Amine Bennouna

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ACADEMIC APPOINTMENTS

Kellogg School of Management, Northwestern University 2025 –
Assistant Professor of Operations *Evanston, IL*

Laboratory for Information & Decision Systems, MIT 2024 – 2025
Postdoctoral Researcher *Cambridge, MA*

EDUCATION

Massachusetts Institute of Technology 2019 – 2024
Ph.D candidate in Operations Research *Cambridge, MA*

- Advisor: Bart Van Parys
- Thesis: Efficient Robustness and Interpretability in Learning and Data-Driven Decision-Making

Ecole Polytechnique 2016 – 2019
Master of Science in Applied Mathematics *Paris, France*
Bachelor of Science in Mathematics and Computer Science

Lycée Louis-le-Grand 2014 – 2016
Classes préparatoires, Mathematics, Physics, Computer Science *Paris, France*

RESEARCH INTERESTS

Data-driven Decision-making, Experimentation, Optimization;
Data Value, Distributionally Robust Optimization, Statistics.

PAPERS

[1] What Data Enables Optimal Decisions? An Exact Characterization for Linear Optimization (`link`)
Omar Bennouna, Amine Bennouna, Saurabh Amin, Asuman Ozdaglar.

[2] From Distributional Robustness to Robust Statistics: A Confidence Sets Perspective (`link`)
Gabriel Chan, Bart Van Parys & Amine Bennouna.

[3] Holistic Robust Data-Driven Decisions (`link`)
Amine Bennouna & Bart Van Parys.
Major Revision in **Management Science**

[4] Certified Robust Neural Networks: Generalization and Corruption Resistance (`link`)
Amine Bennouna, Ryan Lucas & Bart Van Parys.
ICML 2023

- ⋆ *Runner-up of INFORMS 2023 Data Mining Best Paper Award (General Track)*
- ⋆ *Winner of INFORMS 2023 Workshop on Data Science Best Student Paper*

[5] Learning and Decision-Making with Data: Optimal Formulations and Phase Transitions (`link`)
Amine Bennouna & Bart Van Parys.
Mathematical Programming

- ⋆ *Winner of MIT Operations Research Center Best Student Paper 2022*

[6] Learning the Minimal Representation of a Continuous State-Space MDP from Transition Data (`link`)
Amine Bennouna, Dessislava Pachamanova, Georgia Perakis & Omar Skali Lami.
Management Science

[7] COVID-19: Prediction, Prevalence, and the Operations of Vaccine Allocation (`link`)
Amine Bennouna, Joshua Joseph, David Nze-Ndong, Georgia Perakis, Divya Singhvi, Omar Skali Lami, Yannis Spantidakis, Leann Thayaparan, Asterios Tsiourvas.
Manufacturing & Service Operations Management

- ⋆ *Finalist of INFORMS Doing Good with Good OR 2021*

★ *Honorable Mention Public Sector Operations Research Best Paper Competition 2021*
★ *INFORMS ICSS Best Conference Paper 2021*

[8] Shallow and Deep Networks are Near-Optimal Approximators of Korobov Functions (`link`)
Moïse Blanchard & Amine Bennouna.
ICLR 2022

[9] Robust Two-Stage Optimization with Covariate Data (`link`)
Bart Van Parys & Amine Bennouna.

Teaching Experience

Optimization Methods, MIT 15.093/6.255	Rating
Graduate (Masters, MBAn, PhDs), 180 students	**6.9/7** (79 ratings)
Head teaching assistant, Fall 2021	
Optimization Methods, MIT 15.093/6.255	Rating
Graduate (Masters, MBAn, PhDs), 120 students	**6.5/7** (60 ratings)
Teaching assistant, Fall 2020	

The Analytics Edge, MIT 15.071
Graduate (MBA), 80 students
Guest Lecturer, Fall 2023
The Advanced Analytics Edge, MIT 15.072
Graduate (MBAn), 100 students
Guest Lecturer, Fall 2023
Mathematical Olympiad, Instructor
Morocco's national team IMO training 2017-2019
Advanced Mathematics, Classes Préparatoires
Instructor and examiner for Institut Bossuet (Lycée Louis-le-Grand, Saint-Louis, Henri IV)

Student Research Mentorship

Graduate
MIT: Ryan Lucas, Gabriel Chan, Julien Pinede, Yasser Alghouass.

Undergraduate
MIT: Janice Yang, Lowell Hensgen, Albert Luo, William Zhao, Northwestern: Haoyan Shi.

Industry Experience

Google Research	Summer 2022, 2023
Research Intern	*New York, NY*

- Designed and implemented novel learning algorithms for image classification under distribution shift.

Crédit Agricole Investement Bank	Summer 2018
Data scientist intern	*Singapore*

- Designed and deployed a prediction-based optimization and pattern detection solution for budget optimization.

Awards

Finalist of INFORMS Service Science Best Cluster Paper	2024
Runner-up of INFORMS Data Mining Best Paper Award (General Track)	2023
INFORMS Workshop on Data Science Best Student Paper	2023
MIT Operations Research Center Best Student Paper Award	2022
Runner-up of INFORMS Doing Good with Good OR Student Paper Competition	2021
Honorable Mention in the Public Sector Operations Research Best Paper Competition	2021
Third Best Talk at CMU YinzOR Flash Talk Competition	2023
ICSS Best Conference Paper Award	2021
1st Prize Operations Research Center's Common Experience Deep Learning Challenge	2021

Top 2% in Kaggle Brain Tumor Classification Competition (Silver Medal)	2021
Robert B. Guenassia Award, MIT Office of Graduate Education	2021
Ecole Polytechnique 1st Prize of Research Internship in Applied Mathematics	2019
Chanoine Pierre Garand Award for Outstanding Undergraduate Pathway, Institut Bossuet	2016
Moroccan Merit Scholarship	2016
Honorable Mention in National French Physics Olympiad	2016
Honorable Mention in International Mathematical Olympiad (IMO)	2014

SERVICE AND OUTREACH

Reviewer: Operations Research, Management Science, Automatica, NeurIPS, INFORMS Journal on Optimization, Annals of Applied Probability.

Session Chair: INFORMS Annual Meeting 2025, 2024, 2023, ICCOPT 2022 Conference.

Seminar Coordinator: MIT Operations Research Center Seminar; Spring 2023.

Initiatives: Co-Founder and President of Math&Maroc (2016-2019); Major Moroccan Education NGO.

TALKS

Invited Seminars: NYU Stern, BU Questrom, Michigan Ross, Northwestern Kellogg, UCL School of Management, Cornell ORIE, John Hopkins Carey, Purdue IE, UNC STOR.

Talks:

What Data Enables Optimal Decisions?
- (Invited Panel) Workshop on Incentives for Collaborative Learning and Data Sharing, August 2025, Chicago IL
- Revenue Management and Pricing Section Conference, July 2025, New York NY
- Applied Probability Society Conference, July 2025, Atlanta GA

From Distributional Robustness to Robust Statistics
- INFORMS Annual Meeting, October 2024, Seattle WA

Holistic Robust Data-Driven Decisions
- INFORMS Annual Meeting Data Mining Best Paper Competition, October 2023, Phoenix AZ
- INFORMS Annual Meeting General Session, October 2023, Phoenix AZ
- CMU YinzOR Selected Flash Talk, August 2023, Pittsburgh PA
- SIAM Conference on Optimization, June 2023, Seattle WA
- Manufacturing & Services Operation Management Conference, June 2023, Montreal
- MIT ORC Seminar (Best Paper Award), February 2023, Cambridge MA
- INFORMS Annual Meeting, October 2022, Indianapolis IN
- MoroccoAI Webinar Invited Speaker, October 2022, virtual
- ICCOPT, July 2022, Bethlehem PA
- MIT ORC Student Seminar, October 2022, Cambridge MA

Certified Robust Neural Networks: Bridging Generalization and Corruption Resistance
- INFORMS Workshop on Data Science, October 2023, Phoenix AZ
- ICML, July 2023, Honolulu HI/virtual

Learning and Decision-Making with Data: Optimal Formulations and Phase Transitions
- MIT ORC Student Seminar, October 2021, Cambridge MA
- INFORMS Annual Meeting, October 2021, Anaheim CA

Minimal Representation Learning: Toward more Interpretable and Efficient Offline Reinforcement Learning
- INFORMS Annual Meeting Service Science Best Cluster Paper, October 2024, Seattle WA
- INFORMS Healthcare Conference, July 2021, virtual
- Manufacturing & Services Operation Management Conference Conference, June 2021, virtual
- MIT ORC Student Seminar, April 2021, Cambridge MA
- INFORMS Annual Meeting, November 2020, virtual

The Representation Power of Neural Networks
- ICLR, April 2022, virtual (poster session)
- MIT ORC Student Seminar, March 2021, Cambridge MA
- MIT SIAM Student Seminar, December 2020, Cambridge MA

Broader Audience:

- Moroccan Tournament of Young Mathematicians Guest Speaker, Al Akhawayn University, Dec 2024, Morocco
- ThinkAI Hackathon Guest Speaker, UM6P University, May 2023, Morocco