Sarthak Kumar

📞 +91-9582243710 | ✉ sarthakkumar3110@gmail.com | in sarthak kumar | ○ sarthakkumar100903

Education

Motilal Nehru National Institute of Technology, Allahabad   *2021 - 2025*
B.Tech. in Electronics And communication Engineering   CPI: 8.2

Experience

Data Scientist Intern   *Hyderabad, India*
Teliolabs Communication Private limited   May 2024 – August 2024

- **Tech Stack:** Python, NLTK, Faiss DB, Bert, Tensorflow, React, Django.
- Developed and deployed an **ML model** to predict solutions for Jira Tickets, processing and summarizing large datasets from Confluence.
- Engineered a system for data ingestion, transforming ticket data into embeddings stored in a vector database (Faiss DB), and leveraging **Bert** for contextual understanding.
- Achieved

Projects

Intelligent Chatbot for User Queries *Github | Video*   *Sep. - Dec. 2023*

Tools & Technologies: RNN, LSTM, Python, OpenAI (v3.5), NLTK, RASA, Spacy, MySQL, Ngrok, AWS EC2

Built and deployed a context-aware chatbot for **MNNIT** and **Botrush** using intent recognition and dialogue management, achieving **75%+ intent classification accuracy** for user queries.

Integrated **OpenAI API (v3.5)** to generate intelligent fallback responses, enhancing the model's robustness to queries outside predefined intents.

Successfully deployed the machine learning model on **AWS EC2 t2.micro** for production, handling **100+ user queries** on Telegram, demonstrating full model lifecycle management from development to production monitoring.

Runalytix – Intelligent Runbook Validator and Optimizer *Video | Design Doc*   *May 2025*

Tools & Technologies: Python, FastAPI, React, Redux, LangChain, RAG, OpenAI, Nutanix Calm, Epsilon, IDF

Devised **Runalytix**, an AI assistant for real-time validation and optimization of **Calm Runbook scripts**, reducing debugging time by **50%** through predictive analysis.

Implemented **LLM-based analysis** using Python to detect syntax, logic, and security issues in Shell, PowerShell, and HTTP tasks, achieving **90% issue detection accuracy**.

Integrated a context-aware suggestion engine using **LangChain + RAG**, improving fix recommendation accuracy by **35%** and reducing Runbook execution errors by **40%**.

Sustainable Traffic Management system *Github | Video*   *Jan. - Apr. 2024*

Tools & Technologies: JavaScript, Python, HTML, CSS, Gsheet, SheetDB, P5.js, YoloV4

Developed a **custom algorithm** in Python to model congestion across **50+ city layouts**, analyzing large datasets of traffic flow and bottlenecks to optimize throughput.

Leveraged **YOLOv4** for real-time traffic detection from video streams and trained a routing model to optimize path selection, improving simulated traffic speed by **25%**.

Designed a **city planning tool** to simulate and evaluate the impact of new road construction in urban layouts, improving traffic efficiency predictions by **35%** and aiding data-driven infrastructure decisions.

Technical Skills

Programming Languages Python (Pandas, NumPy, Scikit-learn), Go-Lang, JavaScript, C++, C, Java

Machine Learning AI TensorFlow, Keras, NLTK, LangChain, RAG, OpenAI API, BERT, LLAMA 3, Scikit-learn, Predictive Algorithms, LLM-based Analysis

Cloud MLOps AWS (EC2), Kubernetes, Model Deployment, Production Monitoring

Databases Faiss DB (Vector DB), MySQL, MongoDB, Cassandra DB

Web Development React, Django, FastAPI, MERN Stack (Express.js, Node.js), HTML, CSS

Tools & Concepts Git, Docker, Distributed Systems, Data Structures and Algorithms, Agile Methodologies

Publications

Advance Forecasting of Multivariate Time Series using Block Sampling Technique   *Nov. 2024*
Research Paper | IEEE Reference | Presented at IEEE UPCON 2024, SRMCEM, Lucknow, India

- Developed **Advance Block Sampling Method** that enhances time series model accuracy by **over 24%** on multivariate time series data.

Achievements

- One of the winners in **Nutanix Hackathon 2025** in Hybrid Cloud Management
- Secured **415 rank** in **Unstop Amazon ML Challenge 2024**.
- 2nd place in **AtomQuest** event of **TechFest 2023** held in **IIT Bombay**.
- Achieved **LeetCode Knight** status with a contest rating of **2109**, ranking in the top **1.8%** globally..