

AGILAN SIVAKUMARAN

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SUMMARY

Applied AI & Data Engineer with a strong software engineering foundation, building end-to-end machine learning systems and data-driven applications. Experienced in Python, SQL, FastAPI, cloud platforms, and MLOps, with hands-on work in NLP, forecasting, computer vision, and LLM-powered workflows. Background delivering production web and data systems, with a focus on translating real-world problems into scalable, measurable solutions.

SKILLS

- **Programming & ML:** Python, SQL, Pandas, NumPy, PyTorch, TensorFlow, LSTM, XGBoost, OpenCV, MLOps
- **AI Tools & LLMs:** LangChain, CrewAI, OpenAI, Prompt Engineering, Pinecone, Transformers, Hugging Face, RAG
- **Cloud & Data:** AWS, Docker, Kubernetes, CI/CD, Tableau, Snowflake, BigQuery, Airflow, ETL, PostgreSQL, FastAPI
- **Full-Stack Tools:** React, HTML, CSS, JavaScript, TypeScript, C#

TECHNICAL EXPERIENCE – More at github.com/agilancan

St. Michael's Hospital Oct 2025 – Present

AI Researcher (Volunteer) | Toronto, ON

- Developed an interpretable, survey-weighted ML model to identify past-year Major Depressive Episode (MDE) using NSDUH population data, optimized for high recall and screening-focused negative predictive value.
- Built and evaluated logistic, Random Forest, and XGBoost models with population weights, compact feature sets, and PR-AUC–driven model selection for imbalanced outcomes.
- Performed model explainability, calibration, and subgroup analysis (SHAP, PDPs, reliability curves) to assess stability, fairness, and clinical plausibility across demographic groups.
- Built a fully reproducible, config-driven ML pipeline covering data ingestion, preprocessing, training, evaluation, and reporting to support publication-ready results and clean handoff.

Fake News Detection Jul 2025 - Aug 2025 [\[GitHub\]](https://github.com/agilancan/fake-news-detection)

- Fine-tuned RoBERTa on fake news data and integrated RAG + FAISS with verified sources for >90% accuracy. Deployed FastAPI + GCP pipeline, pushed to Hugging Face, and integrated frontend for real-time verification of 100+ articles/day.

End-to-End ML Pipeline for Bankruptcy Prediction Jul 2025 - Aug 2025 [\[GitHub\]](https://github.com/agilancan/end-to-end-ml-pipeline-for-bankruptcy-prediction)

- Developed an end-to-end ML pipeline for bankruptcy prediction, boosting ROC-AUC by 12% with XGBoost and incorporating SHAP explainability plus PSI drift monitoring to ensure robust model stability and real-world readiness.

SafeRoomAI: Real-Time Security AI Platform [\[GitHub\]](#)

May 2025 - Jul 2025

- Implemented OpenCV, YOLOv8, and GRU to detect actions and flag anomalies in video streams with ~92% precision.
- Built and deployed backend APIs with FastAPI and PostgreSQL, also integrating AWS RDS and S3 for scalable storage.

Greenearth Connect: Environmental Health AI Platform [\[GitHub\]](#) [\[Demo\]](#)

Jan 2025 - Apr 2025

- Developed AQI forecasting engine using XGBoost and LSTM (RMSE ↓ from 9.96 to 7.03), designed Random Forest activity recommender based on health and environmental conditions, and built HuggingFace NLP pipelines for news summarization, overcoming limited datasets and integrating multi-pipeline AI models into a unified platform.

Pharmacy.ca

May 2024 – Oct 2024

Director of Digital Marketing | Toronto, ON

- Designed and maintained end-to-end analytics pipelines using GA4, GTM, SQL, and HubSpot to enable full-funnel measurement, attribution, and automated reporting.
- Led experimentation and optimization using A/B testing, funnel analysis, and cohort analysis, improving conversion efficiency, retention, and acquisition cost.
- Built and optimized WordPress-based e-commerce and informational platforms, improving page-load performance, SEO, and UX/UI through technical and front-end enhancements.
- Managed backend integrations and data flows between CMS, analytics, CRM, and campaign platforms to support scalable reporting and data-driven decision-making.

Doohickey Inc.

Jul 2017 – Feb 2025

Senior Digital Strategist | Toronto, ON

- Led agile development of WordPress, React, and Unity projects, including ML and UX/UI, cutting time-to-market 30%.
- Leveraged GA4, SQL, data analysis, and A/B testing to optimize funnels, boosting retention 22% and conversions 15%.
- Drove +40% organic traffic and +25% domain authority through SEO, content optimization, and user behavior analysis.

EDUCATION & CERTIFICATIONS

Durham College

Jan 2025 – Aug 2025

- Graduate Certificate in Artificial Intelligence Analysis, Design, and Implementation (Applied analytics, experimentation, and predictive modeling for marketing and business decisions)

Trent University

Sep 2007 – Apr 2012

- Honours Bachelor of Business Administration (Obtained a Minor in Information Systems)

Project Management Association of Canada

Sep 2012 - Oct 2012

- Certified Agile Project Manager (Cert.APM)