

Giorgio Costa

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EDUCATION

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| Sep 2015 – Present | Ph. D. Candidate in Operations Research , University of Toronto
Advisor: Professor Roy H. Kwon
Thesis: Advances in risk parity portfolio optimization |
| Sep 2007 – May 2012 | B. Eng. Hons. in Mechanical Engineering , McGill University
Minor in Economics |

RESEARCH INTERESTS

- Convex optimization
- Robust optimization
- Unsupervised Learning
- Distributed algorithms for non-convex problems
- Quantitative Finance
- Risk management

ACADEMIC EXPERIENCE

Journal Publications

- Costa, G. and Kwon, R. H. (in press). [A regime-switching factor model for mean–variance optimization](#). *Journal of Risk*.
- Costa, G. and Kwon, R. H. (2019). [Risk parity portfolio optimization under a Markov regime-switching framework](#). *Quantitative Finance*, 19(3), 453-471.
- 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.

Manuscript Preprints

- Costa, G. and Kwon, R. H. (2019). [Generalized risk parity portfolio optimization: an ADMM approach](#). Manuscript submitted for publication.
- Costa, G. and Kwon, R. H. (2018). [A robust framework for risk parity portfolios](#). Manuscript submitted for publication.

Presentations

- Costa, G. (2019, May). *Generalized Risk Parity Portfolio Optimization: An ADMM Approach*. CORS Annual Conference. Saskatoon, SK.
- 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.

Academic Service

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| Sep 2017 – Present | Reviewer , The Engineering Economist Journal |
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HONOURS AND AWARDS

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| Sep 2019 – Aug 2020 | Ontario Graduate Scholarship , Scholarship |
| Sep 2016 – Aug 2020 | Department of Mechanical and Industrial Engineering , Fellowship |
| 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 | MEES (Quebec) International Fee Exemption , Scholarship |

TEACHING EXPERIENCE

Period	September 2016 – Present		Location	Toronto, ON
Institution	University of Toronto			
Fall	2019	Course Instructor , Department of Electrical and Computer Engineering ECE302 – Probability and Applications		
Winter	2019, 2018	Course Instructor , Department of Mechanical and Industrial Engineering MIE377 – Financial Optimization Models		
Fall	2018	MIE375 – Financial Engineering		
Summer	2019, 2018, 2017	Teaching Assistant , Master of Mathematical Finance Program MMF1921 – Operations Research		
Fall	2018	MMF2000 – Risk Management		
Summer	2018, 2017			
Fall	2019	Teaching Assistant , Department of Mechanical and Industrial Engineering MIE479 – Capstone Design		
Fall	2016	MIE1621 – Non-Linear Optimization		
Period	September 2015 – June 2017		Location	Toronto, ON
Organization	Pathways to Education – Regent Park			
		Volunteer Tutor , Mathematics and Physics Tutor for at-risk high school students in a priority-neighborhood in Toronto.		

PROFESSIONAL EXPERIENCE

Period	October 2016 – September 2018	Location	Toronto, ON
Employer	Toronto–Dominion Bank		
Oct 2017 – Sep 2018/ Oct 2016 – Mar 2017	Senior Risk Analyst , TD Wealth, Credit and Market Risk Received a Mitacs Accelerate research grant to develop a novel equity risk model to measure the propensity of stocks to suffer from price shocks. After preparing all pertinent documentation, the model successfully underwent the TD validation process. Other responsibilities included quantitative research and statistical analysis of large financial data sets.		
Apr 2017 – Sep 2017	Research Associate , TD Securities, Capital Markets Risk Management A second project involved modelling of interest rate shocks under a negative rate environment. This model is to be used within the Monte Carlo simulation framework to measure the Value-at-Risk of the bank's portfolios.		
Period	July 2012 – August 2015	Location	Toronto, ON / Buchanan, Liberia
Employer	Amec Foster Wheeler plc		
Sep 2014 – Aug 2015	Project Engineer-in-Training Project: Rainy River Coordinated the preparation of deliverables between the engineering, scheduling, and cost control departments. Evaluated equipment tender bids and provided technical recommendations.		
Mar 2014 – Aug 2014	Field Engineer , On-site at Buchanan, Liberia Project: Liberia Western Range Iron Ore – Phase II Performed project management duties for a large-scale 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 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.		