

# Ayoub Foussoul

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## EDUCATION

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**University of Chicago Booth School of Business**

2025 –

*Postdoctoral Researcher*

*Chicago, IL*

**Columbia University**

2020 – 2025

*Ph.D candidate in Operations Research*

*New York, NY*

- Advisor: Vineet Goyal

- Thesis: Robust and Tractable Policies for Resource Allocation Under Uncertainty.

**Ecole Polytechnique**

2017 – 2020

*Master of Science in Applied Mathematics*

*Paris, France*

*Bachelor of Science in Mathematics and Computer Science*

**Lycée Moulay Youssef**

2015 – 2017

*Classes préparatoires, Mathematics, Physics, Computer Science*

*Rabat, Morocco*

## RESEARCH INTERESTS

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Methodology: Deep Learning, Deep Reinforcement Learning, Sequential Decision Making under Uncertainty.

Applications: Supply Chain and Inventory Management, Matching Markets.

## PAPERS

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- [1] Distributionally Robust Newsvendor on a Metric ([link](#))  
*Ayoub Foussoul & Vineet Goyal.*  
*Major Revision in **Operations Research***  
*Extended abstract appeared in proceedings of **EC 2025***
- [2] LP-based Approximations for Disjoint Bilinear and Two-Stage Adjustable Robust Optimization ([link](#))  
*Omar El Housni, Ayoub Foussoul & Vineet Goyal.*  
***Mathematical Programming***  
*Preliminary version appeared in proceedings of **IPCO 2022***
- [3] Two-Stage Stochastic Stable Matching ([link](#))  
*Ayoub Foussoul, Yuri Faenza & Chengyue He.*  
*In proceedings of **IPCO 2024***
- [4] Minimum Cut Representability of Stable Matching Problems ([link](#))  
*Ayoub Foussoul, Yuri Faenza & Chengyue He.*  
*Major Revision in **Operations Research***  
*★ Honorable Mention INFORMS Optimization Society, 2025 Student Paper Prize*
- [5] Fully-Dynamic Load Balancing ([link](#))  
*Ayoub Foussoul, Vineet Goyal & Amit Kumar.*  
***Mathematical Programming***  
*Preliminary version appeared in proceedings of **IPCO 2024***
- [6] Last Switch Dependent Bandits with Monotone Payoff Functions ([link](#))  
*Ayoub Foussoul, Vineet Goyal, Orestis Papadigenopoulos & Assaf Zeevi.*  
*In proceedings of **ICML 2023***
- [7] MNL-Bandit in Non-Stationary Environments ([link](#))  
*Ayoub Foussoul, Vineet Goyal & Varun Gupta.*

## TECHNICAL REPORTS

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- [1] Conditioning of Piecewise Linear Approximations with an Application to the Monitoring of the COVID-19 Epidemic  
*Marianne Akian, Jérôme Bolt, Ayoub Foussoul, Stephane Gaubert & Laurent Massoulié.*  
*★ École Polytechnique Research Prize in Applied Mathematics*

- [2] Identification of the Optimal Tropical Hypersurfaces Explaining Consumers' Responses to Prices  
*Xavier Allamigeon, Ayoub Foussoul & Stephane Gaubert.*  
 ★ École Polytechnique Research Prize in Applied Mathematics

## TEACHING EXPERIENCE

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<b>Optimization I, IEOR E6613</b> <i>Core PhD course on linear and convex optimization</i> <i>Teaching Assistant &amp; Guest Lecturer</i>	Fall 2021, 2022
<b>Optimization II, IEOR E6614</b> <i>Core PhD course on combinatorial optimization</i> <i>Teaching Assistant</i>	Spring 2023, 2024, 2025
<b>Convex Optimization, IEOR E6616</b> <i>PhD course on convex optimization</i> <i>Teaching Assistant</i>	Spring 2022
<b>Optimization Methods, IEOR E4004</b> <i>Core Master's course on optimization</i> <i>Teaching Assistant &amp; Guest Lecturer</i>	Fall 2023
<b>Applications for Financial Engineering, IEOR E4500</b> <i>Master's course on quantitative methods in financial engineering</i> <i>Teaching Assistant</i>	Spring 2021
<b>Academic Tutor, Le Valdocco</b> <i>Provided academic support and mentoring to underprivileged students at a non-profit educational organization</i>	2017-2018

## INDUSTRY EXPERIENCE

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<b>INRIA</b> <i>Research Intern</i> <ul style="list-style-type: none"> <li>Studied the VC-dimension of polynomials in tropical algebra.</li> </ul>	Mar 2020 - Sep 2020 <i>Paris, France</i>
<b>Padoa</b> <i>Data Analyst Intern</i> <ul style="list-style-type: none"> <li>Designed and implemented data handling tools to streamline data processing and analysis.</li> <li>Developed APIs and web services to enhance system functionality and interoperability.</li> </ul>	Jun 2019 - Sep 2019 <i>Paris, France</i>

## SERVICE AND OUTREACH

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Elected Student Representative, École Polytechnique (Class of 2020)  
 Co-organizer of IEOR PhD Tutorial Series  
 Reviewer: Management Science, Mathematical Programming, Optimization Letters, NeurIPS MLxOR Workshop, INFORMS Journal on Computing, IPCO, SODA, STOC.

## AWARDS

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Honorable Mention in the INFORMS Optimization Society Student Paper Prize	2025
Postgraduate Excellence Scholarship (OCP Foundation)	2020
École Polytechnique Research Prize in Applied Mathematics	2020
French Government Major-Excellence Scholarship	2017

### *Distributionally Robust Newsvendor on a Metric*

- INFORMS Annual Meeting, October 2025, Atlanta GA
- Revenue Management and Pricing Conference (RMP), July 2025, New York NY
- ACM Conference on Economics and Computation (EC), July 2025, Stanford CA
- Manufacturing & Services Operation Management Conference (MSOM), June 2025, London
- Columbia University Data Science Day, April 2025, New York NY (poster session)
- IEOR Colloquium, November 2024, New York NY
- INFORMS Annual Meeting, October 2024, Seattle WA
- Cornell ORIE Young Researchers Workshop, October 2024, Ithaca NY
- Northwestern Kellogg Operations Management Rookiepalooza, October 2024, Evanston IL

### *Two-Stage Stochastic Stable Matching*

- Integer Programming and Combinatorial Optimization Conference (IPCO), July 2024, Wrocław
- Columbia University Data Science Day, April 2024, New York NY (poster session)

### *Fully-Dynamic Load Balancing*

- Integer Programming and Combinatorial Optimization Conference (IPCO), July 2024, Wrocław
- Columbia IEOR Student Seminar, February 2024, New York NY

### *Last Switch Dependent Bandits with Monotone Payoff Functions*

- International Conference on Machine Learning (ICML), July 2023, Honolulu HI (poster session)

### *MNL-Bandit in Non-Stationary Environments*

- DSI Financial and Business Analytics Poster Session, November 2023, New York NY (poster session)
- INFORMS Annual Meeting, October 2023, Phoenix AZ
- Revenue Management and Pricing Conference (RMP), July 2023, London

### *LP-based Approximations for Disjoint Bilinear and Two-Stage Adjustable Robust Optimization*

- International Symposium on Mathematical Programming (ISMP), July 2024, Montréal
- International Research and Innovation Seminar (IRIS), December 2023, Ben Guerir
- INFORMS Annual Meeting, October 2022, Indianapolis IN
- International Conference on Continuous Optimization (ICCOPT), July 2022, Bethlehem PA
- Integer Programming and Combinatorial Optimization Conference (IPCO), June 2022, Eindhoven
- INFORMS Optimization Society Conference (IOS), March 2022, Greenville SC