

Craig Fernandes

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EDUCATION	<p>University of Toronto, PhD. in Operations Research Sep 2021 – Present</p> <ul style="list-style-type: none">• Supervisor: Prof. Timothy Chan <p>University of Toronto, M.A.Sc. in Operations Research Jan 2020 – Aug 2021</p> <ul style="list-style-type: none">• Supervisor: Prof. Timothy Chan• cGPA: A+/A+ in all coursework <p>University of Toronto, B.A.Sc. in Industrial Engineering Sep 2014 – May 2018</p> <ul style="list-style-type: none">• Ranked 4th out of 105 students Deans List• cGPA: 3.91/4.0
RESEARCH INTERESTS	Optimization, economics, public policy, engineering education, sports analytics
PUBLICATIONS	<p>T. C. Y. Chan, C. Fernandes, M. L. Puterman. 2021. "Points gained in football: Using Markov process-based value functions to assess team performance," <i>Operations Research</i>, 69(3): 877-894.</p> <p>C. Fernandes, R. Yakubov, Y. Li, A. Prasad, T. C. Y. Chan. 2020. "Predicting plays in the National Football League," <i>Journal of Sports Analytics</i>, 6(1): 35-43.</p>
SUBMITTED PAPERS	<p>A. Babier, C. Fernandes, I. Zhu. 2022. "Advising Student-Driven Analytics Projects: A Summary of Experiences and Lessons Learned," <u>Major revision</u> at <i>INFORMS Transactions on Education</i>.</p> <p>T. C. Y. Chan, D. Fearing, C. Fernandes, S. Kovalchik. 2022. "A Markov Approach to Untangling Intention Versus Execution in Tennis." <u>Minor revision</u> at <i>Journal of Quantitative Analysis in Sports</i>.</p> <p>C. Fernandes, J. Vescovi, R. Norman, C. Bradish, N. Taback, T.C.Y. Chan. 2022. "Equity, diversity, and inclusion in sports analytics." <u>Under review</u> at <i>Journal of Quantitative Analysis in Sports</i>.</p> <p>T.C.Y. Chan, C. Fernandes, A. Loa, N. Sandholtz. 2022. "Moneyball for Murderball: Using analytics to construct lineups in wheelchair rugby." <u>Under review</u> at <i>INFORMS Transactions on Education</i>.</p>
PROFESSIONAL EXPERIENCE	<p>Amazon.com, Data Scientist I Summer 2021</p> <ul style="list-style-type: none">• Formulated a gradient boosting classifier on AWS SageMaker to identify low performing product promotions with an accuracy of 84%, resulting in an annual savings of \$25.6 million• Engaged with cross-functional stakeholders to garner buy in for the project and provide a implementation plan to push the model into productions

PepsiCo, Process Improvement Engineering Intern

Fall 2019 & Summer 2017

- Managed a team of three junior interns to drive process improvement initiatives across the plant to increase efficiency
- Utilized lean manufacturing methodologies to optimize the production on three major machines, resulting in annual savings of 101 hours of downtime and \$73 000
- Created a comprehensive database and dashboard for the Toronto and Moncton facilities to pinpoint the optimal allocation of maintenance resources and presented the results to senior leadership

CONFERENCES

“Exploring fair, stable and optimal income pools in professional baseball”

- INFORMS Annual Meeting, Indianapolis 2022 (Oral)
- CORS Annual Meeting, Vancouver 2022 (Oral)

“Using Markov decision processes to evaluate style of play in professional tennis”

- MIT Sloan Sports Analytics Conference, Boston 2022 (Poster)
- New England Symposium on Statistics in Sports, Harvard 2021 (Oral)
- U of T Engineering Research Conference, Virtual 2021 (Poster)
- CORS Annual Meeting, Virtual 2021 (Oral)
- Sport Innovation Summit, Virtual 2020 (Poster)

“Points gained in football: Using Markov process-based value functions to assess team performance”

- U of T Engineering Research Conference, Virtual 2020 (Poster)
- Sport Innovation Summit, Toronto 2019 (Oral & Poster)
- CORS Annual Meeting, Halifax 2018 (Oral)

“Predicting plays in the National Football League”

- U of T Engineering Research Conference, Virtual 2020 (Poster)
- Sport Innovation Summit, Toronto 2019 (Oral & Poster)
- New England Symposium on Statistics in Sports, Harvard 2017 (Oral)

**RESEARCH
MENTORSHIP**

Undergraduate Research Thesis

- M. Arif, “A Data Driven Approach to Characterize Soccer Playing Styles” 2020
- A. Loa, “Optimizing Line-up Selection Dynamically in Wheelchair Rugby” 2019
- J. Yin, “Points Gained: Modelling Curling as a Markov Reward Process” 2019

Engineering Capstone Project:

- D. Nalbantoglu, K. Smith, Y. Pan, “Drafting for the Columbus Blue Jackets” 2021

**OTHER
PROJECTS****Redeploy.ca, Co-Founder & Consultant**

- Developed a full stack software tool to optimize hospital staffing during the COVID-19 pandemic, speeding up the process by 400%
- Built the staffing algorithm using mathematical optimization and created a web application which received positive user feedback

- Collaborated with and advised 20+ hospitals worldwide, including University Health Network and was featured in several news articles

TEACHING EXPERIENCE	MIE368: Analytics in Action , Teaching Assistant	2020,
	<ul style="list-style-type: none"> • Topics: regression, classification, decision trees, optimization, simulation • Teaching evaluations: 4.84/5 (2020), 4.96/5 (2021) 	2021, 2022
	MIE263: Stochastic Operations Research , Teaching Assistant	2023 (expected)
	<ul style="list-style-type: none"> • Topics: decision analysis, stochastic processes, simulation, queueing 	
SERVICE	Session Chair (Sports Analytics) at 2022 CORS conferences	2022
HONORS & AWARDS	Ontario Graduate Scholarship (\$15,000)	2021
	UTERC Conference – 1 st place poster (\$300)	2021
	UofT MIE Group TA Teaching Excellence Award (\$300)	2021
	NSERC Canada Graduate Scholarship – Master (\$17,500)	2020
	UTERC Conference – 2 nd place poster (\$300)	2020
	CORS Conference – 2 nd place undergraduate research paper (\$200)	2018
	CSA Group Award (\$5,000)	2017
	U of T President's Entrance Scholarship (\$5,000)	2014