Adityan Kesavan

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Technical Skills

Languages: Python, Java, TypeScript, JavaScript, SQL
Frameworks & Libraries: FastAPI, React, React Native, pandas, NumPy, XGBoost, Transformers, PEFT
Tools & Databases: Git, Docker, GitHub Actions, Maven, JUnit 5, pytest, Supabase, PostgreSQL, SQLite
Software Engineering: Backend development, OOP, REST APIs, unit & integration testing, data pipelines / ETL
AI & ML: RAG, LLM agents & tool calling, LLM evaluation, QLoRA fine-tuning, feature engineering, SHAP

Experience

Freelance AI Quality Analyst May 2026 – Nov 2026
Outlier

- Reviewed 40–50 websites for AI training suitability by assessing content quality and adherence to task requirements.
- Identified instruction-following failures by testing adversarial prompts and evaluating generated outputs against rubrics; categorized errors to document recurring failure types.

Technical Projects

Triagent [Demo] | *Python, FastAPI, RAG, LLM Agents, QLoRA, Docker, GitHub Actions* 2026

- Raised incident-severity accuracy from 38% to 93% and correct abstention from 0/7 to 7/7 on 32 labeled incidents by building a hybrid-retrieval (BM25 + vector) RAG pipeline and LLM agent with code-enforced citations.
- Improved a 1.5B open-weight model's severity accuracy from 28% to 88.5% on 200 held-out incidents (95% CI on gain: +52.5 to +68.5 pts) by QLoRA fine-tuning on 1,360 rubric-labeled examples on a free GPU.
- Cut successful prompt-injection attacks from 16/16 to 2/16 by adding citation checks and output guards, run in CI.
- Shipped a zero-cost public demo backed by 448 tests and 5-job CI by containerizing a FastAPI service with SSE streaming, Prometheus metrics, Slack/Alertmanager webhooks, and a feedback loop.

Vestora | *React Native, TypeScript, Supabase, PostgreSQL, REST APIs* 2026

- Built stock research and paper-trading features by integrating 4 REST APIs—Finnhub, Alpaca, Twelve Data, and Gemini—through TypeScript backend services and Supabase Edge Functions.
- Implemented generative AI assistance with Gemini large language model (LLM) tool calling and confirmation for write actions; handled API errors through schema validation, caching, retries, and provider fallback.

Housing Burden Data Pipeline & ML Analysis | *Python, pandas, NumPy, XGBoost* 2026

- Standardized data preparation for 57,936 records and 390 modeling variables by scripting an automated Python ETL pipeline to merge 448-column source data, clean features, and remove data leakage.
- Achieved a test R^2 of 0.705 by training and evaluating Elastic Net and XGBoost machine learning models; applied feature engineering, PCA, clustering, and SHAP to analyze patterns and explain predictions.

DuckSpeak [Demo] | *React, TypeScript, MediaPipe, IndexedDB* | HackHarvard 2025

- Enabled browser-based ASL recognition from 21 hand landmarks by collaborating on a computer vision application using MediaPipe, normalized feature vectors, KNN, and logistic regression.
- Applied temporal smoothing and confidence thresholds to live recognition predictions; persisted datasets and models in IndexedDB to support repeatable training.

Education

Western University London, ON
Bachelor of Science in Computer Science *2024 – Expected 2029*

Relevant Coursework: Data Structures & Algorithms, Software Engineering, Systems Programming, Machine Learning.
In Progress: Object-Oriented Design & Analysis, Artificial Intelligence.

Awards

Waterloo Canadian Computing Competition Honour Roll | Waterloo Fermat Honour Roll | HackHarvard 2025 Participant