

Zakaria El Yassini

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Profile

Graduate student in mathematics with strong foundations in probability, stochastic processes, and computational modeling. My research interests lie at the intersection of rigorous theory and the design of efficient, mathematically principled algorithms.

Education

Concordia University Montreal, QC, CA
Master of Science, Mathematics Jan 2025 – Present

- Research Focus: Continuous-time Deep Learning Frameworks.
- Relevant Coursework: Neural Networks, Advanced Probability, Scientific Computing.
- Awards and Bursaries: NSERC Research Bursary, Faculty of Arts and Science Graduate Master's Award.

Concordia University Montreal, QC, CA
Bachelor of Science, Mathematical and Computational Finance Dec 2024

- Relevant Coursework: Stochastic Calculus, Numerical Methods.
- Degree Honors: With Distinction.
- Awards: Tom Labelle Bursary in Mathematics, Bronze Honors in International Youth Math Competition.

Skills

Mathematical Modeling: Monte Carlo simulations, numerical PDEs, optimization.

Scientific Computing: algorithm design, simulation, statistical inference, data-driven modeling.

Programming: Python, C++, MATLAB, R.

Languages: English (native), French (native), Arabic (native).

Experience

Concordia University Montreal, QC, CA
Teaching Assistant Jan 2025 – Present

- Led tutorial labs for 30+ students on hypothesis testing, matrix analysis, and optimization, reinforcing computational, modeling, and analytical skills through guided instruction.
- Graded assignments and exams for Neural Networks and Probability courses, ensuring rigorous, metric-driven assessment and providing detailed feedback to strengthen students' mastery of the materials.

IPEX Inc Verdun, QC, CA
Financial Performance Analyst Intern May 2024 – Dec 2024

- Engineered Power BI dashboards to monitor 30+ CAPEX initiatives, optimizing capital allocation and building \$ 50M business cases with data-driven insights.
- Applied mathematical models and time series forecasting (95% Confidence Intervals) to project performance trends, improving budgeting accuracy.
- Designed and automated a Python PVM analysis tool, streamlining data processing workflows by reducing manual effort by 20+ hours monthly and providing stakeholders with instant access to critical metrics.

Bombardier Inc
Analyst Intern

Dorval, QC, CA
Jan 2023 – May 2023

- Developed reporting and analytical tools for 50+ CAPEX initiatives, identifying risks and opportunities through quantitative analysis.
- Automated data collection workflows using Power Apps and Power Automate, eliminating manual processing and accelerating analysis timelines by 5 days.

Diplomas & Certifications

Canadian Operational Research Society (CORS)

Diploma, Operational Research

Canada

Jul 2025

New York Institute of Finance

Certification, Machine Learning for Trading

New York, NY, USA

Oct 2024

Projects

Yield Curve Modeling and Forecasting via Machine Learning

March 2025 – April 2025

- Applied Principal Component Analysis (PCA) to US Treasury yield data (17 years, 2007–2024), reducing 9 maturities into 3 components that explained 99% of variance, consistent with fixed-income theory on level, slope, and curvature factors.
- Engineered various forecasting models, demonstrating superior short-term predictive performance of linear models and improved long-term accuracy with LSTMs, highlighting key trade-offs in model complexity.

Pricing Options Derivatives

Aug 2024 – Dec 2024

- Developed Monte Carlo models in Python to price European vanilla, basket and Asian options, incorporating variance reduction techniques (e.g., control variates), resulting in a 307,729× efficiency improvement.
- Implemented PDE methods for option pricing using the FTCS scheme.

Extracurricular Activities

Concordia University Inter-Generational Fund (CUIF)

Investment Transparency Committee Member

Montreal, QC, CA

October 2025 – Present

- Collaborated with the Treasurer, Chief Investment Officer, and the CUIF Board to discuss portfolio performance, ESG integration, implementation of responsible investment policies.
- Acted as a liaison between university administration, faculty and student bodies; advocating for ethical, transparent and data-informed decision-making that aligns with the university's long-term financial vision.

QUARCC

Quantitative Researcher

Montreal, QC, CA

Jan 2025 – Present

- Collaborated with club members to conduct rigorous research on quantitative methods and their application in finance.

Maison des Jeunes Point de Mire

Youth Center Animator

Verdun, QC, CA

May 2021 – Dec 2021

- Organized workshops and fundraisers to promote youth engagement, raising \$ 1,000+ for local initiatives.

Interests

Jewelry Design and Craftsmanship, Programming, Reading fiction and philosophy literature, Hiking