EL HOUSNI Omar

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

Sponsored Research

"Agentic Commerce: How AI Shopping Agents Change Choice, Assortment, and Ranking", Cornell Tech Catalyst Fund. Role: Principal Investigator (co-PI Omid Refieian). $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

- Finalist in INFORMS JFIG Paper Competition, 2026.
- 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

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

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

[J13] *Two-sided Assortment Optimization: Approximation Algorithms and Adaptivity Gaps in* (joint with A. Torrico and U. Hennebelle)
Operations Research, 2026
Accepted for oral presentation at **MATCH-UP** 2024

[J12] *When Location Shapes Choice: Placement Optimization of Substitutable Products* (joint with R. Udwani)
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. Topalolgu)
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

[C8] *A Markovian Approach for Cross-Category Complementarity in Choice Modeling* (joint with S. Sun and R. Udwani)
Forthcoming in Proceedings of the Conference on Web and Internet Economics, (**WINE**), 2026

[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

Preprints and under review

[J22] *The Value of Experiments in Assortment Optimization* (joint with M. Ahmadnejadsaein and A. Bennouna)

[J21] *A Unified Framework for Assortment Optimization and Matching under MNL Choice* (joint with U. Hennebelle)

[J20] *AI-Mediation in Retail Markets: Revenue Effects and Assortment Optimization* (joint with M. Ibn Brahim)

[J19] *A Markovian Approach for Cross-Category Complementarity in Choice Modeling* (joint with S. Sun and R. Udwani)
Preliminary version accepted to **WINE 2026**

[J18] *Optimal Selection with Balanced Market Share: Static and Dynamic Assortment Optimization* (joint with Q. Feng and H. Topaloglu)
Major revision in **Management Science**
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**
⋆ **Finalist in INFORMS JFIG paper competition, 2026**

[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**

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

ORIE 7391: Optimization for Revenue Management, PhD	Spring 2024
ORIE 5132: Pricing Analytics and Revenue Management, graduate	Spring 2023,2025,2026
ORIE 5530: Modeling under Uncertainty, graduate	Fall 2026,2024,2023,2022,2021
ORIE 6360: Optimization under Uncertainty: Robust and Online Models, PhD	Spring 2022
ORIE 5250: Business Applications of Optimization, graduate	Summer 2021
ORIE 5132: Service Systems and Online Markets, graduate	Spring 2021
TECHIE 1101: Engineering Operations: Data Science & Decision Making	Summer 2026

Columbia University, Teaching Assistant

IEOR 6613: Optimization, PhD .	Fall 2016, 2018
IEOR 4601: Dynamic Pricing & Revenue Management, graduate	Spring 2017,2020
IEOR 3404: Simulation, undergraduate,	Spring 2018
IEOR 3609: Advanced Optimization, undergraduate	Spring 2019

Columbia University Science Honors Program, Co-instructor — Spring 2019
Introduction to Algorithms, (40 students).

Mathematical Olympiad, Instructor
Head coach and Instructor of the Moroccan International Mathematical Olympiad team, IMO 2019, Bath UK.

Professional external service

-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
-Organizing Committee Math&Maroc Competition, Benguerir Morocco, May 2023
-Session organizer for INFORMS Annual Meeting 2022, 2023, 2024, ICCOPT 2022, ISMP 2024
-Reviewer for *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*.
-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

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

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 Palançhon (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

- CMU, Tepper OM Seminar, Pittsburgh, PA — November 2026
- Columbia University, IEOR-DRO seminars, New York, NY — November 2026
- INFORMS Annual meeting, San Francisco, CA — November 2026
- Georgia Tech ISyE seminars, Atlanta, GA — October 2026
- 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 Scienfitiques, 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 conferenece, 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

- USC, ISE seminars, Los Angeles, CA — October 2026
- 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