Madhuri Mattaparthy

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SKILLS:
- Programming Languages & Machine Learning Frameworks: Python, R, SAS, TensorFlow, PyTorch, Scikit-learn, Keras, Pyspark
- Natural Language Processing & Libraries: Hugging Face Transformers, BERT, GPT-3, spaCy
- Data Analysis, Visualization & Databases: Excel, VBMacros, PowerBI, Pandas,Numpy, Matplotlib, Seaborn, SQL, NoSQL
- ETL & Data Warehousing: Informatica, BI, Data Warehousing
- Development Tools & Cloud Platforms: Git, Docker, AWS, AWS SageMaker, Azure, GCP

PROFESSIONAL EXPERIENCE

Information Technology Analytics Center
Software Developer Intern   **Jan 2024 - Present**
- Enhanced data management by web scraping over 500 research articles and developing a GPT-3-based AI chatbot, achieving an 85% accuracy boost with advanced NLP and transformer techniques.
- Improved chatbot performance with Azure OpenAI APIs, boosting response speed by 90% and overall model performance by 90% through A/B testing and fine-tuning.
- Optimized Deployment of RAG chatbot using LLMs, Azure AI Studio, and Flask. Streamlined GitHub CI/CD processes, enhancing operational efficiency by 60% and improving user interaction and system accessibility by 70% through a web-based application

Hitachi Energy   **Nov 2021 - Dec 2022**
Associate Project Engineer - AI/ML
- Developed and deployed machine learning model in AWS SageMaker using Python and Spark to build predictive ML application for industrial sector, projected to increase profit by $80M - $100M
- Designed and implemented scalable APIs, handled large chunks of data leveraging PySpark, created distributed computing clusters on Databricks platform resulting in a 40% increase in efficient data processing.
- Collaborated with stakeholders, developed business process workflows, analyzed large volumes of data, created over 20 dashboards using python, PowerBI to evaluate business model.
- Developed and refined SQL queries and ETL processes to extract the data from AWS Redshift to enhance operational efficiency by 85% Automated the application platform with CI/CD pipelines, reducing manual tasks and deployment time by 90%. Enriched system metrics by performing A/B experimentation, optimized business logic, improving operational productivity by 75%

Cyient
Software Engineer - ML   **May 2017- June 2021**.
- Developed Excel VBA macros to streamline sales order processes, consolidating duplicate entries and improving operational efficiency by 35%.
- Contributed to the success of $1.2 billion USD by reducing procurement orders through enhanced order management and product identification across global locations.
- Focused on optimizing procurement process, managed the extraction, cleaning, and organization of over 1TB of sales data using Python, SQL and R, ensuring data quality and accuracy for analysis
- Designed a machine learning application using Random Forest and Gradient Boosting to optimize sales forecasting and inventory management, resulting in a 20% reduction in stockouts and a 15% improvement in forecast accuracy

EDUCATION

Masters in Information Technology | CGPA: 4.0/4.0 | **University of Cincinnati**   **Jan 2023 -April 2024**

Bachelor of Technology in Electrical and Electronics Engineering| CGPA: 3.14/4.0 | **CVR College of Engineering**   **Sep 2013 -April 2017**

PROJECT
- **End-to-End langchain with pinecone vector database:** Architected a scalable solution integrating LLMs with Pinecone, boosting document retrieval accuracy by 45% and reducing query response time by 60%. Implemented in a customer support environment, enabling agents to access relevant solutions 50% faster and increasing customer satisfaction by 30%.
- **Automatic License Plate detector:** Utilized PySpark and deep learning techniques to process and analyze a dataset of 433 pre-annotated images, applying data augmentation and class weighting to enhance model robustness. Converted XML annotations to YOLO format and trained a YOLOv8 model for 100 epochs, achieving a mean Average Precision (mAP) of 0.7 at IoU=0.5 and 0.5 at IoU=0.5:0.95.
- **Customer Review Sentiment Analysis:** Developed a sentiment analysis tool using BERT and Python to evaluate customer reviews, achieving a 30% increase in sentiment classification accuracy and reducing processing time by 25% through optimized text preprocessing.
- **Rail Switch Fault Detection with LSTM and Real-Time Monitoring:** Engineered and analyzed over 100 million data points for rail switch operations, developing deep learning models using LSTM with TensorFlow to achieve 95% fault detection accuracy. Enhanced feature engineering by 25% and deployed real-time monitoring systems on AWS, reducing operational downtime by 40%.