

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	Location	Toronto, ON
Employer	University of Toronto		
	Course Instructor , Department of Mechanical and Industrial Engineering		
Winter 2019, 2018	MIE377 – Financial Optimization Models		
Fall 2018	MIE375 – Financial Engineering		
	Teaching Assistant , Master of Mathematical Finance Program		
Summer 2019, 2018, 2017	MMF1921 – Operations Research		
Fall 2018	MMF2000 – Risk Management		
Summer 2018, 2017			
	Teaching Assistant , Department of Mechanical and Industrial Engineering		
Fall 2016	MIE1621 – Non-Linear Optimization		
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 <ul style="list-style-type: none">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 a proposed market risk model for equities.		
Apr 2017 – Sep 2017	Research Associate , TD Securities Capital Markets Risk Management <ul style="list-style-type: none">Performed investigations in Value-at-Risk (VaR) breaches for the bank's portfolios.Modelled interest rate shocks under a negative rate environment for VaR calibration.Performed other quantitative research tasks as required.		
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 <ul style="list-style-type: none">Coordinated deliverables between the engineering and project 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 <ul style="list-style-type: none">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 Projects: Liberia Western Range Iron Ore – Phase II, Belle Plaine, Copper Cliff <ul style="list-style-type: none">Prepared and checked engineering calculations and technical drawings.Prepared computational fluid-flow models and stress analysis of piping systems.		

ACADEMIC PUBLICATIONS

Journal publications

- Costa, G. and Kwon, R. H. (2018). 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.

Preprints

- Costa, G. and Kwon, R. H. (2019a). A regime-switching framework for mean-variance optimization. Manuscript submitted for publication.
- Costa, G. and Kwon, R. H. (2019b). A robust framework for risk parity portfolios. Manuscript submitted for publication.
- Costa, G. and Kwon, R. H. (2019c). Generalized risk parity portfolio optimization: an ADMM approach. Manuscript submitted for publication.

ACADEMIC PRESENTATIONS

- Costa, G. (2019, November). *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.

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	MEES (Quebec) International Fee Exemption , Scholarship

EXTRACURRICULAR ACTIVITIES

Period	September 2017 – Present	Location	Toronto, ON
Organization	The Engineering Economist Journal		
	Reviewer , Mathematical optimization		
Period	September 2015 – June 2017	Location	Toronto, ON
Organization	Pathways to Education – Regent Park		
	Tutor , Mathematics and Physics		
	• Tutor for at-risk high school students.		
Period	September 2015 – April 2016	Location	Toronto, ON
Organization	University of Toronto Consulting Association		
	Associate Consultant		
	• Served as a management consultant for a Toronto-based start-up company.		

SKILLS

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