

# Rajesh Marudhachalam

Toronto, ON [rajesh.marudhachalam@gmail.com](mailto:rajesh.marudhachalam@gmail.com) +1-999-999-9999  
[linkedin.com/in/rajesh1804](https://www.linkedin.com/in/rajesh1804) [github.com/rajesh1804](https://github.com/rajesh1804) [rajesh1804.github.io](https://rajesh1804.github.io)

## Summary

**Production AI/ML Engineer with deep expertise in real-time systems, agentic LLM pipelines, and forecasting at scale.** I build latency-aware, drift-resilient systems using online learning, vector search, and multi-agent orchestration. Currently building full-stack AI systems and looking to drive real-world AI adoption at top-tier orgs.

## Core Skills

ML/AI Systems: Real-Time ML, Drift Detection, Online Learning, Agentic LLMs, RAG, Recommenders, Forecasting  
Frameworks: LangGraph, OpenRouter, Hugging Face, FAISS, Weaviate, ONNX Runtime, river, PyTorch, PySpark  
Infra/DevOps: Docker, AWS (EKS, Lambda, S3), Spark, Snowflake, Airflow, Kafka  
Languages: Python, SQL, Shell, JavaScript

## Signature Projects

**RideCastAI 2.0 — Real-Time Fare Prediction with Drift Detection** [\[Demo\]](#) [\[Medium\]](#) [\[GitHub\]](#)  
Built **latency-optimized** fare/ETA system using **ONNX**, **river** (online learning), and **drift detectors** (HalfSpaceTrees, KSWIN). Includes **live error tracker**, **explainability toggles**, and simulated ingestion. Reduced fare prediction MAE by **27%** over XGBoost baseline.

**ThreadNavigatorAI 2.0 — Multi-Agent Reddit Analyzer** [\[Demo\]](#) [\[Medium\]](#) [\[GitHub\]](#)  
Built agentic **summarizer/fact-checker/evaluator** pipeline using **LangGraph** and **OpenRouter**. Features **model trace visibility**, **retry logic**, **Wikipedia + web search** fact-checks. Delivered **25%** improvement in factual consistency and summary accuracy on test Reddit threads.

**StreamWiseAI — Personalized Movie Recommender + Retention Agent** [\[Demo\]](#) [\[Medium\]](#) [\[GitHub\]](#)  
Built **RAG-based LLM agent + semantic search engine** using **Sentence-BERT**, **OpenRouter**, and **streamed watch context**. Personalization + retry logic with graceful fallbacks. Improved user retention simulation by **19%** via personalized agent responses.

**GroceryGPT+ — LLM-Powered Grocery Search with Typo Resilience** [\[Demo\]](#) [\[Medium\]](#) [\[GitHub\]](#)  
Built a semantic grocery search app using **Sentence-BERT**, **Weaviate Vector DB**, and **OpenRouter** LLM reranker. Features **typo-tolerant search**, rerank toggle, and Instacart-style UX. Achieved **99%** recall@5 on semantic queries and handled typos with **0.2s** latency.

## Experience

**BlueCat Networks** — Toronto, Canada

*ML Developer*

Jul 2024 – Present

- Built **RAG assistant** for infrastructure diagnostics — reduced triage time by **40%**
- Deployed **ETS & ARIMA forecasting models** — improved infra planning by **30%**
- Delivered real-time **anomaly detector** — achieved **92% precision**, **40%** fewer false positives

*Software Developer - ML Platform*

Jan 2024 – Jul 2024

- Scaled **ML-driven monitoring systems** across **500+** edge devices
- Operationalized **weakly-supervised detection models** for security telemetry

*ML Research Intern — Security AI*

May 2023 – Dec 2023

- Developed **pairwise relation model** for **DNS tunnel detection** — beat baselines by **23%**

**J.P. Morgan Chase** — Bengaluru, India

*Software Engineer II — Wealth Management* (Top performer Q1 2024)

Jan 2022 – Aug 2022

- Migrated **PySpark ETL pipelines** to **AWS EKS + Snowflake** — cut infra cost by **20%**
- Built **15TB data lake (HDFS)** for **10+ teams**; accelerated queries by **60%**

*Software Engineer I — Wealth Management* (Top performer Q4 2020)

Aug 2020 – Jan 2022

- Designed **PySpark framework** for ingesting **10M+ records/day** — **11x** faster ETL
- Automated **schema validation + alerting** — reduced pipeline failures by **80%**

*Intern — Asset Management* (Top 6 APAC Intern)

Jan 2020 – Jul 2020

- Built **React-based analytics dashboard** replacing Excel — saved **2 hours/day**

## Education

**University of Toronto**, MSc in Applied Computing (AI)

2022 – 2023

CGPA: 3.9/4.0 *MITACS Accelerate Grant*

**Vellore Institute of Technology**, B.Tech in CSE

2016 – 2020

CGPA: 9.27/10.0 *Merit Scholarship for Academic Excellence*

# Certifications

AWS Certified Developer Associate, TensorFlow Developer Certificate, Deep Learning Specialization