

# Giorgio Costa

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## EDUCATION

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

## WORK EXPERIENCE

Period	September 2016 – Present	Location	Toronto, ON
Employer	University of Toronto		
	<b>Course Instructor</b> , Department of Mechanical and Industrial Engineering		
Winter 2019, 2018	MIE377 – Financial Optimization Models		
Fall 2018	MIE375 – Financial Engineering		
	<b>Teaching Assistant</b> , Master of Mathematical Finance Program		
Summer 2019, 2018, 2017	MMF1921 – Operations Research		
Fall 2018	MMF2000 – Risk Management		
Summer 2018, 2017			
	<b>Teaching Assistant</b> , 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	<b>Senior Risk Analyst</b> , TD Wealth Credit and Market Risk <ul style="list-style-type: none"><li>Received a Mitacs Accelerate research grant to conduct quantitative research.</li><li>Performed quantitative and statistical analysis of large financial data sets.</li><li>Developed mathematical models for risk management.</li><li>Prepared formal documentation for model validation.</li><li>Successfully validated a proposed market risk model for equities.</li></ul>		
Apr 2017 – Sep 2017	<b>Research Associate</b> , TD Securities Capital Markets Risk Management <ul style="list-style-type: none"><li>Performed investigations in Value-at-Risk (VaR) breaches for the bank's portfolios.</li><li>Modelled interest rate shocks under a negative rate environment for VaR calibration.</li><li>Performed other quantitative research tasks as required.</li></ul>		
Period	July 2012 – August 2015	Location	Toronto, ON / Buchanan, Liberia
Employer	Amec Foster Wheeler plc		
Sep 2014 – Aug 2015	<b>Project Engineer-in-Training</b> <b>Project:</b> Rainy River <ul style="list-style-type: none"><li>Coordinated deliverables between the engineering and project control departments.</li><li>Evaluated equipment tender bids and provided technical recommendations.</li></ul>		
Mar 2014 – Aug 2014	<b>Field Engineer</b> , On-site at Buchanan, Liberia <b>Project:</b> Liberia Western Range Iron Ore – Phase II <ul style="list-style-type: none"><li>Performed project management duties for a large construction project.</li><li>Supervised construction and scheduling of project activities.</li><li>Coordinated between the engineering and construction management teams.</li></ul>		
Jul 2012 – Feb 2014	<b>Mechanical Engineer-in-Training</b> <b>Projects:</b> Liberia Western Range Iron Ore – Phase II, Belle Plaine, Copper Cliff <ul style="list-style-type: none"><li>Prepared and checked engineering calculations and technical drawings.</li><li>Prepared computational fluid-flow models and stress analysis of piping systems.</li></ul>		

## ACADEMIC PUBLICATIONS

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### 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

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- 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.

## HONOURS AND AWARDS

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Sep 2018 – Aug 2019	<b>Ontario Graduate Scholarship</b> , Scholarship
Sep 2017 – Aug 2018	<b>Queen Elizabeth II Graduate Scholarship in Science and Technology</b> , Scholarship
Sep 2016 – Aug 2018	<b>Mitacs Accelerate</b> , Research grant
Sep 2010 – Apr 2012	<b>MEES (Quebec) International Fee Exemption</b> , Scholarship

## EXTRACURRICULAR ACTIVITIES

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

## SKILLS

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<b>Programming</b>	Julia, R, Python, $\text{\LaTeX}$
<b>Software</b>	MS Office suite, Matlab, Wolfram Mathematica
<b>Languages</b>	English (fluent), Spanish (fluent)