

# RAJAGOPAL SOMASKANDAN

Chennai, India

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## PROFESSIONAL SUMMARY

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Applied Machine Learning Engineer with hands-on experience building end-to-end, production-style ML systems for fraud detection, semantic search, and ranking problems. Strong focus on model performance, explainability using SHAP, and business-aligned evaluation with XGBoost, LightGBM, and modern NLP pipelines deployed via FastAPI.

## SKILLS

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- Programming & Databases:** Python, Java, SQL (PostgreSQL, MySQL), MongoDB
- Machine Learning:** Supervised and Unsupervised Learning, Feature Engineering, Model Training, Hyperparameter Tuning, Evaluation Metrics
- ML Algorithms:** Linear Regression, Logistic Regression, Decision Trees, Random Forest, XGBoost, LightGBM
- NLP & Generative AI:** Transformers, spaCy, NLTK, Sentence Embeddings, Semantic Search, Retrieval-Augmented Generation (RAG), Prompt Engineering, LangChain, ChromaDB
- Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Plotly, Streamlit, Power BI
- APIs, Deployment & Tools:** FastAPI, Flask, REST APIs, Docker, Git/GitHub, MLflow, AWS (Basics)

## EDUCATION

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**Sathyabama Institute of Science and Technology**

B.Sc. Computer Science (AI Specialization), First Class

M.Sc. Computer Science

Chennai, India

May 2025

Expected 2027

## PROJECTS

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**FinGuard Pro: Explainable AI for Financial Fraud Detection**

2025

github.com/Somaskandan931/FinGuardPro

- Architected an end-to-end fraud detection and risk scoring pipeline using Python, SQL, and XGBoost on a synthetically generated, highly imbalanced UPI transaction dataset
- Engineered features and optimized decision thresholds to achieve **94% recall** with a **ROC-AUC of 0.995**, balancing fraud detection and false-positive rates
- Integrated SHAP-based model explainability to enable transaction-level root-cause analysis for audit and compliance workflows
- Designed rule-based AML screening logic using velocity and structuring patterns to reduce noise in rule-triggered alerts

**SourceUp: Explainable Procurement Intelligence Platform**  
github.com/Somaskandan931/SourceUp

2025

- Built a semantic supplier search engine using Sentence-BERT embeddings and FAISS to eliminate infeasible matches and improve sourcing efficiency
- Trained a LightGBM learning-to-rank model to optimize result relevance, achieving **NDCG@10 of 0.7439 (+9.2%)**
- Deployed scalable FastAPI microservices with Redis caching to support low-latency semantic retrieval across **10k+ validated supplier profiles**

**CareerGenie: Resume-to-Job Matching System (RAG)**  
github.com/Somaskandan931/CareerGenie

2025

- Implemented a Retrieval-Augmented Generation pipeline combining semantic retrieval with LLM reasoning for resume to job matching
- Designed embedding-based indexing using Sentence-Transformers and ChromaDB to enable query-aware and location-aware retrieval
- Developed an ATS-optimized resume generation module that converts structured candidate profiles into LaTeX resumes

## EXPERIENCE

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**Data Analyst Intern** | India Advocacy  
Chennai, India

Jul 2024 – Oct 2024

- Cleaned, filtered, and structured over 1M web records and reduced to 15-20k records to support targeted outreach campaigns
- Built automated data extraction pipelines using Java and Selenium to improve data collection efficiency
- Worked with real-world data quality issues, implementing validation checks aligned with business usability requirements

**Security Trooper (National Service)** | Singapore Armed Forces  
Singapore

Jan 2020 – Jan 2022

- Supported security operations, operated authorized transport vehicles under regulated operational environments and assisted Ministry of Health COVID-19 task force initiatives through structured data collection and reporting

**Sales Associate (Part-Time)** | Bata  
Singapore

Feb 2022 – Aug 2022

- Worked in a high-volume retail environment, managing customer interactions and daily operational responsibilities with strong communication, time management, and teamwork skills

## CERTIFICATIONS

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**AI and Machine Learning**, SpaceZee Technologies  
**Python Core**, SpaceZee Technologies

Jun 2024  
Feb 2024

## PUBLICATIONS

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**FinGuard Pro: Explainable AI for Financial Fraud Detection**, ICAAIC 2025 (ISBN: 979-8-3315-6587-9)  
**Real-Time Explainable Fake News Detection using BERT-LSTM**, ICASET 2025