

EL HOUSNI Omar

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EMPLOYMENT	Cornell Tech, Cornell University , New York, NY	
	- Assistant Professor School of Operations Research and Information Engineering Graduate Field Member in Operations Research and Applied Mathematics	Jan 2022-present
	- Visiting Assistant Professor	2020-2021
	Amazon , Supply Chain Optimization Technologies (Virtual)	
	- Amazon Scholar	Jan 2025-present
EDUCATION	Columbia University , New York, NY	
	- Ph.D. in Operations Research. Thesis: <i>Tractable Policies in Dynamic Robust Optimization</i> Advisor: Professor Vineet Goyal	2016-2020
	- Master of Science in Operations Research	2015-2016
	Ecole Polytechnique , Paris, France	2012-2015
	Bachelor of Science and Master of Science in Applied Mathematics	
SPONSORED RESEARCH	“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	- 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	[J12] <i>When Location Shapes Choice: Placement Optimization of Substitutable Products</i> (joint with R. Udwani) Management Science , forthcoming	
	[J11] <i>Matchings Riders to Drivers: A Two-stage Robust Optimization Approach</i> (joint with V. Goyal, O. Hanguir and C. Stein) Operations Research , forthcoming	

[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, forthcoming

[J9] *Assortment Optimization with Visibility Constraints* (joint with T. Barre, M. Ibn Brahim, A. Lodi, and D. Segev)

Math Programming, forthcoming

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. Foussoul 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

REFEREED
CONFERENCE
PUBLICATIONS

[C7] *Price and Assortment Optimization under the Multinomial Logit Model with Opaque Products* (joint with A. Elmachtoub, H. Sheth and J. Shi). In Proceedings of the Conference on Web and Internet Economics, (**WINE**), 2025

[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. Foussoul 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. Udwani)

[J18] *Fairness-Aware Static and Dynamic Assortment Optimization: Optimal Selection with Balanced Market Share* (joint with Q. Feng and H. Topaloglu)

[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. Elmachtoub, H. Sheth and J. Shi)

Major revision in **Management Science**

[J15] *Assortment Optimization under the Multinomial Logit Model with Covering Constraints* (joint with Q. Feng and H. Topaloglu).

Major revision in **M&SOM**

[J14] *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**

[J13] *Two-sided Assortment Optimization: Approximation Algorithms and Adaptivity Gaps in* (joint with A. Torrico and U. Hennebelle)

Minor revision in **Operations Research**

Accepted for oral presentation at **MATCH-UP 2024**

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 Developed a machine learning and an optimization framework for Uber Eats targeted promotions.	Summer 2018
	Amazon , Research Scientist Intern, Seattle, WA Developed a standardized decision-making process for Amazon fashion assortment planning (patent pending).	Summer 2016, Summer 2017
	EDF R&D , Research Intern, Paris, France Developed a large scale optimization framework for scheduling employees rounds at the French flagship electric utility company EDF.	Fall 2014
	Empresas Lipigas , Supply Chain Analyst, Santiago, Chili Implemented optimization algorithms for scheduling the production of gas cylinders under demand uncertainty.	Summer 2014
	Cornell Tech , Instructor <i>ORIE 7391: Optimization for Revenue Management</i> , PhD <i>ORIE 5132: Pricing Analytics and Revenue Management</i> , graduate <i>ORIE 5530: Modeling under Uncertainty</i> , graduate <i>ORIE 6360: Optimization under Uncertainty: Robust and Online Models</i> , PhD <i>ORIE 5250: Business Applications of Optimization</i> , graduate <i>ORIE 5132: Service Systems and Online Markets</i> , graduate	Spring 2024 Spring 2023,2025,2026 Fall 2024,2023,2022,2021 Spring 2022 Summer 2021 Spring 2021
TEACHING EXPERIENCE	Columbia University , Teaching Assistant <i>IEOR 6613: Optimization</i> , PhD <i>IEOR 4601: Dynamic Pricing & Revenue Management</i> , graduate <i>IEOR 3404: Simulation</i> , undergraduate, <i>IEOR 3609: Advanced Optimization</i> , undergraduate	Fall 2016, 2018 Spring 2017,2020 Spring 2018 Spring 2019
	Columbia University Science Honors Program , Co-instructor <i>Introduction to Algorithms</i> , (40 students).	Spring 2019
	Mathematical Olympiad , Instructor <i>Head coach and Instructor of the Moroccan International Mathematical Olympiad team, IMO 2019, Bath UK.</i>	
	-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 -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, Management Science, Mathematical Programming, Mathematics of Operations Research, INFORMS journal on Computing, INFORMS journal on Optimization, MSOM journal, Naval Research Logistics, Optimization Letters, IPCO, ISCO, EC and MSOM-SIG</i> . -Co-organizer of IEOR-DRO seminars at Columbia university, 2016-2020.	
CORNELL SERVICE	-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	

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		Nov 2016
• Student seminar Columbia University, NY		Nov 2016
Piecewise Static policies for Two-stage Adjustable Robust Optimization		
• Optimization days, Montreal, Canada		May 2016
• INFORMS Annual Meeting, Philadelphia, PA		Nov 2015
Tractable Policies in Dynamic Robust Optimization		
• Africa Business School- OCP Headquarters, Casablanca, Morocco		Jun 2017