Sean Fontaine

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Summary

Applied Data Scientist (MADS @ Michigan) with end-to-end ML experience and product mindset. Strengths in feature engineering, interactive applications, and LLM-based pipelines.

Selected Projects

StethoscribeAI — Real-time Medical Scribe: Live transcription of clinician–patient conversations, medical entity extraction, and structured clinical notes; supports English/Cantonese/Mandarin. *Stack: React, FastAPI, WebSockets, AWS Transcribe, AWS Translate, Comprehend Medical, AWS Bedrock (Mistral 70B).*

News vs. Podcasts Analysis: BERTopic topic modeling, LLM-based stance (Mistral, CoS), and sentiment (VADER/TextBlob) over 25K+ articles/transcripts, with interactive dashboards comparing podcasts vs public news. *Stack: Python, BERTopic, sentence-transformers, FastAPI, Plotly/Recharts.*

800m Performance Calculator: FastAPI + React app using linear regression to predict race times from training splits; 84% of test predictions within ±1s on test data; widely used by Hong Kong athletes. *Stack: FastAPI, React, scikit-learn.*

VGC Team Recommender: Multi-label XGBoost for teammate recommendation from a restricted core; example-based F1 0.78 (+23% vs baseline). *Stack: XGBoost, scikit-learn, FastAPI, Joblib.*

Enron Chatbot: LangChain/Streamlit system integrating Enron emails and stock data for cited, conversational analysis. *Stack: LangChain, RAG, Streamlit, OpenAI Agents SDK.*

Technical Skills

Machine Learning: XGBoost, Random Forest; clustering, PCA; evaluation (F1 micro/macro, ROC-AUC). **NLP:** BERTopic; transformers (sentence-transformers, Hugging Face); LLM prompting/pipelines. **Data & Backend:** Python (pandas, NumPy, scikit-learn), FastAPI; WebSockets. **Frontend & Vis:** React, Plotly, D3.js, Altair. **Databases:** SQL (PostgreSQL, SQLite). **Programming Languages:** Python, Java, JavaScript/TypeScript. **Languages:** English (Native), Mandarin (Advanced), Cantonese (Limited Working).

Experience

CS & Mathematics Tutor · All Round Education Academy — Sep 2022 — Jul 2023

Mentored IB/A-Level students on Python/Java projects; taught advanced math and OOP.

Teacher | TFA Corps Member · Alliance MIT (Teach For America) — Jun 2020 — Jun 2022

Designed 10-week JS curriculum; 97% programming pass and 193.5% reading growth

Education

Master of Applied Data Science · University of Michigan — May 2023 — Aug 2025

M.Ed., Urban Education & Leadership · Loyola Marymount University — Sep 2021 — Jul 2022

B.A., Communication · UCLA — Sep 2016 — Jul 2020