

# Praveen Reddy Nelli

## Senior Data Scientist

Data Scientist with almost 8 years of experience in wide functions, including Predictive modelling, Statistical modelling, Data Pre-processing, Feature engineering, Machine learning, Time series forecasting, Deep learning, Computer Vision, Natural Language Processing and GenAI solutions with Python.

## WORK EXPERIENCE

### Senior Data Scientist

April 2022– Present

TCS, Hyderabad, Telangana

- Led the development of AI/ML use cases for oil refinery energy systems. Focused on process optimization, anomaly detection, time series forecasting, and predictive analytics using TimeGPT, Temporal Fusion Transformers, and stats models resulting in enhancing operational efficiency and reducing downtime.
- Developed a question-answering system for user process manuals and operational manuals using LangChain with RAG and open-source LLM's, providing necessary information from the documents and reducing manual effort by 40%. Additionally, implemented a text-to-SQL LLM-based application for data analysis, which aids SMEs in gaining a better understanding of data.
- Worked on image processing system for cone crushers, using a modified DexiNed network to accurately analyze particle sizes by detecting edges, refining contours, and estimating mass.
- Developed Python scripts utilizing advanced Machine Learning techniques and data visualization tools to enhance analysis and presentation of complex datasets.

### Data Scientist

August 2021 – April 2022

CHUBB, Hyderabad, Telangana

- Streamlined data integration and preprocessing of claims and policy documents, reducing data inconsistencies.
- Employed BERT and Stanford OpenIE for NLP-based text summarization and triplet extraction from documents, boosting data comprehension by 40%.
- Implemented text extraction and categorization on policy documents, storing data in Azure CosmosDB.
- Developed Semantic Similarity Search using SBERT with Sentence Transformers and FAISS indexing, Cutting document retrieval time by 50%. Deployed the application to Azure App services, ensuring scalable access to document analysis.
- Developed interactive Python dashboards using Plotly and Dash to visualize Machine Learning model outputs, facilitating stakeholder understanding and decision-making.

### Machine Learning Engineer

December 2016 – August 2021

CGI, Hyderabad, Telangana

- Conducted comprehensive analysis of multivariate time series data, achieving a 20% improvement in forecasting accuracy by applying advanced algorithms. Deployed anomaly detection models and enhanced system monitoring through a Flask-based REST API.
- Processed and annotated images, training a Faster RCNN model to achieve 95% detection accuracy. Leveraged OCR to extract text from ROIs, with a 98% validation rate using regex and Verhoef algorithm, ensuring high-quality data delivery via a JSON-

## CONTACT

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## SKILLS

### Data Science:

- Machine Learning, Deep Learning, Timeseries Forecasting, NLP, Transformers

### Programming Languages:

- Python, C, Java

### Web Server Frameworks:

- Flask, Streamlit, FastAPI

### NLP Use Cases:

- Semantic Search, Information Retrieval, Parts of Speech Tagging, Sentiment Analysis, Text Generation, Question and Answering Engine, Text Summarization, Transfer Learning, Relation Extraction, Keywords Extraction, Text-Text Generation, Text to SQL, Topic Modeling, Text Classification, Multiple Choice Question and Answering, Triplet Extraction

### Deep Learning Frameworks:

- Tensorflow, Pytorch, HuggingFace

### ML/DL Use cases:

- Edge Detection, Anomaly Detection, Process Optimization, Prediction and Forecasting, Conformal predictions

### Other Skill sets:

- SQL, Postgres, Indexed ANN Search (FAISS, Elastic Search), Knowledge Graphs using Neo4j, AutoML, StatsModels, Neural Forecast, Nixtla, Azure Data Bricks, Azure Data Lake, CosmosDB, AWS bedrock

### Domains:

- Banking, Manufacturing, Insurance and marketing

## EDUCATION

### JNTUA University

Bachelor of Technology

June 2012 – August 2016

based REST A JSON-based REST API.

- Analyzed Twitter data, achieving a 90% sentiment classification accuracy with Text Blob. Created insightful visualizations, including Word Cloud, and deployed the application on Heroku.
- Implemented Python scripts for feature engineering, leveraging domain knowledge to extract meaningful attributes from raw data, which enhanced the predictive performance of Machine Learning models.

## ACHIEVEMENTS

- Received Star award for recognizing as best employee of the year in 2019.
- Performance and Outstanding Contributor award as per managers-based rating.

## CERTIFICATIONS

- Machine Learning with Python (ML0101ENv3) Issued by IBM.
- Deep learning masters (DL012007) issued by iNeuron
- Data Analysis with Python (DA0101EN) Issued by IBM
- Neural Networks and Deep learning issued by Coursera from deeplearning.ai.