

ACADEMIC APPOINTMENTS

Cornell University and **Cornell Tech**, New York, NY

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

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

“Collaborative Research: Coordinating Offline Resource Allocation Decisions and Real-Time Operational Policies in Online Retail with Performance Guarantees”, National Science Foundation, CMMI-2226900. 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. 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

LP-based Approximations for Disjoint Bilinear and Two-Stage Adjustable Robust Optimization (joint with A. Foussoul and V. Goyal).

Math Programming, pages 1-43, 2023

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

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

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

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

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

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

Assortment Optimization with Visibility Constraints (joint with T. Barre and A. Lodi).

To appear in Proceedings of the International Conference on Integer Programming and Combinatorial Optimization (**IPCO**), 2024

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**), 223-236, 2022

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

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**), 252-267, 2021

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

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

Assortment Optimization with Visibility Constraints (joint with T. Barre, M. Ibn Brahim, A. Lodi, and D.Segev). Selected for presentation in the MSOM Supply Chain Management SIG, 2024

Placement Optimization of Substitutable Products (joint with R. Udmani).

Major revision in **Management Science**

Maximum Load Assortment Optimization: Approximation Algorithms and Adaptivity Gaps (joint with M. Ibn Brahim and D. Segev).

Major revision in **Operations Research**

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**

Coordinated Inventory Stocking and Assortment Optimization (joint with Y. Bai, P. Rusmevichientong and H. Topaloglu). Minor revision in **Operations Research**.

Selected for presentation in the MSOM Supply Chain Management SIG, 2023

Matchings Riders to Drivers: A Two-stage Robust Optimization Approach (joint with V. Goyal, O. Hanguir and C. Stein). Major revision in **Operations Research**

Joint Assortment and Inventory Planning for Heavy Tailed Demand (joint with O. Mouchtaki, G.Gallego, V. Goyal, S. Humair, S. Kim, A. Sadighian, J. Wu).

Major revision in **Management Science**

OTHER PAPERS	<p><i>Leveraging AI for Natural Disaster Management: Takeaways From The Moroccan Earthquake</i> (Morocco Solidarity Hackathon) NeurIPS 6th Workshop on Artificial Intelligence for Humanitarian Assistance and Disaster Response.</p> <p><i>Can Testing Ease Social Distancing Measures? Future Evolution of COVID-19 in NYC</i> (joint with Mika Sumida, Paat Rusmevichientong, Huseyin Topaloglu and Serhan Ziya) (<i>White paper</i>)</p> <p><i>Future Evolution of COVID-19 Pandemic in North Carolina: Can We Flatten the Curve?</i> (joint with Mika Sumida, Paat Rusmevichientong, Huseyin Topaloglu and Serhan Ziya) (<i>White paper</i>)</p>
PATENTS	<p><i>Real-time Iterative Assortment Allocation Estimation</i> (joint with D.Bhatia, S.Humair, V.Jain, G.Li, J.Marasanapalle, A.Sadighian, and J.Wu) Amazon Research. Patent pending.</p>
INDUSTRY EXPERIENCE	<p>Uber, Data Scientist Intern, San Francisco, CA Summer 2018 Developed a machine learning and an optimization framework for Uber Eats targeted promotions.</p> <p>Amazon, Research Scientist Intern, Seattle, WA Summer 2016, Summer 2017 Developed a standardized decision-making process for Amazon fashion assortment planning (patent pending).</p> <p>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.</p> <p>Empresas Lipigas, Supply Chain Analyst, Santiago, Chili Summer 2014 Implemented optimization algorithms for scheduling the production of gas cylinders under demand uncertainty.</p>
TEACHING EXPERIENCE	<p>Cornell Tech, Instructor</p> <p><i>ORIE 7391: Optimization for Revenue Management</i>, PhD (20 students) Spring 2024</p> <p><i>ORIE 5132: Pricing Analytics and Revenue Management</i>, graduate (40 students) Spring 2023</p> <p><i>ORIE 5530: Modeling under Uncertainty</i>, graduate (60 students) Fall 2023,2022,2021</p> <p><i>ORIE 6360: Optimization under Uncertainty: Robust and Online Models</i>, (30 PhD) Spring 2022</p> <p><i>ORIE 5250: Business Applications of Optimization</i>, graduate (20 students) Summer 2021</p> <p><i>ORIE 5132: Service Systems and Online Markets</i>, graduate (30 students) Spring 2021</p> <p>Columbia University, Teaching Assistant</p> <p><i>IEOR 6613: Optimization</i>, PhD (30 students). Fall 2016, 2018</p> <p><i>IEOR 4601: Dynamic Pricing & Revenue Management</i>, graduate(50 students) Spring 2017,2020</p> <p><i>IEOR 3404: Simulation</i>, undergraduate (90 students), Spring 2018</p> <p><i>IEOR 3609: Advanced Optimization</i>, undergraduate (90 students), Spring 2019</p> <p>Columbia University Science Honors Program, Co-instructor Spring 2019 <i>Introduction to Algorithms</i>, (40 students).</p> <p>Mathematical Olympiad, Instructor 2018-2019 <i>Head coach and Instructor of the Moroccan International Mathematical Olympiad team, IMO 2019, Bath UK.</i></p>
PROFESSIONAL SERVICE	<p>-Organizing Committee for BIRS Workshop on Combinatorial Optimization for Online Platforms, Banff, Canada, April 2024.</p> <p>-Program Committee EC conference 2024</p> <p>-Senior Coordinator at the International Mathematical Olympiad (IMO), Chiba Japan, 2023</p> <p>-INFORMS Optimization Society Student Paper Prize committee 2023</p> <p>-Organizer of NYC Operations day, April 2022 (Cornell Tech) and May 2023 (Columbia)</p> <p>-Organizing Committee Math&Maroc Competition, Benguerir Morocco, May 2023</p> <p>-Cornell ORIE PhD Admissions committee member 2023.</p>

- Cornell ORIE Director Search committee member 2023.
- Cornell Tech: Research committee (2022-2023), PhD life committee (2021,2023), Academic integrity committee (2022)
- Session organizer for INFORMS Annual Meeting 2022, 2023, ICCOPT 2022, ISMP 2024
- Reviewer for *Operations Research*, *Management Science*, *Mathematical Programming*, *Mathematics of Operations Research*, *INFORMS journal on Computing*, *INFORMS journal on Optimization*, *Naval Research Logistics*, *Optimization Letters*, *IPCO*, *ISCO*, *EC* and *MSOM*.
- Co-organizer of IEOR-DRO seminars at Columbia university, 2016-2020.

SKILLS

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

ADVISING

Current Phd advisees:

- Marouan Ibn Brahim
- Qing Feng (Co-advised with Huseyin Topaloglu)

MS students:

- Federico Tilberga (Cornell Tech Meng ORIE 2023) → PhD LBS
- Yang Song (Cornell Tech Meng CS, 2022)

Undergraduate interns:

- Matthieu Palançon (Ecole Polytechnique, March-present 2024)
- Auguste De Lambilly (Ecole Polytechnique, March-present 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

PhD Thesis committee member

- Weiyuan Li (Cornell ORIE)
- Yuheng wang (Cornell ORIE)
- Wenchang Zhu (Cornell ORIE)
- Harsh Sheth (2023, Columbia IEOR)

SELECTED TALKS

- Maximum Load Assortment Optimization
 - INFORMS Optimization Society Conference, Houston, TX March 2024
- Two-sided Assortment Optimization (elevator talk)
 - Aussois Workshop on Combinatorial Optimization, Aussois, France January 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	
• 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