

IAN TONGS

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EXPERIENCE

COMCAST

Philadelphia, PA

Senior Machine Learning Scientist; Research, Analytics, and Data Science

2024 – Present

Data Scientist; Enterprise Analytics and Data Science

2023 – 2024

- Designed and deployed a multi-agent forecasting system informing C-suite stakeholders on long-term strategic decisions; supervisor-pattern orchestration with RAG retrieval and structured PDF outputs (LangGraph, LangChain)
- Built a stakeholder-facing research and synthesis agent (in beta with internal stakeholders) that allows users to query company data and external sources directly, generating branded slide outputs via a LangGraph StateGraph with conditional retry (LangGraph, python-pptx, Databricks model serving)
- Built the RAG retrieval layer underpinning the agentic systems above — vector store chunking with MMR reranking — to mitigate hallucination and integrate enterprise knowledge sources (LangChain, vector DB)
- Maintained end-to-end model deployment via a custom Databricks–GitHub–MLflow pipeline, contributing code to extend the pipeline itself; maintained strict SLAs across a model feature store feeding >200 production models (PySpark, MLflow)
- Designed and implemented a prospect-targeting model suite supporting a >\$10M monthly acquisition campaign, including experimentation against incumbent approaches, and prescriptive techniques tailored to treatments (scikit-learn, MLflow)

SHOPIFY LOGISTICS

Remote / Jersey City, NJ

Data Scientist; Node Optimization Team (warehouse operations data science)

2022 – 2023

- Developed a proof-of-concept optimization framework for targeted cycle counts to reduce inventory mismatches across the network, reducing stock-outs and increasing customer confidence in inventory levels (Python, SQL, Databricks)
- Constructed and deployed updated reports into SKU-wise customer inventory levels across Shopify warehouses and network, which reduced unexplained changes in inventory levels reported to the customer by 90% (SQL, Mode, Databricks)

MIT SLOAN | SCHNEIDER ELECTRIC

Cambridge, MA

Data Science Collaboration Partner

2021

- Analyzed over 30M device alarm records to cluster alarms; developed a two-stage clustering approach using NLP (Word2Vec) and adaptive clustering (AP Clustering, DBSCAN) to practicably cluster alarms, reducing alarm volume by 65%

MIT OPERATIONS RESEARCH CENTER

Boston, MA

Optimization of electric vehicle charge and discharge timing

Research Assistant to Professor Georgia Perakis

2021 – 2022

- Investigated the structure of US electricity market operators, mined over 100M points of pricing data via APIs (Python)
- Formulated an optimization approach to modeling electric vehicle and stationary storage electricity purchasing and selling decisions to improve renewable energy usage in the grid and maximize customer savings (Python, Julia — CPLEX)

NETWEALTH ASSET MANAGEMENT

Melbourne, Australia

Personal wealth management platform (fintech) with over \$40B USD under management

Data Analyst, promoted from Marketing Analyst in 2020

2017 – 2021

- Investigated causal factors behind customer churn and engagement, devised strategies to predict and intervene with the customer, visualized through Power BI, and presented results to the board of directors (Python, SQL, Power BI)

TECHNICAL SKILLS

Machine Learning (R, Python, MLflow) · **Optimization** (Julia/JuMP, Gurobi, IAI, Google OR) · **Databases** (SQL, S3/AWS, Snowflake, PySpark — Databricks) · **Data Visualization** (Power BI, Plotly) · **LLMs** (LangChain, LangGraph, OpenAI, Ollama)

EDUCATION

MIT SLOAN SCHOOL OF MANAGEMENT

Cambridge, MA

Master of Business Analytics, Operations Research Center

2021 – 2022

- Relevant coursework:** Machine Learning under a Modern Optimization Lens, Optimization Methods, Integer Optimization, Advanced Analytics Edge, Hands-On Deep Learning, Inference and Information (listener)
- Machine learning project:** leveraged a 16,000+ observation healthcare survey to prescribe lifestyle treatments to reduce excess stress through a framework of interpretable prediction and prescription via Optimal Policy Trees (Julia, IAI)

MONASH UNIVERSITY

Melbourne, Australia

Bachelor of Science in Mathematical Statistics; Bachelor of Economics in Econometrics

2017 – 2020

- Scholarships and awards:** Monash Community Leadership Scholarship (2018–2020), Dean's Commendation List (Economics, top 5% of cohort, 2020), Dean's Award (Science, 2017–2019), 2nd place, RMIT University Analytics Competition (2017)
- Coursework:** Statistics, Time Series Analysis, Econometrics, Linear Algebra, Real Analysis, Algorithms and Data Structures
- Leadership and volunteering:** Access Monash Mentor to underrepresented students (2018–2020); Monash Ambassador for the promotion of tertiary education among high school students with a focus in Science (2019)

Interests: passionate skier and badminton player (albeit unaccomplished), food and travel enthusiast.