Maroti Raghunath Shelke

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Summary

Data Scientist with 2 years experience in predictive maintenance, adept at driving data-driven decisions through advanced machine learning and deep learning techniques

Skills

Programming Languages: Python, R, SQL

Machine Learning & Deep Learning Algorithms: Regression, Classification, Clustering, Anamoly Detection, Dimension Reduction, Feature Selection, Convolutional Neural Networks, Artificial Neural Networks, Time Series Forecasting, Arima, Prophet, Algorithms, Recommendation Systems, .

Technologies & Tools: Django, Flask, Mircosoft SQL Server, Azure DevOps, Docker, TensorFlow, PyTorch, Scikit Learn, GIT, PySpark.

Work Experience

Capgemini, Pune Oct 2023 - Present

Data Scientist

- Developed an approach to analyzing silica content in bauxite involved initial preprocessing steps such as noise reduction (Savitzky-Golay), baseline correction (IRSQR), and normalization (MSC, SNV). Dimensionality reduction using UMAP facilitated clustering via Agglomerative Hierarchical and K-means methods, while PLSR enabled predictive modeling of silica content with validation metrics like recall and MSE. We also conducted anomaly detection by comparing spectra to reference using Euclidean, Cosine Similarity, and Minkowski distances, visualizing results through histograms and GIFs for bin-wise and median analyses. These methods collectively enhance spectral analysis for precise assessment of ore quality and composition.
- Developed machine learning models to predict truck refueling times and estimate remaining fuel, enhancing logistics efficiency. Utilized advanced feature engineering techniques to improve model accuracy and implemented the kernel density algorithm for precise estimations. Created visualizations using tools like Matplotlib and plotly to optimize data interpretation and facilitate decision-making. Contributed expertise in machine learning, feature engineering, and data visualization to streamline logistics operations, leveraging Python, scikit-learn, and TensorFlow.
- Created a machine learning model using Prophet to forecast the health of dust collector bags, providing a 21-day forecast. This model enabled regular monitoring of the dust collector's health and allowed the extension of maintenance windows when bags still had remaining life based on model predictions. Achieved a model accuracy of 94%, reducing maintenance shutdowns from 6 to 2 per year.

Senior Analyst Aug 2022 - Oct 2023

- Implemented Quadratic Regression model to detect impeller wear out failures by calculating Remaining useful life (RUL) and forecasting Risk of Failure three weeks in advance. Successfully extended impeller component lifespan by over one year compared to traditional maintenance practices. Achieved a model accuracy of 90 % for impeller condition forecast leading to enhanced operational efficiency and cost savings.
- Developed a customized Web Application using Django Framework for preliminary data analysis and data visualization.
- Created a Django Application that assesses the quality of Python and R code and generates comprehensive reports detailing code quality and providing suggestions for code improvement to enhance efficiency and maintainability using Pylint and Rlint libraries.

Education

B.E. in Computer Engineering Aug 2018 - Jun 2022
RSCOE, Pune University CGPA : 9.65

Project Work

- **Karen Virtual Assistant (2021):** Developed a sophisticated voice-activated AI system with 30+ functions utilizing Natural Language Processing (NLP), Python, Recurrent Neural Networks (RNNs), Speech Recognition, Text Generation, Keras, and NLTK. Enhanced user accessibility by integrating mobile input through a dedicated app, improving usability across platforms. Implemented dynamic user control with a live GUI using PyAutoGUI.
- **Twitter Sentiment Analysis (2019):** Developed a dynamic Twitter Sentiment Analysis Web App using Django Framework, leveraging Tweepy for Twitter API integration and TextBlob for sentiment analysis. Engineered data parsing algorithms to extract and analyze tweet sentiments based on subjectivity and polarity, facilitating real-time sentiment insights for users.