Yohan Zytoon

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Professional Summary

- Quant-minded builder with a mathematics/computer science foundation, focused on reinforcement learning, market microstructure, and data-intensive products for trading teams.
- Blend research prototyping (RL agents, GNNs, stochastic control) with product instincts developed through internships in AI, BI, and financial services.
- Comfortable spanning C++/Python backends, Azure ML deployment, and stakeholder communication in English, French, and Arabic.

Education

Université de Montréal — **Montréal, Québec — Expected Dec 2026**
B.Sc. Mathematics and Computer Science — *Focus: probability, stochastic processes, optimization, ML systems*

- Advanced coursework: Probability Theory, Statistical Learning, Numerical Methods, Algorithms, Machine Learning, Stochastic Calculus, Derivatives Pricing.
- Academic projects include reinforcement learning for portfolio hedging and GNN-based factor modeling.

Collège Ahuntsic — **Montréal, Québec — Completed**
Diploma of College Studies (Accounting and Management) — *Honours standing*

- Graduated with distinction while leading study groups for financial accounting and quantitative methods.

Certifications

- CFA — Chartered Financial Analyst (Level I Candidate)

Experience

Desjardins Assurances générales (DAG) — **Montréal, Québec — Sep 2025 – Dec 2025**
Data Scientist, Advanced Analytics Internship

- Improved applied ML models that power pricing and claims triage by tuning feature stores and retraining pipelines in Azure ML.
- Partnered with BI, product, and engineering teams to ship dashboards and inference APIs used daily across business units.
- Wrote onboarding runbooks, demo notebooks, and held enablement sessions that reduced adoption friction for analysts.
- Produced a quarterly AI landscape briefing for leadership summarizing regulatory shifts and tooling recommendations.

Bombardier Recreational Products (BRP) — **Montréal, Québec — May 2025 – Aug 2025**
Business Intelligence Intern

- Built executive-ready Power BI dashboards with live pricing, demand elasticity, and supply metrics consumed in weekly reviews.
- Modeled supplier scenarios in SQL/Snowflake, establishing SLAs and lineage so finance and operations trusted the numbers.
- Devised KPI playbooks for merchandising teams, translating DAX logic into clear business narratives.
- Shortened validation cycles for revenue and cost metrics by automating reconciliation scripts.

Canadian Imperial Bank of Commerce (CIBC) — **Montréal, Québec — May 2023 – Aug 2023**
Financial Services Associate

- Managed high-volume client onboarding across deposits, credit, and investment products with zero compliance defects.
- Partnered with advisors managing $800M AUM to summarize portfolio diagnostics and risk considerations.
- Streamlined branch workflows by codifying SOPs that cut onboarding time by roughly 20%.

Royal Bank of Canada (RBC) **Montréal, Québec — Jun 2022 – Apr 2023**
Customer Advisor

- Handled daily transactional volume while maintaining top-tier client satisfaction metrics.
- Identified cross-sell opportunities and communicated them to relationship managers, contributing to branch growth.
- Documented client insights that fed into regional product feedback loops.

Flagship Projects

Multi-Agent Liquidity Lab — PyTorch, Ray RLlib, PyG, Game Theory 2024 – Present

- Designing a multi-agent RL environment where quoting bots coordinate/compete across equities and FX venues.
- Use GNN encoders to share correlated limit-order book context without leaking raw order flow.
- Train heterogeneous agents (makers, internalizers, adversarial takers) with PPO/MADDPG and log emergent equilibria.

Limit Order Book Simulator & Backtester — C++17, STL, pybind11 2024

- Implemented price–time priority queues, advanced order types, and historical event replay to benchmark execution strategies.
- Added telemetry for queue lengths, fill ratios, and venue latency to inform microstructure analytics.
- Provided Python bindings enabling RL agents to experiment with execution tactics.

Blockchain Fraud Detection — PyTorch Geometric, Graph ML 2023

- Developed GNN pipelines for Elliptic Bitcoin data, engineering temporal features and residual connections.
- Achieved high precision/recall on illicit transaction detection while managing class imbalance.

Athena HopeBridge Donor Platform — React, FastAPI, RAG 2023

- Morgan Stanley CodeToGive finalist project delivering multilingual donor experiences for a non-profit shelter.
- Built the Athena Guide chatbot microservice with embeddings, intent routing, and crisis-handling overrides.

Black–Scholes Option Pricing Tool — Streamlit, NumPy, SciPy 2022

- Interactive calculator for pricing options and visualizing Greeks, including Monte Carlo validation paths.
- Used by peers to understand sensitivity hedging decisions during coursework discussions.

Research

Multi-Agent Reinforcement Learning for Market Microstructure Present

- Conducting independent research on multi-agent RL environments modeling liquidity provision and execution across correlated limit-order books.
- Experimenting with PPO/MADDPG agents augmented with GNN state encoders to capture cross-asset microstructure dependencies.
- Studying emergent strategic behavior, adversarial taker dynamics, and equilibrium stability under varying latency and inventory constraints.
- Research supports exploration of optimal execution, routing, and adaptive market making policies.

Netnographic Analysis of Patient Experiences Present

- Research Data Analyst on a netnographic study examining patient-reported experiences across Reddit, Facebook groups, health forums, and news comment sections.
- Designed and deployed a multilingual data-collection pipeline to systematically gather user-generated content from Jan 2022 to Present while adhering to platform policies and ethical guidelines.
- Implemented text preprocessing, topic modeling, sentiment analysis, and qualitative coding to identify recurring themes, unmet needs, and patient-reported challenges.
- Insights support patient-centered research, digital health engagement strategies, and the development of future clinical or policy recommendations.

Research Interests & Writing

- Multi-agent reinforcement learning and game-theoretic coordination for liquidity provision and execution scheduling.
- Graph neural networks for market microstructure, client flow forecasting, and fraud/AML detection.
- Applied stochastic control for deep hedging, scenario-aware risk copilots, and latency-aware routing.
- Curate reading notes on MADDPG, Deep Hedging, Neural MMO, and financial GNN papers to inform lab experiments.

Technical Toolbox

- **Programming**: Python, C++17, R, SQL, Java, Haskell.
- **ML / Data**: PyTorch, PyTorch Geometric, TensorFlow, scikit-learn, NumPy/Pandas, MLflow, Ray RLlib.
- **Quant / Analytics**: Market microstructure modeling, derivatives pricing, time-series analysis, portfolio risk, Monte Carlo.
- **Data Platforms**: Snowflake, BigQuery, PostgreSQL, MySQL, Power BI, Excel/VBA, PowerPoint.
- **MLOps & Infra**: Azure ML, Docker, Git/GitHub, GitHub Actions, REST API design.
- **Languages**: English (fluent), French (fluent), Arabic (native).

Coursework

- Data Science
- Advanced Probability and Statistics
- Stochastic Processes
- Bayesian Statistics
- Machine Learning
- Numerical Methods
- Algorithm design
- Data Structures
- Optimization and Operations Research
- Derivatives Pricing and Risk Management
- Financial Statement Analysis
- Database Systems
- Corporate Finance and Accounting
- Azure AI Fundamentals (self-study)
- Adversial Machine Learning (Course Auditer)
- Statistical Learning
- Real Analysis

Leadership & Activities

- **Morgan Stanley CodeToGive** — Contributed to the Athena HopeBridge platform, leading technical delivery for multilingual donor engagement, chatbot architecture, and demo preparation.
- **Treasurer, UdeM AI Student Society**— Managed budgeting, sponsor relations, and event operations for workshops, competitions, and speaker series involving 50+ students.
- **Carabins Rugby (Université de Montréal)** — Forward player for one season; developed teamwork, discipline, and resilience under high-intensity training.
- **Brazilian Jiu-Jitsu (Blue Belt)** — Regular competitor and practitioner; strengthened mental focus, strategy under pressure, and long-term discipline.

Interests

- **Strategic Games**: Chess, poker, and game theory applications for decision-making under uncertainty.
- **Personal Development**: Enjoy music, cafés, and social activities.