Tristan Ko

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Education

University of Waterloo — Waterloo, ON

Bachelor of Applied Science (BASc), Management Engineering (3.7 GPA) — *Sept. 2024 – Apr. 2029*

- Coursework: Data Structures & Algorithms, Probability & Statistics, Linear Algebra, Statistical Modeling, Optimization

Experience

Incoming Technical Analyst — Jan 2026 -Apr 2026

Ontario Ministry of Transportation — *Toronto, ON*

- Focusing on software analysis, data management, and supporting development/testing of multi-tier web applications
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Supply Chain Intern — May 2025 – Aug 2025

Iovate Health Sciences International Inc. — *Oakville, ON*

- Developed an advanced **Excel-based** buying tool to calculate reorder timing and quantities across **800+ active SKUs**, aligning purchases with Days of Supply targets to reduce manual planning and decision time by **90%+**
- Built a Python script with **Pandas** to automate **ERP** uploads, eliminating manual entry and ensuring **100%** data integrity
- Designed a **Power BI** dashboard centralizing key supply metrics, cutting report searches and boosting visibility by **70%**
- Analyzed warehouse deviation data using **SQL** and **Excel** to identify systemic issues, reducing fulfillment errors by **35%**

Firmware Developer — Jan 2025 – May 2025

UW Orbital — *Waterloo, ON*

- Developed CubeSat firmware and GNC systems for the Canadian Satellite Design Challenge, integrating real-time control, telemetry, and hardware synchronization across **3+ subsystems** to enhance responsiveness and stability by **25%**
- Programmed and optimized embedded C/C++ modules for sensor fusion, actuator control, and fault detection, implementing interrupt-driven scheduling to reduce command latency and test cycle times by **40%**
- Designed a watchdog system to detect and recover from communication faults, improving reliability and uptime by **30%**

Projects

Stock Market Classification Model | *Python, XGBoost, Scikit-learn, Pandas, NumPy, yfinance*

- Built classification models for SPY, QQQ, DJI & IWM to predict 1D, 5D and 20D price direction with ∼**52-57%** accuracy
- **Automated** an **ETL** pipeline using yfinance to ingest data, update features, and generate daily price predictions
- Validated model performance using time-based cross-validation and **F1-score** to ensure stability across market regimes

Code Ranch | *Next.js, React, TypeScript, Tailwind CSS, Supabase, PostgreSQL, Lucide React*

- Developed a gamified syntax typing game for programmers using **Next.js** and **TypeScript** with multiple modes and stats
- Implemented **real-time multiplayer** duels using Supabase Realtime to sync code and live progress with **<100ms** latency
- Designed a **normalized PostgreSQL** schema and implemented Supabase **RPC** to manage relational data for social systems, online presence, and user metrics

Toronto Housing Price Predictor | *Python (pandas, NumPy, scikit-learn, XGBoost), PostgreSQL*

- Built a housing price forecasting pipeline on **5.78M+** rows from **StatsCan** and Valet **API** data for Toronto real estate
- Developed an **XGBoost regression model** using economic and housing features across multiple forecast horizons
- Structured separate models for 1M, 3M, 1Y, and 2Y horizons, achieving ∼**7-9% MAPE** at the 1-year horizon

Skills

Languages: Python, Java, R, C/C++, SQL, JavaScript/TypeScript
Libraries: Pandas, NumPy, scikit-learn, XGBoost, Matplotlib, Plotly
Frameworks & Tools: FastAPI, PostgreSQL, React,, Git, Power BI, Excel VBA