

# CURRICULUM VITAE

**Max Biggs**

January 2023

## EDUCATION

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2014 - 2019 **Massachusetts Institute of Technology, Ph.D.**  
Operations Research Center  
Advisor: Prof. Georgia Perakis

2010 - 2013 **University of Auckland, B.Eng.(hons)**  
First class honors  
Major: Engineering Science

## EMPLOYMENT

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2020- **Assistant Professor of Business Administration**  
Quantitative analysis group  
Darden School of Business

2019/20 **Post-Doctoral Researcher, IBM Watson**  
Part of AI for travel industry team, developed algorithms for interpretable data-driven pricing using machine learning.

2019 **Adjunct Professor Darden School of Business, University of Virginia**  
Taught two sections of the core Decision Analysis course

2016 **Research Intern, Amazon**  
Formulating and coding a large-scale advertising optimization problem to solve within a tight time frame

2015/16 **Planning Consultant, Thenamaris Shipping Company**  
Working on algorithms to design ship routes based on dynamic availability of cargoes

2014 **Data Scientist, Harmonic Analytics Limited**  
Provided consulting services to help clients create value from their data using mathematical and statistical models.

## PUBLISHED PAPERS AND CONFERENCE PROCEEDINGS

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Biggs, M., Hariss, R., Perakis, G., (forthcoming) Optimization of objective functions determined from random forests. *Production and Operations Management*, 2022.

Gao, R., Biggs, M., Sun, W., Han, L. (Accepted), Enhancing counterfactual classification using self-training. *Proceedings of the Thirty-Sixth AAAI Conference on Artificial Intelligence*, 2022.

Alley, M., Biggs, M., Hariss, R., Hariss, C., Li, M., Perakis, G., Pricing for heterogenous products: analytics for ticket reselling. *Manufacturing & Service Operations Management*, 2022.

Biggs, M., Sun, W., & Ettl, M. Model distillation for revenue optimization: Interpretable personalized pricing. In *International Conference on Machine Learning* (pp. 946-956). PMLR, 2021.

## MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

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Biggs, M., Perakis, G., Tightness of prescriptive tree-based mixed-integer optimization formulations, 2023.

Biggs, M., Convex Loss Functions for Contextual Pricing with Observational Posted-Price Data (Submitted), 2022.

Biggs, M., Gao, R., Sun, W. Loss Functions for Discrete Contextual Pricing with Observational Data (Submitted), 2021.

Biggs, M., Prescriptive analytics for operations problems: a tree ensemble approach. PhD thesis. 2019.

Biggs, M., Perakis, G., A ranking algorithm for tramp shipping in the spot market (R & R Management Science). 2017.

## TEACHING EXPERIENCE

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### ***ASSISTANT PROFESSOR (DARDEN SCHOOL OF BUSINESS)***

Spring 2023	<b>Decision Analysis 2 (2 sections)</b>
Spring 2022	<b>Decision Analysis 2 (2 sections)</b>
Fall 2021	<b>Decision Analysis 1 (2 sections)</b>
Spring 2021	<b>Decision Analysis 2 (2 sections)</b>

### ***ADJUNCT PROFESSOR (DARDEN SCHOOL OF BUSINESS)***

Fall 2019	<b>Decision Analysis 1 (2 sections)</b>
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### ***TEACHING ASSISTANTSHIPS (MIT)***

Summer 2017	<b>Intro to Operations Management (executive MBA)</b>
Fall 2016 -	<b>Data Models and Decisions (executive MBA)</b>

## HONORS AND AWARDS

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- 2019      **MSOM Practice Based Research Finalist**  
Awarded for paper entitled: "Pricing for heterogenous products: analytics for ticket reselling"
- 2018      **INFORMS Data Science Best Paper Award**  
1st place, awarded for paper entitled: "Optimization objective functions determined from random forests"
- 2017      **Service Science Best Cluster Award Finalist**  
Awarded for paper entitled: "A ranking algorithm for tramp shipping in the spot market"
- 2014      **William Georgetti Fellowship**  
Awarded by Governor General of New Zealand
- 2010      **Bronze medalist International Biology Olympiad**
- 2009      **Dux and Deputy Head Boy**  
Scots College, Wellington, New Zealand