

Ryan Cory-Wright

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Academic Appointments

Imperial College London, Imperial Business School

Assistant Professor of Analytics and Operations

London, UK

July 2023-present

IBM Research

Herman Goldstine Postdoctoral Fellow

Cambridge, MA

July 2022-June 2023

Research Interests

- **Optimization:** integer, semidefinite, conic, polynomial, data-driven
- **Machine learning and artificial intelligence:** interpretability, scientific discovery, cross-validation, low-rank
- **Applications:** business analytics, energy (decarbonization, pricing schemes), finance

Education

Massachusetts Institute of Technology, Operations Research Center

Cambridge, MA

PH.D. IN OPERATIONS RESEARCH

September 2017-May 2022

Advisor: Dimitris Bertsimas | Thesis: Integer and matrix optimization: A nonlinear approach

University of Auckland, Faculty of Engineering

Auckland, New Zealand

B.E. (1ST CLASS HONORS) IN ENGINEERING SCIENCE

February 2014-October 2016

Four-year degree completed in three years via accelerated pathway (extra class per semester)

Working Papers

W6. *Stability Regularized Cross-Validation*

R. Cory-Wright and A. Gómez, soon to be submitted.

W5. *Bridging the Gap Between Scientific Laws Derived by AI Systems and Canonical Knowledge via Abductive Inference with AI-Noether*

K. Srivastava, S. Dash, **R. Cory-Wright**, B. Trager, C. Cornelio, and L. Horesh, submitted.

W4. *Improved Approximation Algorithms for Low-Rank Problems Using Semidefinite Optimization*

R. Cory-Wright and J. Pauphilet, submitted.

- Preliminary version accepted at IPCO 2026

W3. *Disjunctive Branch-And-Bound for Certifiably Optimal Low-Rank Matrix Completion*

D. Bertsimas, **R. Cory-Wright**, S. Lo, and J. Pauphilet, major revision at **INFORMS Journal on Computing**.

W2. *Optimal Cross-Validation for Sparse Linear Regression*

R. Cory-Wright and A. Gómez, major revision at **INFORMS Journal on Computing**.

W1. *Sparse PCA With Multiple Components*

R. Cory-Wright and J. Pauphilet, major revision at **Operations Research**.

- First place, **INFORMS DMDA Workshop Paper Award (Theoretical Track, 2024)**

Journal Papers

J14. *The Need for Verification in AI-Driven Scientific Discovery*

C. Cornelio, T. Ito, **R. Cory-Wright**, S. Dash, and L. Horesh, to appear, **Philosophical Transactions of the Royal Society A**, 2026.

J13. *Decarbonizing OCP*

D. Bertsimas, **R. Cory-Wright**, and V. Digalakis Jr., **Manufacturing & Service Operations Management**, 27(6): 1760-1778, 2025.

- Finalist, M&SOM practice-based research competition (2023)

- Honorable mention, MIT Operations Research Center Student Paper Award (Digalakis, 2023)

- Featured in Imperial Business news article “Optimising renewables: a model for profitable decarbonisation” [link]
- J12. *A Stochastic Benders Decomposition Scheme for Large-Scale Stochastic Network Design*
D. Bertsimas, **R. Cory-Wright**, J. Pauphilet, and P. Petridis, **INFORMS Journal on Computing**, 37(5):1163–1181, 2025.
- J11. *Evolving Scientific Discovery by Unifying Data and Background Knowledge with AI Hilbert*
R. Cory-Wright, C. Cornelio, S. Dash, B. El Khadir, and L. Horesh, **Nature Communications** 15:5922, 2024.
- IBM Outstanding Technical Achievement Award (2024)
 - Featured in IBM Research blog “Meet Al Hilbert, a new algorithm for transforming scientific discovery” [link]
- J10. *Sparse Plus Low-Rank Matrix Decomposition: A Discrete Optimization Approach*
D. Bertsimas, **R. Cory-Wright**, and N. A. G. Johnson, **Journal of Machine Learning Research**, 24(267):1–51, 2023.
- First place, INFORMS Data Mining Society Student Paper Award (2021)
 - A. E. Grant Poster Award for Best Algorithm, CAARMS (Johnson, 2022)
- J9. *A New Perspective on Low-Rank Optimization*
D. Bertsimas, **R. Cory-Wright**, and J. Pauphilet, **Mathematical Programming**, 202(1-2):47–92, 2023.
- J8. *Mixed-Projection Conic Optimization: A New Paradigm for Modeling Rank Constraints*
D. Bertsimas, **R. Cory-Wright**, and J. Pauphilet, **Operations Research**, 70(6):3321–3344, 2022.
- First place, INFORMS George Nicholson Student Paper Competition (2020)
- J7. *A Scalable Algorithm for Sparse Portfolio Selection*
D. Bertsimas and **R. Cory-Wright**, **INFORMS Journal on Computing**, 34(3):1489-1511, 2022.
- J6. *Solving Large-Scale Sparse PCA to Certifiable (Near) Optimality*
D. Bertsimas, **R. Cory-Wright**, and J. Pauphilet, **Journal of Machine Learning Research**, 23(13):1-35, 2022.
- J5. *A Unified Approach to Mixed-Integer Optimization Problems With Logical Constraints*
D. Bertsimas, **R. Cory-Wright**, and J. Pauphilet, **SIAM Journal on Optimization**, 31(3):2340-2367, 2021.
- First place, INFORMS Computing Society Student Paper Award (2019)
- J4. *From Predictions to Prescriptions: A Data-Driven Response to COVID-19*
D. Bertsimas, L. Bouissoux, **R. Cory-Wright** et al., **Health Care Management Science**, 24:253-272, 2021.
- First place, INFORMS Healthcare Applications Society William Pierskalla Paper Award (2020)
- J3. *On Stochastic Auctions in Risk-Averse Electricity Markets With Uncertain Supply*
R. Cory-Wright and G. Zakeri, **Operations Research Letters**, 48(3):376-384, 2020.
- J2. *On Polyhedral and Second-Order Cone Decompositions of Semidefinite Optimization Problems*
D. Bertsimas and **R. Cory-Wright**, **Operations Research Letters**, 48(1):78-85, 2020.
- J1. *Payment Mechanisms for Electricity Markets With Uncertain Supply*
R. Cory-Wright, A. Philpott, and G. Zakeri, **Operations Research Letters**, 46(1):116-121, 2018.
- First place, Operations Research Society of New Zealand Student Paper Award (2016)

Articles in Preparation

- P4. *Sensor Location to Reduce Air Pollution*
L. Meng, **R. Cory-Wright**, D. Den Hertog, and W. Wiesemann, in progress.
- P3. *Thinking Coherently About Interpretability*
R. Cory-Wright, D. Keehan, and A. Jacquillat, in progress.
- P2. *A Minimax Shrinkage Scheme for Wasserstein Distributionally Robust Optimization*
L. Meng, **R. Cory-Wright**, and W. Wiesemann, in progress.
- P1. *Semidefinite Programming Relaxation for Copositive Dual Pricing*
C. Guo, L. Henderson, **R. Cory-Wright**, and B. Yang, in progress.

Books in Preparation

- B1. *Integer and Matrix Optimization: A Nonlinear Approach*
D. Bertsimas, **R. Cory-Wright**, and J. Pauphilet, in preparation.

Selected Awards

Note: * denotes student paper award won by collaborator for coauthored work

- 2024 First place, **INFORMS DMDA Paper Award**, Theoretical Track
2023 Honorable mention, **Student Paper Award**, MIT ORC (Digalakis Jr.*)
2023 Finalist, **Practice-Based Research Competition**, M&SOM Society
2022 **A. E. Grant Poster Award for Best Algorithm**, CAARMS (Johnson*)
2022 **IBM Herman Goldstine Fellowship**, IBM Department of Mathematical Sciences
2021 First place, **Student Paper Award**, INFORMS Data Mining Society
2020 First place, **George Nicholson Student Paper Competition**, INFORMS
2020 First place, **Pierskalla Paper Award**, INFORMS Health Applications Society
2019 First place, **Student Paper Award**, INFORMS Computing Society
2017 **Senior Scholar Award** (top of cohort), University of Auckland
2016 First place, **Student Paper Award**, Operations Research Society New Zealand
2014-16 **Dean's List** (top 5% of cohort), Faculty of Engineering, University of Auckland

Teaching

IMPERIAL

Fundamentals of Python (MSc AI Applications and Innovation)	<i>Imperial-X</i>
COURSE CREATOR AND INSTRUCTOR	<i>Fall 2025</i>
Introduction to Machine Learning in Python (MSc AI Applications and Innovation)	<i>Imperial-X</i>
COURSE CREATOR AND INSTRUCTOR	<i>Fall 2024</i>
Decision Making Under Uncertainty (PhD)	<i>Imperial Business School</i>
COURSE CREATOR AND INSTRUCTOR	<i>Spring 2024, 2025, 2026</i>
Data Structures and Algorithms (undergraduate)	<i>Imperial Business School</i>
COURSE CREATOR AND INSTRUCTOR	<i>Spring 2024, 2025, 2026</i>
Optimization and Decision Models (Online MSc Business Analytics)	<i>Imperial Business School</i>
INSTRUCTOR	<i>Spring 2024</i>

MIT

15.095 Machine Learning Under a Modern Optimization Lens (MBAn/PhD)	<i>MIT</i>
HEAD TEACHING ASSISTANT	<i>Fall 2019, 2021</i>
15.071 The Analytics Edge (MBA)	<i>MIT</i>
HEAD TEACHING ASSISTANT	<i>Fall 2020</i>
15.093 Optimization Methods (MSc/PhD)	<i>MIT</i>
TEACHING ASSISTANT	<i>Fall 2018</i>
Kaufman Teaching Certificate Program	<i>MIT Teaching and Learning Lab</i>
PARTICIPANT, eight practice-based workshops on teaching effectiveness	<i>Fall 2021</i>

Student Advising

POSTDOCTORAL FELLOWS

1. Dominic Keehan, *ICRF Postdoctoral Fellow at Imperial Business School* (starting August 2026).

DOCTORAL STUDENTS

1. Lingjun Meng, *Third year PhD student at Imperial Business School* (co-advised with Wolfram Wiesemann, research on optimization under uncertainty with application to sustainability).

Oral Presentations

INVITED PRESENTATIONS AT ACADEMIC INSTITUTIONS AND SINGLE-TRACK WORKSHOPS

Improved Approximation Algorithms for Low-Rank Problems Using Semidefinite Optimization

- Aarhus Business Analytics (scheduled) 2026
- CMU Tepper OR 2025
- Michigan IOE 2025
- IBM Yorktown Heights 2025
- Workshop on Information Learning 2025

Sparse PCA With Multiple Components

- Cornell ORIE 2025
- Northwestern IEMS 2025
- Imperial-X 2024

Evolving Scientific Discovery by Unifying Data and Background Knowledge with AI Hilbert

- Cornell Tech 2025
- Turing Institute 2024
- Summer Workshop on Innovations in Management Science 2024

Optimal Low-Rank Matrix Completion: Semidefinite Relaxations and Eigenvector Disjunctions

- Toronto Rotman Young Scholar Seminar Series 2023
- Imperial College London Control and Optimization 2023
- Mixed Integer Programming Workshop 2023

A New Perspective on Low-Rank Optimization

- IBM Yorktown Heights 2024
- Lehigh ISE 2022

Mixed-Projection Conic Optimization: A New Paradigm for Modeling Rank Constraints

- IBM Yorktown Heights 2022
- Rice CMOR 2022
- CMU Tepper OR 2022
- USC Viterbi ISE 2022
- Georgia Tech ISyE 2022
- Johns Hopkins Carey OM 2022
- Princeton ORFE 2022
- Imperial College London Analytics and Operations 2021
- University of Auckland Engineering Science 2020

INVITED PRESENTATIONS AT COMPANIES

The Future of Artificial Intelligence

- South Port New Zealand Board of Directors Meeting 2024

Other Academic and Industry Experience

Collaborations with organizations: Analytics for a Better World (2025-present), OCP (2021-22), CIBC (2017-20).

University of Auckland, Department of Engineering Science
RESEARCH ASSISTANT

Auckland, New Zealand
December 2016-July 2017

SUEZ Smart Solutions
ASSISTANT OPTIMIZATION ENGINEER

Auckland, New Zealand
December 2014-February 2016

Activities and Service

ORGANIZING SEMINARS AND WORKSHOPS

- 2024- Co-organizer, London Operations Research Day (LORD) [web link]
2019- Session chair, INFORMS Annual Meeting, ICCOPT, IOS, SIOPT, other conferences
2019 Co-organizer, MIT ORC student seminar series

EXTERNAL

- 2025 Cluster chair, INFORMS Optimization Society Conference
2025 Committee member, INFORMS Computing Society Student Paper Award
2024-25 Judge, M&SOM Student Paper Competition
2017- Member, INFORMS (Main, Computing Society, Optimization Society)
Member, Mathematical Optimization Society

IMPERIAL

Note: IB denotes service for Imperial Business School, ICL denotes service for Imperial College London

2025-26	Coordinator, Analytics and Operations Faculty Hiring	IB
2025-	Member, AI and Education Committee	IB
2025-	Member, Economics of AI initiative	ICL
2023-25	Member, Interdisciplinary AI initiative (Imperial-X),	ICL
2024-25	PhD early/late stage assessment committee, Yanwei Sun, Zhongze Cai, Fupeng Sun	IB

PEER REVIEW

Reviewer for academic journals: *Operations Research (OR)*, *Management Science (MS)*, *Manufacturing and Service Operations Management (M&SOM)*, *Mathematical Programming (MAPR)*, *Journal of Machine Learning Research (JMLR)*, *Mathematics of Operations Research (MOOR)*, *Foundations of Computational Mathematics (FOCM)*, *INFORMS Journal on Computing (IJOC)*, *INFORMS Journal on Optimization (IJOO)*, *SIAM Journal on Optimization (SIOPT)*, *Transportation Science (TS)*, *SIAM Journal on Matrix Analysis and Applications (SIMAX)*, *SIAM Journal on Mathematics of Data Science (SIMODS)*, *Operations Research Letters (ORL)*, *European Journal of Operational Research (EJOR)*.

- 2024 Meritorious Reviewer Award, INFORMS Journal on Computing.
- (Partial) evidence of reviewing activity at ORCID [[link](#)]

Reviewer for extended abstracts or papers at academic conferences: EC 2026, IPCO 2026, M&SOM 2025, IPCO 2024.