Tanay Jagadeesh

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Education

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Management Engineering (Software/Industrial Equivalent) — *Sep 2025 – May 2030*

Experience

Founding Engineer, Hands AI | *TypeScript, PostgreSQL, Python, SupaBase, LLM* — Toronto, ON
Backend, Data and ML Infrastructure — *Sep 2025 – Dec 2025*

- Built production RAG pipelines using Ollama embeddings and vector search to deliver personalized recommendations to **250+ signup users** across **500+ recipes**
- Engineered Supabase/PostgreSQL systems across **4 domains** with row-level security, executing **3,000+ transactional writes** with zero data loss
- Shipped TypeScript services handling **1,500+ authenticated sessions** with concurrency-safe inserts across **5 normalized tables**

Data Engineer, Sephira Institute | *Python, SQL, FastAPI, PostgreSQL, ETL, LLM APIs* — Remote
ML & Analytics Platform Development — *Dec 2025 – Present*

- Building LLM-powered analytics chatbot integrating OpenAI API with sentiment time-series data across **20+ countries**, processing **100+ queries per day** with automated chart generation and data source attribution
- Engineering automated data ingestion pipelines from **3 external APIs** (Google Trends, YouTube, Spotify) executing **daily updates** across **20+ regions** with **4 validation layers** including outlier detection and API failure handling
- Implementing **5+ query guardrails** and content filtering to prevent data reconstruction and ensure compliance

Projects

Canadian Tech Job Market Analytics Platform | *Python, PostgreSQL, Streamlit, pandas, Matplotlib* — *Dec 2025*

- Engineered automated ETL pipelines ingesting **1500+ job postings** into PostgreSQL star-schema warehouses and running **6 analytical SQL models** (CTEs, window functions, percentiles) to compute real-time skill demand and salary benchmarks across **17 companies**
- Built a **4-page interactive Streamlit BI dashboard** with Plotly visualizations, dynamic filtering, and co-occurrence heatmaps analyzing **10+ job titles** and **8 core skills**
- Implemented scheduled refresh and analytics workflows generating **daily market trend updates**, salary estimates for **10+ roles**, and **19 unique skill-pair insights**, revealing SQL in **84%** of data engineering roles

Code Clash, Real-Time Competitive Coding Platform | *Next.js, Supabase, WebSockets* — *Jan 2026*

- Built a real-time 1v1 competitive coding platform with WebSocket matchmaking, opponent tracking, and synchronized match state serving **500+ registered users**
- Designed concurrency-safe PostgreSQL schemas with triggers, functions, and RLS policies to persist **4,000+ match sessions** across normalized tables
- Designed and implemented real-time ranking and matchmaking pipelines computing win rates, Elo-style ratings, streaks, and percentiles across **1,200+ competitive problem attempts**

Signature Forgery Detection System | *Python, PyTorch, torchvision, CNN, scikit-learn* — *Jan 2026*

- Built a CNN-based signature verification model achieving **81% accuracy** detecting forged signatures across **6000+ images** using transfer learning with ResNet-18 and a custom classification head
- Implemented data augmentation pipelines (rotation, scaling, Gaussian noise) and preprocessing to handle real-world signature variation, improving model robustness by **12%**
- Evaluated model performance using ROC-AUC (**0.94**) and confusion matrix analysis, optimizing decision thresholds to minimize false negatives for fraud prevention use cases

Technical Skills

Programming & Backend: Python, SQL, TypeScript, JavaScript, HTML/CSS, FastAPI, WebSockets, Git
Data Engineering & Analytics: Databricks, Apache Spark (PySpark), Delta Lake, PostgreSQL, Supabase, ETL Pipelines, Star-Schema Warehousing, CTEs, Window Functions, Streamlit
Machine Learning & Analytics: PyTorch, scikit-learn, XGBoost, Transfer Learning, pandas, NumPy, Matplotlib