KAMALI RAJENDIRAN

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PROFESSIONAL SYNOPSIS

Analytical and curious Data Science student with hands-on project experience and a good foundation in Python, SQL, and machine learning concepts. Passionate about solving real-world problems with data and continuously learning through both academic and practical pursuits.

EXPERIENCE

Business Analyst Intern | Sayvai AI Solutions, India **APR - NOV 2024**

- Analyzed client needs and identified opportunities in AI product development, contributing to tailored solution proposals that supported small business efficiency and strategic decision-making
- Led a comprehensive data science project titled Startup Investment Analysis, analyzing global funding data from over 49,000 startups to extract trends and funding dynamics.
- Conducted EDA and statistical tests to uncover correlations and patterns in startup funding behavior.

PROJECTS

1.Quantum-Assisted Portfolio Optimization using the Black-Litterman Model

- **Tools:** Python, Qiskit, Classiq, NumPy, SciPy, Pandas
- **Concepts:** Portfolio Optimization, QUBO Formulation, QAOA, Variational Quantum Eigensolver (VQE), Federated ML Architecture
- **Description:** Designed and implemented a **hybrid quantum-classical framework for portfolio optimization** by integrating **the Black-Litterman mode**l with a **QUBO** formulation to enable **quantum circuit execution**. Utilized **QAOA and VQE algorithms through Classi**q and **Qiskit platforms** for small-asset portfolios, and implemented **fallback mechanisms using SLSQP for classical optimization** in high-dimensional cases. The system dynamically selected optimization strategies based on resource constraints and problem complexity. Achieved a **3.8% improvement in Sharpe Ratio** on 2019–2023 financial data while maintaining institutional-grade constraints for asset allocation, validating the hybrid approach for scalable, real-world portfolio construction.

2.Federated Venue Classification using Geolocation Data

- **Tools**: Python, TensorFlow, Flask, SQLite, NumPy, Pandas, Jinja2,Flower
- **Concepts:** Federated Learning, Client-Server ML, Geolocation Classification, Privacy-Preserving AI
- **Description:** Developed a privacy-preserving geolocation classification system using a **custom federated learning architecture.** Each client, represented by a local **SQLite database**, trained a **neural network mode**l on check-in data including latitude, longitude, and venue category. **Model updates were sent to a central server for aggregation using federated averaging** without sharing raw data. A **Flask-based frontend** collected check-in inputs and displayed predictions using the aggregated model. The system simulated real-world decentralized training environments, demonstrating the viability of federated learning for edge intelligence in location-sensitive use cases.

EDUCATION

Master of Science in Data Science **Oct 2021 - 2026**

Coimbatore Institute Of Technology

- Engaged in various projects and group activities that enhanced teamwork and communication skills.
- CGPA: 8.04 (upto 7th sem)

COMPETITIONS

- Smart India Hackathon Finalist – Cloudburst Prediction Model (Oct 2023)

RESPONSIBILITIES

- Coordinator – Shrishti, The Literary Club (Mar 2023 – 2024)
- Treasurer – Women Empowerment Cell (Nov 2022 – Aug 2023)