

# CURRICULUM VITAE

**Max Biggs**

January 2026

## ACADEMIC EMPLOYMENT

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- 2020- **Assistant Professor of Business Administration**  
Data Analytics and Decision Sciences group  
Darden School of Business
- 2019-2020 **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

## 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

## PEER REVIEWED PAPERS AND CONFERENCE PROCEEDINGS

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Biggs, M., Convex surrogate Loss Functions for Contextual Pricing with Transaction Data (Accepted), *Management Science*.

Biggs, M., Perakis, G., (2025). Tight Mixed-Integer Optimization Formulations for Prescriptive Trees. *Machine Learning*, 114(156).

Subramanian, S., Ettl, M., Biggs, M., Sun, W., Drissi, Y. Context-based Pricing for Revenue Optimization with Applications to the Airline Industry. In *Annual Hawaii International Conference on System Sciences*, 2023.

Gao, R., Biggs, M., Sun, W., Han, L., Enhancing Counterfactual Classification using Self-Training. *Proceedings of the Thirty-Sixth AAAI Conference on Artificial Intelligence*, 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.

Alley, M., Biggs, M., Hariss, R., Hermann, C., Li, M., Perakis, G., Pricing for Heterogeneous Products: Analytics for Ticket Reselling. *Manufacturing & Service Operations Management*, 2022.

- 2019 MSOM Practice-Based Research Finalist

Biggs, M., Hariss, R., Perakis, G., Optimization of Objective Functions Determined from Random Forests. *Production and Operations Management*, 2022.

- 2018 INFORMS Data Science Best Paper Award

## WORKING PAPERS

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Bian, Z., Biggs, M., Gao, R., Qi, Z., Beyond Demand Estimation: Consumer Surplus Evaluation via Cumulative Propensity Weights. (*Submitted*) 2025

Biggs, M., Cui, T., Hamilton, M., Xing, E., Can Price Discrimination Be Progressive? (Major revision at *Operations Research*), 2025

- 3<sup>rd</sup> place INFORMS JFIG (Junior Faculty Interest Group) competition 2025

Albert, M., Biggs, M., Chen, N., Wang, G., Post-Estimation Adjustments in Data-Driven Decision-Making with Applications in Pricing. (*Submitted*), 2025

Biggs, M., Gao, R., Sun, W. Loss Functions for Discrete Contextual Pricing with Observational Data (Major revision at *Operations Research*), 2021.

- Selected for Spotlight Presentation INFORMS Revenue Management and Pricing Conference 2022
- ADA PhD Incubator Special Recognition Award Finalist

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 (Reject and Resubmit, *Management Science*). 2017.

## WORK IN PROGRESS

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Anunrojwong, J., Biggs, M., Hamilton, M., Zhang, W., Lottery Ticket Pricing.

Biggs, M., Fioretto, F., Ko, J., Decision-Aware Sampling for Proportional-Fair Allocation.

## FUNDING

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2025      **FAIR Fellowship in AI Research**, LaCross Institute for Ethical AI in Business, \$100,000.00, (Co-PI with Ferdinando Fioretto)

## CASES

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Biggs, M., Klopfenstein, A., Analytics at Spetses Shipping: Navigating the Waves of Uncertainty QA-0977, 2024.

Biggs, M., Alizamir, S., Baucells, M., Klopfenstein, A., Roqueta Origen: Streamlining Wine Storage and Mixing (A, B, C) QA-0978, QA-0979, QA-0980, 2024.

## TEACHING EXPERIENCE

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

Fall 2025	<b>Optimization Elective (1 sections)</b>
Fall 2025	<b>Decision Analysis 1 (2 sections)</b>
Spring 2025	<b>Optimization Elective (1 sections)</b>
Fall 2024	<b>Decision Analysis 1 (2 sections)</b>
Spring 2024	<b>Decision Analysis 2 (1 sections)</b>
Fall 2023	<b>Decision Analysis 1 (2 sections)</b>
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>

## INDUSTRY EXPERIENCE

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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 the 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

## CONFERENCES AND SEMINARS

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† Invited talk, \* co-author presented

*Can Price Discrimination Be Progressive?*

**2025** Tuck School of Business (Dartmouth) <sup>\*†</sup>, MSOM annual meeting, RMP annual meeting, INFORMS annual meeting

**2024** MSOM annual meeting <sup>\*†</sup>

*Post-Estimation Adjustments in Data-Driven Decision-Making with Applications in Pricing*

**2025** Imperial Business School (Imperial College London) <sup>\*†</sup>, UCL School of Management (University College London) <sup>\*†</sup>, Summer Workshop in Operations Management, RMP annual meeting <sup>\*†</sup>

**2024** MSOM annual meeting <sup>\*†</sup>

*Convex Surrogate Loss Functions for Contextual Pricing with Transaction Data*

**2025** University of Virginia Psychology Department

**2024** Robert H. Smith School of Business (University of Maryland) <sup>†</sup>, Rotman School of Management (University of Toronto) <sup>†</sup>

**2023** RMP annual meeting, INFORMS Annual Meeting, MSOM annual meeting, POMS annual meeting

*Loss Functions for Discrete Contextual Pricing with Observational Data*

**2022** RMP annual meeting (spotlight presentation), Darden-Data Science Collaboratory for Applied Data Science (DCADS) TGIF seminar series, ADA Annual meeting, INFORMS Annual Meeting, RMP annual meeting (spotlight presentation), POMS annual meeting

*Enhancing Counterfactual Classification using Self-Training*

**2022** AAAI Conference on Artificial Intelligence

*Model Distillation for Revenue Optimization: Interpretable Personalized Pricing*

**2021** International Conference on Machine Learning

*Optimization of Objective Functions Determined from Random Forests*

**2019** INSEAD <sup>†</sup>, Yale School of Management <sup>†</sup>, Tuck School of Business (Dartmouth) <sup>†</sup>, Darden School of Business (UVA) <sup>†</sup>, EPFL College of Management of Technology <sup>†</sup>, IBM Research

**2018** Sloan School of Management seminar, INFORMS Annual Meeting

*Pricing for Heterogeneous Products: Analytics for Ticket Reselling*

**2019** MSOM annual meeting <sup>\*</sup>, INFORMS Annual Meeting

**2018** INFORMS Annual Meeting

## HONORS AND AWARDS

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**2025** **3rd place INFORMS JFIG (Junior Faculty Interest Group) Competition**

Awarded for paper entitled: “Can price discrimination be progressive?”

- 2025 **Finalist for the 2025 Decision Sciences Institute Case Competition**,  
For “Analytics at Spetses Shipping: Navigating the Waves of Uncertainty”
- 2022 **ADA PhD Incubator Special Recognition Award Finalist**, for co-author  
Ruijiang Gao, for paper entitled “Loss functions for discrete contextual pricing  
with observational Data”
- 2019 **MSOM Practice-Based Research Finalist**  
Awarded for paper entitled: “Pricing for heterogeneous products: analytics for  
ticket reselling”
- 2018 **INFORMS Data Science Best Paper Award**  
1st place, awarded for paper entitled: “Optimization of 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 the Governor General of New Zealand
- 2010 **Bronze medalist International Biology Olympiad**  
Tsukuba, Japan
- 2009 **Dux and Deputy Head Boy**  
Scots College, Wellington, New Zealand

## **PATENTS**

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Imputing counterfactual data to facilitate machine learning model training, R Gao, W Sun, M Biggs, Y Drissi, M Ettl, US Patent App. 17/654,617

Counterfactual self-training, R Gao, W Sun, M Biggs, M Ettl, Y Drissi, US Patent App. 17/402,367

Domain-specific constraints for predictive modeling, P Harsha, BL Quanz, S Subramanian, W Sun, M Biggs, US Patent App. 17/135,913

Loss augmentation for predictive modeling, P Harsha, BL Quanz, S Subramanian, W Sun, M Biggs, US Patent App. 17/135,920

Split-net configuration for predictive modeling, P Harsha, BL Quanz, S Subramanian, W Sun, M Biggs, US Patent App. 17/135,925

Integrated segmentation and interpretable prescriptive policies generation, M Biggs, W Sun, S Subramanian, M Ettl, US Patent App. 17/111,212

## **STUDENTS**

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PhD Students Advised: Tianyi Zhu (2025-)

PhD Student Committees: My Hoang Dinh (UVA Computer Science, 2025)

Current and former PhD Students I have worked with: Ruijiang Gao (UT Austin), Guan Wang (University of Toronto), Enfeng Xing (Tianjin University)

## **SERVICE**

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Reviewer for Operations Research, Management Science, Manufacturing and Service Operations Management, Production and Manufacturing Science, European Journal of Operations Research, INFORMS Journal on Applied Analytics, INFORMS Journal on Optimization

Committee Member, Research and Course Development (August 2025 - Present).

Committee Member, DADS Faculty Hiring Committee (2020 - Present).

Committee Member, TOM Faculty Hiring Committee (2025).