

Marouane IBN BRAHIM

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EDUCATION

Cornell Tech, Cornell University

PhD Candidate in Operations Research

New York
2022–Current

- Advisor: Omar El Housni
- Research interests: Combinatorial Optimization, Assortment Optimization, Matchings, Data-driven Optimization, Revenue Management, Modeling under uncertainty.
- Relevant coursework: Analysis of Algorithms, Mathematical programming, Statistical principles, Applied stochastic processes, Optimization for Revenue Management.

École polytechnique

Bachelor of Science and Master of Science in Applied Mathematics and Computer Science

Paris, France
2019–2022

- Relevant coursework: Advanced algorithms, Optimization and control, Randomized algorithms, Large scale mathematical optimization, Statistics.

PAPERS

- **Assortment Optimization with Visibility Constraints.**
Théo Barré, Omar El Housni, Marouane Ibn Brahim, Andrea Lodi and Danny Segev
Major Revision in Mathematical Programming
 - Accepted to the **M&SOM Supply Chain Management SIG, 2024**
- **Maximum Load Assortment Optimization: Approximation Algorithms and Adaptivity Gaps.**
Omar El Housni, Marouane Ibn Brahim and Danny Segev
Accepted in **Operations Research**
- **Towards a Stronger Theory for Permutation-based Evolutionary Algorithms.**
Benjamin Doerr, Yassine Ghannane and Marouane Ibn Brahim
Algorithmica, 2023

WORK/INTERNSHIP EXPERIENCE

Cornell Tech, Research Internship

Third year internship at the ORIE department, Cornell Tech.

New York, NY
2022

- Advisor: Omar El Housni
- Introduced and studied a new class of assortment optimization problems referred to as Maximum Load Assortment Optimization, motivated by applications in Attended Home Delivery (AHD) and Preference-based Group Scheduling.

Electricite de France, Software Engineering and Data Science intern

Second year internship at the Data Analytics for Production, at EDF.

La Défense, France
2021

- Developed a machine learning approach to determine causes for mechanical failure in nuclear sites.
- Designed and implemented an internal Python package for causality analysis.

Carrefour and Ecole polytechnique

Machine learning project with Carrefour, a leading French multinational retail corporation.

France
2020–2021

- Advisor: François Yvon.
- Implemented big data algorithms to design a reliable recommendation system based on customer data (58 million rows).

Head of Business Development at XProjets

Put in place and executed the business strategy of the Junior-Entreprise.

Palaiseau, France
2019–2020

Leadership training, Albert Einstein high school
Part of Ecole polytechnique's curriculum.

St-G.-des-Bois, France
October 2019 - April 2020

- Teaching assistant in mathematics, physics, computer science and chemistry, to help students from disadvantaged areas reach high level studies.

TEACHING

- **Modeling Under Uncertainty, ORIE 5530** Fall 2022, Fall 2023, Fall 2024
Teaching assistant, Graduate (Masters), 51-61 students
- **Learning with Big Messy Data, ORIE 4741/5741** Spring 2023
Teaching Assistant, Undergraduate and Graduate (Masters), 96 students

TALKS

- *Maximum Load Assortment Optimization:*
 - RMP Conference, July 2024, Los Angeles CA
 - MSOM Conference, July 2024, Minneapolis MN
 - Market Innovation Workshop (MIW), May 2024, virtual
 - Mathematics and Decision Conference, December 2023, Benguéir Morocco
 - INFORMS Annual Meeting, October 2023, Phoenix AZ
 - Cornell ORIE PhD Colloquium, May 2023, Ithaca NY
 - New York City Operations Day (Poster), March 2023, New York, NY
 - New York City Operations Day PhD Colloquium, March 2023, New York NY
- *Assortment Optimization with Visibility Constraints:*
 - New York City Operations Day (Poster), March 2024, New York, NY
 - Cornell ORIE PhD Colloquium, October 2024, virtual
 - INFORMS Annual Meeting, October 2024, Seattle WA
 - ISMP, July 2024, Montréal Canada
 - MSOM Supply Chain Management SIG Conference, July 2024, Minneapolis MN
 - New York City Operations Day PhD Colloquium, March 2024, New York NY

SKILLS

- **Languages:** English (TOEFL iBT 111/120), French and Arabic (Native), Spanish (Elementary)
- **Programming:** Python, C, C++, SQL.

AWARDS

- Professor Robert E. Bechhofer Fellowship, Cornell University 2023
- Ecole polytechnique's Research Internship Prize in computer science 2022
- OCP Foundation scholarship 2019–2022
- Morocco's Ministry of Education Scholarship 2017–2019
- Morocco's Ministry of Education's medal of honor for admission at Ecole polytechnique 2019
- Morocco's Ministry of Education's medal of honor for ranking 4th at CCINP 2019
- Top 1% in the CNC, the national exam of the preparatory program (25/2485) 2019

OUTSIDE ACTIVITIES

- X-Maroc, President 2020–2021
A student association gathering moroccan students at Ecole polytechnique
- Math&Maroc, Vice treasurer 2019–2024
An association which aims at promoting sciences in Morocco and organizing training programs for International Olympiads of Mathematics