Mothi Gowtham Ashok Kumar

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EDUCATION

- **Master of Science** Applied Data Science Indiana University (GPA: 3.87) **May 2024**
- **Bachelor of Engineering** Civil Engineering Anna University **Apr 2019**

SKILLS

- **Languages & Libraries:** Python, R, Pandas, SciKit-Learn, PySpark, Keras, NumPy, ONNX, Darwin V7, OpenCV, Supervised and Unsupervised Machine Learning, Support Vector Machine, Large Language Models | **Databases:** SQL (MySQL, SQLite), NoSQL.
- **Predictive Modeling:** Boosting Regression/Classification (LightGBM, XGBoost, LDA), Decision Trees, Recommendation Systems, Neural Network Architectures (CNN, RCNN, Mask R-CNN, YOLO, Transformers), Structured and Unstructured data.
- **Probability & Statistics:** Linear Algebra, Naive Bayes, Calculus, Hypothesis testing, AB or A/B testing, Causal Inference, MMM **Generative AI Tools:** LangChain, LLM, Vector/Embedding DBs (Pinecone, Chroma). | **Version Control**: Git, GitHub.
- **Engineering:** ETL pipeline development, containerization (Docker / Kubernetes) | **Visualization:** Tableau, PowerBI.
- **Cloud Tools:** Google Cloud (Cloud Run, Cloud Functions, BigQuery, VertexAI, Firebase), AWS, Azure, Hadoop.
- **Tools:** REST APIs, Microsoft & Google Workspace | **Time-Series Forecasting**: ARIMA, Exponential smoothing, parameter tuning.

EXPERIENCE

Data Science Intern | Vision AI Project **Jan 2024 - Present**
Indiana IoT Lab partnered with ClearObject ***Fishers, IN***

- Led a **computer vision** project for quality control in manufacturing, handling data collection, labelling and model fine-tuning on **GCP** with **PyTorch and TensorFlow**. Focused on segmentation **(U-net)**, detection **(YOLO)**, and classification models.
- Monitored and Deployed models on edge devices and implemented in real-time client applications with **NVIDIA's TensorRT** & **DeepStream** for boosting operational efficiency.

Data Science Intern **May 2023 - Present**
The Polis Center ***Indianapolis, IN***

- Managed data analysis for **Central Indiana State**, covering data cleaning, exploratory work, statistical modeling, and reporting.
- Crafted 3 precise **regression models** to forecast aging trends, achieving **95% accuracy**, and uncovering a significant **12% rise** in the population aged 65+ over the last decade. Reported Key Performance Indicators (KPIs) to technical & non-technical audiences.
- Coordinated with a diverse range of stakeholders & experts over 6 months in decision making to ensure data quality and relevance.

Data Science Research Assistant **Aug 2022 - Sep 2023**
Indiana University – Data Science Lab ***Indianapolis, IN***

- Published a paper on **Data-To-Question Generation Using Deep Learning by i**mproving keyword extraction and question generation **accuracy rate to 30%** with Natural Language Processing (NLP) models (NLTK, LDA, BERT, & SpaCy).
- Formulated semantically correct questions by calculating the semantic distance of **over 1000 keywords** from multi-dimensional datasets, deploying ML data pipelines, and the pre-trained **Deep Learning Neural Network models** SHERLOCK & SATO.

Data Analyst **Mar 2021 - Jun 2022**
Vugha Technological Solutions ***Chennai, India***

- Decreased the Total Recordable Incident Rate (TRIR) by **12%** for an Energy: Oil and Gas client by implementing forecasting algorithms, with results visualized in reports, charts and dashboards using Tableau/Matplotlib/Seaborn/ggplot.
- Performed data engineering, predictive modeling, including **Clustering**, resulting in a **20% diminution** in Accident rate.
- Optimized **data extraction and transformations processes (ETL)** using **Python** resulted in a 60% processing time reduction.

Database Administrator **Jun 2019 - Feb 2019**
e-Soft IT Solutions ***Trichy, India***

- Proficiently designed and implemented SQL queries, **generating over 1000 tables**, stored procedures, and views to data management while transforming the data, resulting in a **10-hour weekly minimization** in manual effort.
- Developed SQL automation processes to bolster system reliability and performance, cutting downtime by **12%**.
- Collaborated with cross-functional teams to resolve DB-related issues, amplifying user experience, and minimizing disruptions.

PUBLICATIONS & AWARDS

- **Publications:** Data-To-Question Generation Using Deep Learning at The International Conference on Big Data Analytics and Practices (IBDAP) in Bangkok, Thailand **Aug – 2023**
- **Awards:** Vugha Rise and Shine Award – Vugha Technological Solutions **Q1 - 2022**

OPEN – SOURCE CONTRIBUTIONS - KAGGLE

- **Isolated Sign Language Recognition (ISLR):** Created deep learning models for American Sign Language, aiding hearing-impaired individuals. Evaluated using neural network models including Feedforward Neural Network (FCNN), RNN, LSTM & GRU, with **GRU achieving 86% accuracy**. Explore additional projects in the GitHub & Tableau Portfolio linked in the header.