

Alexander De Costa

ML Engineer — U of T Mathematics & Probability Graduate
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Current modeling work confidential; please contact for details.

Experience

RiskScope

Jun 2025 – Present

Co-founder & Lead ML Consultant

- Built and deployed end-to-end machine learning pipelines for fraud and anomaly detection in production environments, handling data ingestion, preprocessing, model training, deployment, and monitoring.
- Developed scalable, maintainable codebases integrating feature engineering, model selection, and validation with automated workflows.
- Designed interpretable models tailored for high-risk financial domains, focusing on rare-event detection, noisy labels, and evolving data distributions.
- Collaborated cross-functionally to ensure smooth integration of ML solutions into operational risk systems.

Manulife

Jan 2023 – May 2023

Actuarial Student – Experience Analytics

- Maintained and validated experience monitoring reports using R, SAS, and SQL.
- Partnered with valuation and pricing teams to modernize analytics supporting actuarial assumptions and risk frameworks.

Personal Projects

Algorithm Development for Portfolio Optimization

Ongoing

- Applying stochastic process theory and optimization techniques to improve portfolio decision-making.
- Focused on robust risk management and improved generalization beyond classical approaches.

AutoML for Tabular Datasets

Ongoing

- Implementing a modular AutoML engine for structured data with sequential optimization of transformations, model types, and hyperparameters.
- Integrated various models with Bayesian search and dynamic pipeline construction.
- Prioritized explainability, rare-event detection, and robustness to noisy or shifting data.

Education

University of Toronto

Sep 2020 – May 2025

BSc, Mathematics and Its Applications (Probability/Statistics)

Relevant coursework: Measure Theory, Functional Analysis, Stochastic Processes, Mathematical Statistics, Operator Theory

Professional Skills

- Strong communicator skilled at translating advanced math into actionable models for technical and business audiences.
- Collaborative, self-directed, and comfortable leading modeling efforts end-to-end.
- Experienced in technical writing, mentoring, and presenting models in high-stakes settings.

Primary tools used across projects: Python, PyTorch, scikit-learn, SQL, R, Optuna, Jupyter; basic experience with Docker, FastAPI, MLflow, and AWS for deployment and pipeline automation.