Giorgio Costa

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EDUCATION

Sep 2015 – Present	**Ph.D. Candidate in Operations Research**, University of Toronto Supervisor: Professor Roy H. Kwon
Sep 2007 – May 2012	**B.Eng. Hons. in Mechanical Engineering**, McGill University Minor in Economics

WORK EXPERIENCE

Period **September 2016 – Present**
Employer **University of Toronto**
Location **Toronto, ON**

Course Instructor, Department of Mechanical and Industrial Engineering

Fall 2018 — MIE375 – Financial Engineering
Winter 2018 — MIE377 – Financial Optimization Models

Teaching Assistant, Master of Mathematical Finance Program

Summer 2018, 2017 — MMF1921 – Operations Research
Summer 2018, 2017 — MMF2000 – Risk Management

Teaching Assistant, Department of Mechanical and Industrial Engineering

Fall 2016 — MIE1621 – Non-Linear Optimization

Period **October 2016 – September 2018**
Employer **Toronto–Dominion Bank**
Location **Toronto, ON**

Oct 2017 – Sep 2018/ Oct 2016 – Mar 2017 — **Senior Risk Analyst**, TD Wealth Credit and Market Risk
- Received a Mitacs Accelerate research grant to conduct quantitative research.
- Performed quantitative and statistical analysis of large financial data sets.
- Developed mathematical models for risk management.
- Prepared formal documentation for model validation.
- Successfully validated the proposed risk model.

Apr 2017 – Sep 2017 — **Research Associate**, TD Securities Capital Markets Risk Management
- Designed a model to calibrate interest rate shocks in a negative rate environment.
- Performed miscellaneous quantitative research tasks as required.
- Performed investigations in Value-at-Risk breaches for the bank's portfolios.

Period **July 2012 – August 2015**
Employer **Amec Foster Wheeler plc**
Location **Toronto, ON / Buchanan, Liberia**

Sep 2014 – Aug 2015 — **Project Engineer-in-Training**, Mining and Metals
Project: Rainy River
- Coordinated between the engineering, supply-chain, and cost control departments.
- Evaluated equipment tender bids and provide technical recommendations.

Mar 2014 – Aug 2014 — **Field Engineer**, Mining and Metals
Project: Liberia Western Range Iron Ore – Phase II
- Performed project management duties for a large construction project.
- Supervised construction and scheduling of project activities.
- Coordinated between the engineering and construction management teams.

Jul 2012 – Feb 2014 — **Mechanical Engineer-in-Training**, Mining and Metals
Projects: Liberia Western Range Iron Ore – Phase II, Belle Plaine, Copper Cliff
- Prepared and checked engineering calculations and technical drawings.
- Prepared computational fluid-flow models and stress analysis of piping systems.

ACADEMIC PUBLICATIONS

- Costa, G. and Kwon, R. H. (2018a). Risk parity portfolio optimization under a markov regime-switching framework. *Quantitative Finance*. doi: 10.1080/14697688.2018.1486036.
- Costa, G. and Kwon, R. H. (2018b). A robust framework for risk parity portfolios. Manuscript submitted for publication.
- Costa, G. and Kwon, R. H. (2018c). A regime-switching framework for mean–variance optimization. Manuscript submitted for publication.
- Wu, D., Kwon, R. H., and Costa, G. (2017). A constrained cluster-based approach for tracking the S&P 500 index. *International Journal of Production Economics, 193*, 222-243.
- Kheiri, M., Paidoussis, M. P., Costa, G., and Amabili, M. (2014). Dynamics of a pipe conveying fluid flexibly restrained at the ends. *Journal of Fluids and Structures, 49*, 360-385.

ACADEMIC PRESENTATIONS

- Costa, G. (2018, November). *A Regime-Switching Framework for Portfolio Optimization*. Presentation at the 4th Industrial-Academic Workshop on Optimization and Artificial Intelligence in Finance at The Fields Institute. Toronto, ON.
- Costa, G. (2018, November). *A Regime-Switching Framework for Portfolio Optimization*. Presentation for the University of Toronto Operations Research Group. Toronto, ON.
- Costa, G. (2018, January). *Hidden Markov Model for Risk Parity Optimization*. Presentation at the Master of Mathematical Finance Symposium 2018. Blue Mountain, ON.

HONOURS AND AWARDS

Sep 2018 – Aug 2019	**Ontario Graduate Scholarship**, Scholarship
Sep 2017 – Aug 2018	**Queen Elizabeth II Graduate Scholarship in Science and Technology**, Scholarship
Sep 2016 – Aug 2018	**Mitacs Accelerate**, Research Grant
Sep 2010 – Apr 2012	**Ministere de l'Education et de l'Enseignement Superieur**, Scholarship

EXTRACURRICULAR ACTIVITIES

Period	**Sep 2017 – Present**
Agency	**The Engineering Economist Journal**
Location	**Within the University of Toronto**

Reviewer, Mathematical optimization

Period	**September 2015 – March 2016**
Agency	**University of Toronto Consulting Associationg**
Location	**Within the University of Toronto**

Associate Consultant

- Served as a management consultant for a Toronto-based start-up company.
- Conducted market research to search for under-served market segments.
- Studied the value proposition of the client's product.

Period	**September 2015 – June 2017**
Agency	**Pathways to Education – Regent Park**
Location	**Outside the University of Toronto**

Tutor, Mathematics and Physics

- Tutor for at-risk high school students.

SKILLS

Programming	Julia, R, Python, SQL, HTML, LaTeX
Software	MS Office suite, Matlab, Wolfram Mathematica
Languages	English (fluent), Spanish (fluent)