

# KALAICHARAN M

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## PROFILE

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### AI & Data Science Engineer | Python Developer | Generative AI Specialist

- Results-driven AI & Data Science Engineer specializing in Machine Learning, Generative AI (RAG, LangChain), and AWS Cloud. Proven track record in building high-accuracy ML models (92%), deploying AI-powered legal retrieval systems, and creating data-driven dashboards (18% attrition reduction). Certified in AWS, Python (PCAP), and Cisco Networking. Passionate about solving business problems with scalable AI solutions.

## EDUCATION

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**B.Tech(AI&DS)** - Sri Krishna College Of Technology, Coimbatore | CGPA : 7

**HSC** - Jaivins Academy | 78%

**SSLC** - Vetri Vikaas Public School | 65%

## SKILLS

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**Languages** : Python (Pandas, NumPy, OOP), SQL (Joins, Subqueries)

**ML/DL**: TensorFlow, Keras, Scikit-learn, XGBoost, CNN, LSTM, Matplotlib, Model Evaluation.

**Generative AI & LLMs** : GPT-4o, OpenAI APIs, LangChain, RAG, Prompt Engineering, Embeddings, FAISS

**Analytics** : Power BI, DAX, Power Query, Drill-through, Excel (Pivot Tables, Functions)

**Tools** : Jupyter Notebook, VS Code, PyCharm, Git, MySQL, AWS (EC2, S3), Flask (API), Streamlit

**Concepts**: Feature Engineering, Time-Series Forecasting, Model Deployment, Semantic Search, RAG Pipelines.

## PROJECTS

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### LEGAL CHATBOT(AI-Powered IPC Query System) | [GITHUB](#)

- Developed a Flask-based web app using LangChain, HuggingFace embeddings, and FAISS to retrieve relevant Indian Penal Code (IPC) sections from a local vector database.
- Built a dual-LLM system with LM Studio (local) and OpenAI APIs, using smart routing for IPC queries to balance privacy and complexity, achieving 90%+ accuracy.
- Implemented API-first development with Flask, designing JSON interfaces for frontend-backend communication, validated through comprehensive Postman testing before UI integration.

### DEMAND FORECASTING - MACHINE LEARNING | [GITHUB](#)

- Developed an XGBoost-based time-series model to predict sales demand using historical data, reducing forecast error by 22%.
- Engineered 15+ temporal features (lag variables, rolling averages, holiday indicators) and Fourier transforms to capture seasonality (RMSE: 1.2).
- Optimized hyperparameters using GridSearchCV over 50+ combinations with 5-fold time-series cross-validation to avoid overfitting.

## HR ANALYTICS DASHBOARD FOR EMPLOYEE ATTRITION | [GITHUB](#)

- Designed an **interactive executive dashboard** analyzing attrition drivers across **department, age band, salary tier, and education level**, enabling leadership to reduce attrition by **18%**
- Utilized **Power Query** for data transformation and **DAX** for KPI calculations.
- Integrated **slicers, charts, and drill-throughs** to extract actionable business insights.

## PHISHING DETECTION AND CLASSIFICATION - DEEP LEARNING | [GITHUB](#)

- Achieved **92%** accuracy in classifying malicious URLs using **hybrid deep learning** model.
- Implemented dropout and batch normalization to prevent **overfitting** .
- Visualized results using **confusion matrices** and ROC curves .
- Reduced false positives by 15% using precision-recall curve optimization.

## PROFESSIONAL EXPERIENCE

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### Data Science & GenAI Intern – Palle Technologies (APRIL 2025 – Present)

- Built ML/DL models for classification using Python and TensorFlow.
- Developed phishing detection and RAG-based legal retrieval system using LangChain, FAISS.
- Created dashboards in Power BI for HR and project insights.

### Cloud & AWS Intern – Quizaro (Oct 2023 – Dec 2023)

- Deployed scalable Flask-based apps on AWS EC2 and integrated S3 storage.
- Gained practical knowledge of cloud architecture and deployment patterns.

## CERTIFICATIONS

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- Cisco Certified – CCNA Series (2024)
- PCAP – Programming Essentials in Python
- AWS Cloud Computing – Specialization Certificate
- Cybersecurity Fundamentals – Cisco Networking Academy