Alexander De Costa

ML Engineer — U of T Mathematics & Probability Graduate
Toronto, Ontario
416 200 4181 alexander.decosta@outlook.com
Current modeling work confidential; please contact for details.

Technical Skills

Machine Learning: Models from first principles (logistic regression, ensembles); Gaussian Processes, Bayesian hierarchical models, classical and modern time series (ARIMA, Prophet, state-space, deep learning).

Deep Learning: LSTMs, Transformers, Temporal Fusion Transformers, GANs, diffusion models; LLMs and hybrid neural-probabilistic methods (deep GPs, Bayesian NNs).

Mathematical Research: Advanced Banach and Hilbert space problems, spectral theory, high-dimensional probability; research-level algorithm development.

Tools & Frameworks: Python, PyTorch, Jupyter, RStudio, SQL, scikit-learn.

Infrastructure (in progress): FastAPI, Docker, Kubernetes, MLflow, Airflow, Terraform, Prometheus, AWS, Git.

Education

University of Toronto *Sep 2020 – May 2025*
BSc, Mathematics and Its Applications (Probability/Statistics)
Relevant coursework: Measure Theory (MAT1000), Functional Analysis (MAT1001), Mathematical Statistics (STA452), Stochastic Processes (STA2006), Operator Theory (MAT1011).

Objective

Machine Learning engineer with a solid foundation in mathematics and probability, skilled at developing advanced AI models informed by cutting-edge research. Experienced in building scalable, production-ready solutions that solve complex real-world problems. Passionate about combining theoretical insights with practical engineering to deliver impactful AI systems.

Experience

RiskScope *Jul 2025 – Present*
Co-founder & Lead ML Consultant

- Develop modular, interpretable ML solutions for time series and probabilistic modeling, including Gaussian Processes, Bayesian neural networks, and hybrid deep architectures (e.g., LSTM-GP, TFT-Bayes).
- Benchmark custom-built models against state-of-the-art deep learning architectures such as LSTMs, Temporal Fusion Transformers, and Transformer-based sequence models.
- Build scalable forecasting pipelines combining classical statistical methods with modern deep learning approaches.

Manulife *Jan 2023 – May 2023*
Actuarial Student – Experience Analytics

- Updated experience monitoring reports via data extraction and validation (R, SAS, SQL); collaborated cross-functionally to improve study programs supporting valuation and pricing models.