Jeff Decary

University of Connecticut School of Business | Operations and Information Management
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Research Interests

Thesis: Optimization for strategic users and market design in prediction markets.
Applications: Sports analytics and betting; portfolio allocation; platform competitions; market design; econometrics.
Methods: Combinatorial optimization including mixed-integer linear and nonlinear programming, dynamic programming, and graph and network algorithms; stochastic and risk-sensitive optimization; bilevel optimization; decomposition methods, with emphasis on logic-based Benders; simulation-based algorithms; machine learning.

Education

University of Connecticut — Storrs, CT, United States
Ph.D. Candidate in Business Administration — Aug. 2020 – Present

- Concentration: *Operations and Information Management* (OPIM)

Polytechnique Montréal — Montréal, QC, Canada
M.Sc.A. Mathematics — Aug. 2018 – Sept. 2020

- Thesis: Sylvestre-Decary, J. (2020). ***A Neural Network-Embedded Optimization Approach for Selecting Multiple Entries for March Madness***. Ecole Polytechnique, Montréal (Canada).
- Graduate Researcher, Canada Excellence Research Chair in Data Science for Real-Time Decision-Making.

University of Quebec in Montréal — Montréal, QC, Canada
B.Sc.(Honors) Actuarial Science — Aug. 2015 – May 2018

Revise & Resubmit (R&R)

Under 2$^{\text{nd}}$ Round Revision | Production and Operations Management — Aug. 2025

- Jeff Decary, David Bergman, Carlos Cardonha, Jason Imbrogno, and Andrea Lodi. ***The Madness of Multiple Entries in March Madness***.
  - Proved novel theoretical results and introduced a dynamic programming algorithm that is further applied in the algorithmic design of the optimization strategy.
  - Developed heuristics using mixed-integer linear programming and embedded neural network to optimize March Madness entries.
  - Estimated 2.45% chance of winning the $1M top prize and an **expected profit of $14,502** for our best heuristic against 9,000 participant, including some of the best sports bettors in the world.

Job Market Paper

Under Review | Management Science — Aug. 2025

- Jeff Decary, David Bergman, and Bin Zou. ***Log-Optimal Portfolio Construction for Binary Options with Combinatorial Constraints***.
  - Designed a Logic-based Benders for portfolio allocation problem with combinatorial constraints.

- Demonstrated the impact of parlay options on optimal allocation.
- Solved large-scale instances that general-purpose solvers were unable to handle.
- Provided empirical insights into sportsbook parlay pricing as a mechanism for risk exposure management.

Working Papers

- David Bergman, Jeff Decary, Mohsen Emadikhiav, Mengwei Qu, Chenbo Shi. ***Robust Treatment Effect Estimation via Randomized Matching on Convex Bipartite Graph.***
  - Designed a novel experiments for empirical treatment effect study using matching, specifically propensity score matching.
  - Formulated a Markov Decision Diagram allowing us to generate matching uniformly at random.
- Jeff Decary, David Bergman, and Robert Day. ***Pricing Mechanism for Daily Fantasy Sports***.
  - Designed a platform pricing for daily fantasy sports that accounts for user sophistication.
  - Optimized players salary to increase the advantage of a sophisticated bettor over a casual bettors.
- Jeff Decary, Keliang Wang, Carlos Cardonha, David Bergman, Miao Bai. ***Branch-and-Price Algorithms for Embedded Neural Network Optimization: Application on a Surgical Room Scheduling Problem***.

Teaching Experience

Instructor of Record — Aug. 2020 – Present
University of Connecticut — Storrs, USA

- **OPIM 3103 (Fall 2022, Spring 2023, Fall 2025 (2 sections)):**
  - Introduced Excel and business information systems through hands-on data analysis projects.
  - Used McGraw-Hill to improve the student learning experience and supplemented lectures with consulting case studies to provide real-world experience.
  - Received a median score of **5.0/5.0** and **4.0/5.0** for “Instructor Overall Teaching” for Fall 2022 and Spring 2023, respectively.

Teaching Assistant — Aug. 2020 – Present
University of Connecticut — Storrs, USA

- **OPIM 3602 (Spring 2024)**: Graded assignments and exams; held office hours for a supply chain and advanced analytics course
- **OPIM 3104 (Spring 2024)**: Delivered a guest lecture on machine learning and business applications
- **OPIM 3104 (Fall 2021, Spring 2024)**: Led in-class activities, graded exams, and held office hours
- **OPIM 3103 (Fall 2020, Spring 2021, Spring 2022)**: Assisted with grading assignments and exams

Conference Presentations

“Simplifying the Madness of Multiple Entries”

- University of Connecticut: Control and Optimization Seminar (Talk) — April 2025
- INFORMS Annual Meeting 2024 (Talk) — Oct. 2024
- University of Connecticut: OPIM Research Seminar — Sept. 2024
- ICERM: Discrete Optimization (Poster) — Aug. 2024

- Economics and Computation (Poster) July 2024
- University of Connecticut: Research presentation in OPIM 5604 April 2024
- INFORMS Annual Meeting 2023 (Talk) Oct. 2023
- 29th International Conference on Principles and Practice of Constraint Programming (Talk) Aug. 2023

Awards & Fellowships

Summer Doctoral Dissertation Fellowship, University of Connecticut May 2025

OPIM Department Summer Fellowship, University of Connecticut School of Business May 2024

Named Scholar-Scholarship, University of Connecticut School of Business May 2023

UConn School of Business Dean's Summer Fellowship, University of Connecticut May 2022-2024

Predoctoral Summer Fellowship, University of Connecticut School of Business May 2021-2024

Competitions

Sixth place in *March Machine Learning Mania 2024* organized by *Kaggle* April 2024

- Developed predictive models for NCAA outcomes; placed 6th in international Kaggle competition against 820 participants

Third place at Munich Re Cup Jan. 2018–April 2018

- The Munich Re Cup is a case competition open to the Centers of Actuarial Excellence in Canada.
- Developed an accelerated underwriting program using machine learning
- Presented to senior executives of Munich Re

Service & Athletic Leadership

Academic Service

- **BUSN Fall 2024 and 2025 Orientation: Student Panel** Sept. 2024 & Sept. 2025
  - Served on the student panel introducing incoming University of Connecticut School of Business PhD students to what it is like to be a successful Business PhD student.
- **Organizer**, OPIM Student-Led Seminar Series, University of Connecticut Sept. 2024-April. 2025
  - Led the planning and coordination of seminars on Business Analytics research and academic career development
  - Facilitated discussions on key milestones in the path to becoming a professor
- **Conference Volunteer**, The 29th International Conference on Principles and Practice of Constraint Programming Aug.-Sept. 2023
  - Co-organized the Workshop: **Optimization for Sports**
  - Supported session chairs and technical logistics to ensure smooth conference operations
- **Conference Volunteer**, The 27th International Conference on Principles and Practice of Constraint Programming Oct. 2021
  - Technical support for virtual conference

Athletic Service & Leadership

- **Club Tennis Volunteer**
  - University of Connecticut Involvement Fair Sept. 2022 & Sept. 2023
  - Manchester Soup Kitchen Nov. 2022
  - University of Connecticut Woodsmen March 2022
- **Secretary, Board of Directors, *Tennis de Table Québec*** May 2019-June 2023
  - Oversaw financial and strategic planning for a nonprofit with $500,000 annual budget

- Secured $23,000 in funding from the Government of Québec to develop a video analysis tool through computer vision and data science

- **Former competitive table tennis athlete and instructor**
  - **Contemporary Dancer.** Toured across Québec in seven 30-minute table tennis duet that reimagines competition as collaborative works. 2018-2023
  - Best ranking: 15^{th} across Canada
  - Instructor of Table Tennis 2010-2014

Professional Memberships

- INFORMS (Institute for Operations Research and the Management Sciences), Member
- ACM (Association for Computing Machinery), Member

Certifications & Languages

Actuarial Certification – Society of Actuaries 2015-2017

- Passed: Probability, Financial Mathematics, Models for Financial Economics, Construction of Actuarial Models

Languages

- French (Native)
- English (Full Professional Proficiency)

Industry Experience

Asset Management and Pensions Intern Montréal, QC, Canada
Normandin Beaudry May 2017 – Aug. 2017

- Performed actuarial valuations and long-term financial projections for pension funds
- Prepared client-facing asset review presentations and supported investment strategy discussions
- Gained practical insight into institutional investment strategy and retirement plan design

Business Intelligence Intern Montréal, QC, Canada
The Co-operators Jan. 2016 – Jul. 2016

- Reconciled legacy systems and analyzed insurance databases to support system migration
- Contributed to internal reporting solutions through database analysis and business logic design