

EL HOUSNI Omar

2 W Loop Rd, New York, 10044, NY
oe46@cornell.edu
<https://elhousni.orie.cornell.edu>
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EMPLOYMENT

Cornell Tech, Cornell University, New York, NY

- Assistant Professor Jan 2022-present
School of Operations Research and Information Engineering
Graduate Field Member in Operations Research and Applied Mathematics
- Visiting Assistant Professor 2020-2021

Amazon, Selling Partner Services

- Amazon Scholar Jan 2025-present

EDUCATION

Columbia University, New York, NY

- Ph.D. in Operations Research. 2016-2020
Thesis: *Tractable Policies in Dynamic Robust Optimization*
Advisor: Professor Vineet Goyal
- Master of Science in Operations Research 2015-2016

Ecole Polytechnique, Paris, France

- Bachelor of Science and Master of Science in Applied Mathematics 2012-2015

SPONSORED RESEARCH

“Agentic Commerce: How AI Shopping Agents Change Choice, Assortment, and Ranking”, Cornell Tech Catalyst Fund. Role: Principal Investigator (co-PI Omid Refeian). \$80,000, 2026-2027

“Pricing Commodities Based on Real-Time Flow of Supply and Demand”, Mohammed VI Polytechnic University (Morocco). Role: Principal Investigator. \$160,000, 2024-2025

“Collaborative Research: Coordinating Offline Resource Allocation Decisions and Real-Time Operational Policies in Online Retail with Performance Guarantees”, National Science Foundation, CMMI-2226900. Role: Principal Investigator (co-PI Huseyin Topaloglu). \$450,365, portion of Cornell University is \$305,824, 2023-2026

“Urban Friendly e-Retail”, Urban Tech Hub at Cornell Tech. Role: Principal Investigator (co-PI Huseyin Topaloglu). \$99,880, 2022-2023

AWARDS

- Cornell Tech Faculty Dedication Award 2026 (*voted by Cornell Tech graduating class M.Eng, MS, MBAs and LLMs students*)
- Mathematical Programming 2023 Meritorious Service Award
- ORIE Graduate Outstanding Instructor Award 2023 (*voted by Cornell ORIE graduate students*)
- Cornell Tech Students Choice Award 2023 (*voted by Cornell Tech graduating class M.Eng, MS, MBAs and LLMs students*)
- Second prize in the INFORMS George Nicholson student paper competition, 2020
- Amazon Inventor Award, 2017
- The Graduate Fellowship for Masters in Operations Research, Columbia University, 2016
- Finalist in INFORMS Undergraduate OR student paper competition, 2015
- Ecole Polytechnique Research Prize in Applied Mathematics, 2015
- French Government’s Major-Excellence Scholarship, 2012
- Honorable Mention in the 51st International Mathematical Olympiad, Astana, Kazakhstan, 2010

JOURNAL PUBLICATIONS

[J13] *Two-sided Assortment Optimization: Approximation Algorithms and Adaptivity Gaps in* (joint with A. Torrico and U. Hennebelle)
Operations Research, forthcoming
Accepted for oral presentation at **MATCH-UP 2024**

- [J12] *When Location Shapes Choice: Placement Optimization of Substitutable Products* (joint with R. Udwan) **Management Science**, 2026
- [J11] *Matchings Riders to Drivers: A Two-stage Robust Optimization Approach* (joint with V. Goyal, O. Hanguir and C. Stein) **Operations Research**, 2025
- [J10] *Joint Assortment and Inventory Planning under the Markov chain Choice Model* (joint with O. Mouchtaki, G. Gallego, V. Goyal, S. Humair, S. Kim, A. Sadighian, J. Wu) **Management Science**, 2026
- [J9] *Assortment Optimization with Visibility Constraints* (joint with T. Barre, M. Ibn Brahim, A. Lodi, and D. Segev) **Math Programming**, 216, pages 177–220, 2026
Selected for presentation in the MSOM Supply Chain Management SIG, 2024
- [J8] *Maximum Load Assortment Optimization: Approximation Algorithms and Adaptivity Gaps* (joint with M. Ibn Brahim and D. Segev) **Operations Research**, 74(1), pages 408–429, 2025
★ **Finalist in the INFORMS George Nicholson student paper competition, 2025. Entrant: Marouane**
- [J7] *Coordinated Inventory Stocking and Assortment Optimization* (joint with Y. Bai, P. Rusmevichientong and H. Topaloglu) **Operations Research**, 73(6), pages 2953–2971, 2025
Selected for presentation in the MSOM Supply Chain Management SIG, 2023
- [J6] *LP-based Approximations for Disjoint Bilinear and Two-Stage Adjustable Robust Optimization* (joint with A. Fousoul and V. Goyal). **Math Programming**, 206, pages 239–281, 2024
- [J5] *Fluid Approximations for Revenue Management under High-Variance Demand: Good and Bad Formulations* (joint with Y. Bai, B. Jin, P. Rusmevichientong, H. Topaloglu, D. Williamson) **Management Science**, 69(7), pages 4016–4026, 2023
Accepted to Fast Track in Management Science
- [J4] *Joint Assortment Optimization and Customization under Mixture of Multinomial Logit Model: On the Value of Personalized Assortments* (joint with H. Topaloglu) **Operations Research**, 71(4), pages 1197–1215, 2023
Selected for presentation in the MSOM Supply Chain Management SIG, 2022
- [J3] *On the Optimality of Affine Policies for Budgeted Uncertainty Sets* (joint with V. Goyal) **Math of Operations Research**, 46(2), pages 674–711, 2021
★ **2nd place in the INFORMS George Nicholson student paper competition, 2020**
- [J2] *A Tractable Approach for Designing Piecewise Affine Policies in Dynamic Robust Optimization* (joint with A. Ben-Tal and V. Goyal). **Math Programming**, 182 (1), pages 57–102, 2020
- [J1] *Piecewise Static Policies for Two-stage Adjustable Robust Linear Optimization* (joint with V. Goyal) **Math Programming** 169(2), pages 649–665, 2018
★ **Finalist in INFORMS Undergraduate OR student paper competition, 2015**

[C6] *Adaptivity Gaps in Two-sided Assortment Optimization* (joint with A. Torrico and U. Hennebelle). In Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (**IPCO**), 2024

[C5] *Assortment Optimization with Visibility Constraints* (joint with T. Barre and A. Lodi). In Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (**IPCO**), 2024

[C4] *LP-based Approximations for Disjoint Bilinear and Two-Stage Adjustable Robust Optimization* (joint with A. Foussoûl and V. Goyal). In Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (**IPCO**), 2022

[C3] *Matchings Riders to Drivers: A Two-stage Robust Optimization Approach* (joint with V. Goyal, O. Hanguir and C. Stein). In Proceedings of the International Conference on Approximation Algorithms for Combinatorial Optimization Problems (**APPROX**), 2021

[C2] *On the Power of Static Assignment Policies for Robust Facility Location Problems* (joint with V. Goyal and D. Shmoys). In Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (**IPCO**), 2021

[C1] *Beyond Worst-case: A Probabilistic Analysis of Affine Policies in Dynamic Optimization* (joint with V. Goyal). Advances of Neural Information Processing Systems (**NeurIPS**) (**spotlight talk**), 2017

PAPERS UNDER
REVIEW

[J19] *A Markovian Approach for Cross-Category Complementarity in Choice Modeling* (joint with S. Sun and R. Udvani)

[J18] *Optimal Selection with Balanced Market Share: Static and Dynamic Assortment Optimization* (joint with Q. Feng and H. Topaloglu)
Selected for presentation in the MSOM Supply Chain Management SIG, 2026

[J17] *Adaptive Two-sided Assortment Optimization: Revenue Maximization* (joint with M. Ahmadnejadsaein)
Major revision in **Operations Research**

[J16] *Price and Assortment Optimization under the Multinomial Logit Model with Opaque Products* (joint with A. Elmachoub, H. Sheth and J. Shi)
Major revision in **Management Science**

[J15] *Assortment and Price Optimization under an Endogenous Context-Dependent Multinomial Logit Model* (joint with Y. Bai, P. Rusmevichientong and H. Topaloglu)
Major revision in **Management Science**

[J14] *Assortment Optimization under the Multinomial Logit Model with Covering Constraints* (joint with Q. Feng and H. Topaloglu).
Minor revision in **M&SOM**

OTHER PAPERS

Leveraging AI for Natural Disaster Management: Takeaways From The Moroccan Earthquake (Morocco Solidarity Hackathon) **NeurIPS 6th Workshop** on Artificial Intelligence for Humanitarian Assistance and Disaster Response

Can Testing Ease Social Distancing Measures? Future Evolution of COVID-19 in NYC (joint with Mika Sumida, Paat Rusmevichientong, Huseyin Topaloglu and Serhan Ziya) (*White paper*)

Future Evolution of COVID-19 Pandemic in North Carolina: Can We Flatten the Curve? (joint with Mika Sumida, Paat Rusmevichientong, Huseyin Topaloglu and Serhan Ziya) (*White paper*)

Real-time Iterative Assortment Allocation Estimation (joint with D.Bhatia, S.Humair, V.Jain, G.Li, J.Marasanapalle, A.Sadighian, and J.Wu) Amazon Research. Patent pending

INDUSTRY EXPERIENCE	Uber , Data Scientist Intern, San Francisco, CA	Summer 2018
	Developed a machine learning and an optimization framework for Uber Eats targeted promotions.	
	Amazon , Research Scientist Intern, Seattle, WA	Summer 2016, Summer 2017
	Developed a standardized decision-making process for Amazon fashion assortment planning (patent pending).	
	EDF R&D , Research Intern, Paris, France	Fall 2014
	Developed a large scale optimization framework for scheduling employees rounds at the French flagship electric utility company EDF.	
	Empresas Lipigas , Supply Chain Analyst, Santiago, Chili	Summer 2014
	Implemented optimization algorithms for scheduling the production of gas cylinders under demand uncertainty.	
TEACHING EXPERIENCE	Cornell Tech , Instructor	
	<i>ORIE 7391: Optimization for Revenue Management</i> , PhD	Spring 2024
	<i>ORIE 5132: Pricing Analytics and Revenue Management</i> , graduate	Spring 2023,2025,2026
	<i>ORIE 5530: Modeling under Uncertainty</i> , graduate	Fall 2026,2024,2023,2022,2021
	<i>ORIE 6360: Optimization under Uncertainty: Robust and Online Models</i> , PhD	Spring 2022
	<i>ORIE 5250: Business Applications of Optimization</i> , graduate	Summer 2021
	<i>ORIE 5132: Service Systems and Online Markets</i> , graduate	Spring 2021
	<i>TECHIE 1101: Engineering Operations: Data Science & Decision Making</i>	Summer 2026
	Columbia University , Teaching Assistant	
	<i>IEOR 6613: Optimization</i> , PhD .	Fall 2016, 2018
	<i>IEOR 4601: Dynamic Pricing & Revenue Management</i> , graduate	Spring 2017,2020
	<i>IEOR 3404: Simulation</i> , undergraduate,	Spring 2018
	<i>IEOR 3609: Advanced Optimization</i> , undergraduate	Spring 2019
PROFESSIONAL EXTERNAL SERVICE	Columbia University Science Honors Program , Co-instructor	Spring 2019
	<i>Introduction to Algorithms</i> , (40 students).	
	Mathematical Olympiad , Instructor	
	<i>Head coach and Instructor of the Moroccan International Mathematical Olympiad team, IMO 2019, Bath UK.</i>	
	-Lead of “Assortment Optimization Workshop” at ISB (India) 2026.	
	-Harvey J. Greenberg Research Award comittee 2026	
	-INFORMS Optimization Society Student Paper Prize committee 2026	
	-Organizing Committee of NYC Operations day April 2026 (Baruch), March 2025 (NYU), May 2023 (Columbia) and April 2022 (Cornell Tech)	
	-Problem Captain Pan-African Mathematics Olympiads (PAMO), Johannesburg, South Africa 2024	
	-Organizing Committee for BIRS Workshop on Combinatorial Optimization for Online Platforms, Banff, Canada, April 2024	
	-Program Committee EC conference 2024	
	-Senior Coordinator at the International Mathematical Olympiad (IMO), Chiba Japan, 2023	
	-INFORMS Optimization Society Student Paper Prize committee 2023	
CORNELL SERVICE	-Organizing Committee Math&Maroc Competition, Benguerir Morocco, May 2023	
	-Session organizer for INFORMS Annual Meeting 2022, 2023, 2024, ICCOPT 2022, ISMP 2024	
	-Reviewer for <i>Operations Research</i> , <i>Management Science</i> , <i>Mathematical Programming</i> , <i>Mathematics of Operations Research</i> , <i>INFORMS journal on Computing</i> , <i>INFORMS journal on Optimization</i> , <i>MSOM journal</i> , <i>Naval Research Logistics</i> , <i>Optimization Letters</i> , <i>IPCO</i> , <i>ISCO</i> , <i>EC</i> and <i>MSOM-SIG</i> .	
	-Co-organizer of IEOR-DRO seminars at Columbia university, 2016-2020.	
	-Cornell Tech PhD life committee, committee chair, 2025-2026	
	-Cornell ORIE Search hiring committee member, 2024-2025	
	-Cornell ORIE PhD Admissions committee member, 2023	

- Cornell ORIE Director search committee member, 2023
- Cornell Tech Search committee member for communications and marketing, 2024
- Cornell Tech Research Collisions and Events committee member, 2022,2023
- Cornell Tech PhD life committee, ORIE representative, 2021,2023
- Cornell Tech Academic integrity committee member, 2022

SKILLS

Arabic/French: bilingual **Spanish:** Fluent
Programming: Python, R, Matlab, CVX, GUROBI

ADVISING

Current Phd advisees:

Marouan Ibn Brahim
Qing Feng (co-advisor: Huseyin Topaloglu)
Mohammadreza Ahmadnejadsaein
Ulysse Hennebelle
Mikhail Fadin (co-advisor: Huseyin Topaloglu)

PhD Thesis committee member

Yuan Lorraine (2026, Cornell Johnson)
Weiyuan Li (2026, Cornell ORIE)
Yuheng Wang (2026, Cornell ORIE)
Ayoub Foussoul (2025, Columbia IEOR)
Wenchang Zhu (2025, Cornell ORIE)
Harsh Sheth (2023, Columbia IEOR)

MEng students:

James Boudreau (Cornell Tech Meng ORIE 2026)
Carjilin Smeets (Cornell Tech Meng ORIE 2025)
Federico Tilberga (Cornell Tech Meng ORIE 2023) → PhD LBS
Yang Song (Cornell Tech Meng CS, 2022)

Undergraduate interns:

Leo Qian (Cornell CS, May-August 2026)
Lorenzo Santoro (University of Bologna, February-Present 2025)
Mohamed Lagmah (Ecole Polytechnique, March-Present 2025) → PhD Cornell ORIE
Matthieu Palançon (Ecole Polytechnique, March-July 2024)
Auguste De Lambilly (Ecole Polytechnique, March-July 2024)
Theo Barre (Ecole Polytechnique March-July 2023) → MS UC Berkeley
Ulysse Hennebelle (Ecole Polytechnique March-July 2023) → PhD Cornell ORIE
Omar Bennouna (Ecole Polytechnique, March-July 2022) → PhD MIT EECS
Sean Michael Xiao Yang (Cornell CS, June-August 2022)
Marouane Ibn Brahim (Ecole Polytechnique March-July 2022) → PhD Cornell ORIE

SELECTED TALKS

Maximum Load Assortment Optimization

- INFORMS Optimization Society Conference, Houston, TX March 2024
- ISMP conference, Montreal, Canada July 2024

Two-sided Assortment Optimization

- Indian School of Business, Hyderabad, India August 2026
- OM in the Wild, Pocono, PA May 2026
- School of Data Science, CUHK Shenzhen, China April 2026
- Moroccan Center of Game Theory seminars, UM6P, Rabat, Morocco January 2026
- Mostly OM, Tsinghua University, Beijing, China June 2025
- Workshop: From Matching to Market. Tale of Mathematics, Economics and Computer Science. Institut d'Etudes Scientifiques, Cargèse, France May 2025
- Carey Business School seminar, John Hopkins University, MD September 2024

• IEOR seminar, UC Berkeley, CA	September 2024
• MATCH-UP conference, University of Oxford, UK	September 2024
• SWIMS workshop, Crete, Greece	July 2024
• IPCO conference, Wroclaw, Poland	July 2024
• MSOM conference, Minneapolis, MN	June 2024
• Aussois Workshop on Combinatorial Optimization, Aussois, France	January 2024, 2026
Pricing Commodities Based on Real-time Flow of Supply and Demand	
• SCALab seminars, UM6P, Rabat, Morocco	December 2025
Placement Optimization of Substitutable Products	
• SWIMS workshop, Halkidiki, Greece	July 2025
• INFORMS Annual meeting, Seattle, WA	October 2024
• RMP conference, Los Angeles, CA	July 2024
Matchings: From Graph Theory to Real-World Applications	
• MMC competition, UM6P Benguerir, Morocco	July 2024
Matching Drivers to Riders: A Two-stage Robust Approach	
• IRIS workshop, UM6P Benguerir, Morocco	December 2023
Coordinated Inventory Stocking and Assortment Personalization	
• Amazon MOP seminar, Bellevue, WA	April 2024
• Mathematics and Decisions conference, UM6P Benguerir, Morocco	December 2023
• INFORMS Annual Meeting, Phoenix, CO	October 2023
• POMS conference, Orlando, FL	May 2023
• Market Innovation Workshop (virtual)	May 2023
• MSOM SIG, Montreal, Canada	June 2023
Fluid Approximations for Revenue Management under High-Variance Demand	
• MSOM conference, Montreal, Canada	June 2023
From Ideas to Algorithms	
• Faculty of Sciences BenMsik, Casablanca, Morocco	April 2023
• Regis High School, New York, NY	June 2023
Joint Assortment Optimization and Customization: On the Value of Personalized Assortments	
• IRIS workshop, UM6P Benguerir, Morocco	June 2025
• INFORMS Annual Meeting, Indianapolis, IN	Oct 2022
• MSOM SIG, Munich, Germany	June 2022
• RMP (virtual)	June 2022
• INFORMS Annual Meeting, Anaheim, CA	Oct 2021
• Cornell Applied Math seminars, Ithaca, NY	Sep 2021
• MSOM, (virtual)	June 2021
• RMP, (virtual)	June 2021
On the Power of Static Assignment Policies for Robust Facility Location Problems	
• Robust Optimization Webinar, (virtual)	June 2023
• SIOPT, Seattle, WA	May 2023
• ICCOPT, Bethlehem, PA	July 2022

• INFORMS Optimization society Conference, Greenville, NC	March 2022
• IPCO, (virtual)	May 2021
• INFORMS Annual Meeting, Seattle, WA	Oct 2019
From Affine to Threshold Policies: a New Framework in Dynamic Robust Optimization	
• Cornell ORIE, Ithaca, NY	Dec 2019
• Cornell Tech, New York, NY	Dec 2019
• Chicago Booth, IL	Jan 2020
• Imperial College Business School, London, UK	Feb 2020
• University of Waterloo, Combinatorics & Optimization, Canada	Feb 2020
• Lyft Labs, New York, NY	Mar 2020
On the Power of Affine Policies for Capacity Planning under Demand Uncertainty	
• MSOM, Singapore	Jul 2019
On the Optimality of Affine Policies for Budget of Uncertainty Sets	
• INFORMS Annual Meeting, (virtual)	Nov 2020
• ICCOPT, Berlin, Germany	Aug 2019
• ICSP, Trondheim, Norway	Jul 2019
• BIRS workshop, Banff, Canada	Jan 2019
• INFORMS Annual Meeting, Phoenix, AZ	Nov 2018
• INFORMS Optimization society Conference, Denver, CO	Mar 2018
• INFORMS Annual Meeting, Houston, TX	Oct 2017
On the Power of Affine Policies in Two-Stage Adjustable Robust Optimization	
• INFORMS Annual Meeting, Seattle, WA	Oct 2019
• Imperial College, London, UK	May 2017
Beyond Worst-case: A Probabilistic Analysis of Affine Policies in Dynamic Optimization	
• Uber Tech Talks, San Francisco, CA	Aug 2018
• ISMP, Bordeaux, France	Jul 2018
• TADC, London Business School, London, UK	May 2018
• INFORMS Optimization society Conference, Denver, CO	Mar 2018
• NIPS, Long Beach, CA	Dec 2017
• INFORMS Annual Meeting, Houston, TX	Oct 2017
• Student seminar Columbia University, NY	Oct 2017
Dynamic Resource Provisioning in Data Centers under Demand Uncertainty	
• MSOM, Chapel Hill, NC	Jun 2017
Piecewise Affine policies for Dynamic Robust Optimization	
• Young Researchers Workshop at Cornell ORIE, Ithaca, NY	Oct 2017
• Computational Management Science conference, Bergamo, Italy	May 2017
• IBM Thomas J. Watson Research center, NY	Dec 2016
• INFORMS Annual Meeting, Nashville, TN	Nov 2016
• EURO of Operations Research, Poznan, Poland	Jul 2016
• Amazon seminars, Seattle, WA	Jun 2016
• Student seminar Columbia University, NY	Apr 2016

Affine policies for Multi-stage Dynamic Robust Optimization

- INFORMS Annual Meeting, Nashville, TN
- Student seminar Columbia University, NY

Nov 2016

Nov 2016

Piecewise Static policies for Two-stage Adjustable Robust Optimization

- Optimization days, Montreal, Canada
- INFORMS Annual Meeting, Philadelphia, PA

May 2016

Nov 2015

Tractable Policies in Dynamic Robust Optimization

- Africa Business School- OCP Headquarters, Casablanca, Morocco

Jun 2017