Ryan Cory-Wright

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Education

Massachusetts Institute of Technology, Cambridge, MA
Candidate for PhD in Operations Research; expected completion, May 2022. GPA: 5.0/5.0
Advisor: Dimitris Bertsimas

University of Auckland, Auckland, New Zealand
BE (1st Class Honours) in Engineering Science, May 2017. GPA 8.84/9.00 (9.00/9.00 in Major).
Advisors: Golbon Zakeri, Andy Philpott.

Interests

Theory: Optimization (integer/nonlinear/stochastic/robust/large-scale).
Applications: Finance, energy, statistics.

Research

On Polyhedral and Second-Order Cone Decompositions of Semidefinite Optimization Problems
with Dimitris Bertsimas, Operations Research Letters, under review.

On Stochastic Auctions in Risk-Averse Electricity Markets With Uncertain Supply
with Golbon Zakeri, Operations Research Letters, under review.

A Unified Approach to Mixed-Integer Optimization: Nonlinear Formulations and Scalable Algorithms
with Dimitris Bertsimas and Jean Pauphilet, Operations Research, under review.

A Scalable Algorithm for Sparse Portfolio Optimization
with Dimitris Bertsimas, Operations Research, under major revisions (submitted June 2018).

Payment Mechanisms for Electricity Markets With Uncertain Supply
with Andy Philpott and Golbon Zakeri, Operations Research Letters. **46**(1):116-121, 2018.

- Preliminary version awarded 1st place, ORSNZ Young Practitioner's Prize (2016).

Presentations

A Unified Approach to Mixed-Integer Optimization: Nonlinear Formulations and Scalable Algorithms
with Dimitris Bertsimas and Jean Pauphilet
Presented at: ICCOPT, August 2019; INFORMS Annual Meeting, October 2019.

A Scalable Algorithm for Sparse and Robust Portfolios
with Dimitris Bertsimas
Presented at: INFORMS, November 2018; ORC 65th Anniversary (poster), November 2018; LIDS student conference, January 2019; MIP Workshop (poster), July 2019.

Payment Mechanisms and Risk-Aversion in Electricity Markets With Uncertain Supply
with Golbon Zakeri
Presented at: EPOC mini workshop, July 2017; ISMP Bordeaux, July 2018.

Cost-Recovering, Revenue-Adequate Single-Settlement Schemes for Electricity Markets
with Andy Philpott and Golbon Zakeri
Presented at: ORSNZ, December 2016.

Honors and Awards

2017 Senior Scholar Award, University of Auckland (top of graduating engineering class).
2016 First place, Young Practitioner's Prize, Operations Research Society of New Zealand.

2014-2016 Deans Honours List, Faculty of Engineering, University of Auckland (top 5% of class)**.**
2014-2016 First in Course Award x5, University of Auckland.
2013 NZQA Outstanding Scholar Award (top 50 high school students in New Zealand).

Work and Research Experience

2017-Present **Massachusetts Institute of Technology,** Cambridge, MA
Research Assistant
Advisor: Dimitris Bertsimas
Developing high-quality interpretable solutions to problems which arise at the intersection of optimization and machine learning; for instance, sparsity-constrained optimization problems.

2016-2017 **University of Auckland**, Auckland, New Zealand
Research Assistant
Advisor: Golbon Zakeri
Developed methods for incorporating intermittent renewable energy into wholesale electricity markets via stochastic optimization. Back-tested a stochastic dispatch mechanism, extending it to incorporate risk-aversion, and measured its impact on the New Zealand Electricity Market.

2014-2016 **Derceto Ltd**, Auckland, New Zealand
Assistant Optimization Engineer
Assisted with installing a pump-scheduling optimization tool for two municipal water providers. Refurbished 5+ VBA spreadsheet tools used in day-to-day operations.

Teaching Experience

Summer 2019 **15.089 Analytics Capstone Project: Student Mentor.** Instructor in charge: Dimitris Bertsimas
Advised a project completed by two MBaN students, who applied prescriptive analytics to prescribe actions which optimize fund flows for a large investment management company.

IAP 2019 **15.S60 Computing in Operations Research and Statistics Instructor** (MSc/PhD level).
Taught a 3-hour session which aims to provide PhD students with an overview of state-of-the-art software tools used in optimization and statistics. Material available here.

Fall 2018 **15.093 Optimization Methods TA** (MBaN/MSc level). Instructor in charge: Bart Van Parys
Teaching assistant for a course which aims to provide masters students with a unified overview of the main algorithms and areas of application in optimization.
Duties: Assisting students, leading recitations, writing and marking assignments and exams.

Summer 2018 **15.089 Analytics Capstone Project: Student Mentor.** Instructor in charge: Dimitris Bertsimas
Advised a project completed by two MBaN students, who applied machine learning techniques to predict fund flows at the financial advisor level for a large investment management company.

- Mentees received an award for the best capstone presentation in their graduating class.

Professional Activities and Service

2019 **Tester and Proctor,** MIT Operations Research Center Qualifying Exam
2018-2019 **Reviewer,** European Journal of Operational Research
2017-present **Student member,** INFORMS; Mathematical Optimization Society

Skills and Activities

Programming Languages: Julia (preferred), R, VBA, SQL, MATLAB, C++, HTML, CSS.
Optimization Software: JuMP (preferred), Gurobi, CPLEX, MOSEK, most other languages/solvers.
Languages: English (native), French (conversational), German (beginner).
Extracurriculars: Skiing, Running, Hiking.

Citizenship Citizen of New Zealand, Ireland.