline using Azure Data Factory by 93%
- Leveraged supervised or unsupervised ML algorithms (e.g., clustering, density estimation, dimensionality reduction) on the Alteryx platform for real-time video anomaly detection leveraging Pytorch, and evaluated model KPIs having 89% detection accuracy

PROJECTS & RESEARCH

Laboratory of Natural Science - UTD {*Machine Learning Research*}

- Spearheaded the development of AI-driven solutions for healthcare applications in collaboration with UTSW, focusing on fine-tuning large language models (LLMs) and building multimodal RAG systems to process medical documents, clinical charts, and visual data in a regulated environment
- Fine-tuned GPT and BERT for clinical text analysis, improving accuracy by 25%, and the multimodal RAG system for healthcare document processing, achieving 95% accuracy and reducing manual effort by 40% while mentoring engineers, publishing SOTA benchmarks, and ensuring compliance through rigorous validation
- Curated and developed 80k ICD-10-CM codes dataset mapped to embeddings using BioGPT LLM and generated contextualized embedding addressing the high dimensionality and hierarchical structure of the codes and validated compressed embedding codes using an autoencoder, reducing dimensions to 1,000, 100, 50, and 10, preserving hierarchical information and enhancing efficiency for statistical and machine learning analyses
- Achieved 92.7% balanced accuracy for embedding dimension 100, compared to the accuracy for dimensions 100 (89.1%), 50 (87.3%) and 10 (69.8%)

Deep Reinforcement Learning for Recommendation System {*Reinforcement Learning Project*}

- Built a music recommender system using Deep Deterministic Policy Gradient (DDPG) and Q-learning algorithms on a real-world Spotify dataset (130M listening sessions), achieving a 20% increase in user engagement and retention.
- Achieved a more diverse selection of music (9.3% vs 7.6%) and better-identified songs skipped by users (54% vs 49%) as compared to original methods used for the dataset

Counterfactual Inference using Kalman Filters {*Time Series Project*}

- Developed a method for probabilistic generative modeling of sequences of complex observations using DNN as a building block on Healing MNIST (70,000 digits) and EHR data (8,000 examples; 4.5 years)
- Implemented and experimented with 4 variational models of increasing complexity: q-INDEP (MLP), q-LR (MLP), q-RNN (RNN), q-BRNN (bi-directional RNN) and deduced BRNN the best-performing model with the Test Log-Likelihood being -2042 after 500 epochs

EDUCATION

The University of Texas at Dallas, Dallas, TX Aug 2022 - May 2024
Master's of Science in Computer Engineering