MOHAMMED FARHAN S M

+91 9962825738 | Chennai, India | faheemproject20@gmail.com | farhan-sm | Faheemsm16

PROFILE

Motivated and adaptable M.Tech student specializing in Artificial Intelligence and Data Science, with a B.Tech in Information Technology and hands-on experience across cybersecurity, NLP, data visualization, and embedded systems. Proficient in tools like Microsoft Power BI and Android Studio, with working knowledge of Python, Firebase, and Arduino. Successfully implemented SecureEnhanced AES encryption in a secure messaging application and presented the work at RADEST 2024. Skilled in developing interactive dashboards, building mobile apps, and designing context-aware AI solutions using transformer models. A strong collaborator with a research mindset, demonstrated through academic projects and a remote data analysis internship. Eager to contribute to innovative tech teams with a focus on intelligent systems, secure communication, or data-driven applications.

EDUCATION

MASTER OF TECHNOLOGY (M.TECH), ARTIFICIAL INTELLIGENCE & DATA SCIENCE | 95% **EXPECTED: JULY, 2026**
B.S. Abdur Rahman Crescent Institute of Science and Technology, India

BACHELOR OF TECHNOLOGY (B.TECH), INFORMATION TECHNOLOGY | 84% **JULY 2024**
Mohamed Sathak AJ College of Engineering, India

SKILL

Data Visualization | Microsoft Power BI | Data Mining and Analysis | Android Development | Android Studio | Firebase (Auth & Realtime DB) | Hardware Programming | Arduino IDE | Python (Beginner) | Cryptography | Machine Learning | Neural Networks | Natural Language Processing | Explainable AI

INTERNSHIP

Data Analyst Intern **AUG 2023 - SEPT 2023**
Excelerate, Remote
Completed a remote internship focused on data visualization and analytical communication, where I applied principles of human visual perception to design audience-appropriate dashboards and presentations. Developed strong skills in information literacy, critical thinking, and data storytelling, aligning visual outputs with industry best practices. Used tools like Excel to create clear, actionable insights and collaborated effectively with project leads in a virtual environment, demonstrating strong communication and teamwork in a cross-functional setting.

CONFERENCE PRESENTATION

Enhancing Data Security Through SecureEnhanced AES Encryption: A Comprehensive Analysis and Implementation **MAY 2024**

Presented at the International Conference on Research and Development in Engineering, Science and Technology (RADEST 2024)

- Presented findings based on the CryptoCom Secure Communication Application project.
- Focused on SecureEnhanced AES encryption and its role in strengthening real-time secure communication.

CERTIFICATIONS (HYPERLINKED)

Introduction to Modern AI | CISCO | APR 2025

Introduction to Data Science | CISCO | APR 2025

Python 3.4.3 Training | Spoken Tutorial | APR 2025

Full Stack with Python Programming | HCL GUVI | SEP 2023

Python (Basic) | HackerRank | MAR 2023

Machine Learning Onramp | MathWorks | SEP 2022

PROJECTS (HYPERLINKED)

Soft Computing-Based Zero-Day Attack Detection with Deep Neural Optimization and XAI **APR 2025**

This project presents a hybrid Intrusion Detection System (IDS) designed to detect zero-day attacks by integrating soft computing and deep learning techniques. It combines Fuzzy C-Means (FCM) clustering for unsupervised anomaly detection with an optimized Deep Artificial Neural Network (DANN) enhanced by Batch Normalization, Dropout, AdamW optimizer, and Early Stopping. SHAP-based Explainable AI (XAI) was incorporated to improve interpretability, allowing insight into the key features influencing detection decisions. Trained and evaluated on the UNSW-NB15 dataset, the system achieved a high detection accuracy of 94.10% and a reduced false positive rate of 6.79%, outperforming traditional ML models such as SVM. This approach provides an adaptive, scalable, and interpretable solution for real-time cybersecurity applications targeting unknown and evolving threats.

Decoding Emotions in Literature: NLP and Deep Learning Approaches **APR 2025**

This project explores a novel framework for fine-grained emotion detection in literary texts using Natural Language Processing and deep learning techniques. Leveraging a DistilBERT model fine-tuned on the GoEmotions dataset, the system captures subtle and overlapping emotional states—such as joy, remorse, and realization—through a sliding window segmentation technique that analyzes emotional transitions across overlapping text segments. It supports multi-label classification for detecting co-occurring emotions, and integrates intuitive visualizations like heatmaps and emotion evolution graphs to represent sentiment progression over time. Compared to traditional lexicon-based methods, the transformer-based model delivers superior contextual accuracy, making it ideal for digital humanities applications such as interactive literary analysis, emotion-aware recommendations, and automated literary interpretation.

WebPage Chatbot **FEB 2025**

Designed and implemented an intelligent web-based Question Answering (QA) system using Python, Natural Language Toolkit (NLTK), and scikit-learn. The system extracts and processes text from user-provided URLs using web scraping (BeautifulSoup), applies sentence tokenization, and leverages TF-IDF vectorization with cosine similarity to identify and return the most contextually relevant answer to user queries. Built an interactive UI with ipywidgets to support real-time, multi-turn conversations, dynamic question handling, and seamless URL switching. Ensured modular architecture for efficient content parsing, robust exception handling, and smooth user experience during live information retrieval from web articles.

CryptoCom Secure Communication Application with SecureEnhanced AES Encryption **MAY 2024**

This project involved the development of a secure Android-based messaging application implementing end-to-end encryption (E2EE) using a customized SecureEnhanced AES algorithm. The application used Firebase for real-time database management and phone-based OTP authentication, ensuring secure user verification and data synchronization. Encryption was enhanced through whitening, SPN transformation, and secure key management, providing robust protection against modern cryptographic attacks. A clean and intuitive UI supported core features such as user registration, secure messaging, profile management, and contact-based communication. The project demonstrated secure digital communication through layered encryption and a scalable, user-friendly mobile platform.

LoRa-Based Balloon Satellite for Environmental Data Logging **JUN 2023**

This project involved designing a wireless environmental data acquisition system using an ESP32 microcontroller, NEO-6M GPS module, DS18B20 temperature sensor, SD card logger, and LoRa communication. The sender unit gathered real-time temperature and GPS coordinates, logged them onto an SD card, and transmitted the data wirelessly via LoRa. The system leveraged TinyGPS, DallasTemperature, and SPI libraries for sensor interfacing and data handling. LoRa communication enabled long-range transmission, while a receiver unit decoded and displayed incoming packets along with their signal strength (RSSI). The setup was optimized for data integrity and efficient logging, making it suitable for high-altitude balloon missions and remote environmental monitoring.

LoRaWAN Enabled Temperature and Humidity Sensor Network **APR 2023**

This project focused on creating a low-power, long-range wireless environmental monitoring system using LoRaWAN and DHT11 sensors. By deploying HTCC AB01 microcontroller boards, the system reliably transmitted temperature and humidity data over long distances, making it suitable for remote and rural applications in agriculture, logistics, and healthcare. Real-time data was displayed via serial communication, and system performance was validated through experiments measuring signal stability, packet delivery rate, and sensor accuracy. The solution demonstrated a practical, cost-effective model for scalable environmental IoT networks leveraging the efficiency of LoRaWAN protocols.

Walmart Sales Analysis using Microsoft Power BI **MAR 2023**

Developed a business intelligence dashboard using Microsoft Power BI to analyze Walmart sales data, focusing on trend identification and performance optimization. Sourced and extracted data from the open Walmart API, then processed it to create interactive visualizations highlighting key metrics such as regional sales trends, product category performance, and seasonal fluctuations. The project showcased data-driven storytelling and provided actionable insights for inventory and sales strategy refinement.