Marouane IBN BRAHIM

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EDUCATION

Cornell Tech, Cornell University New York
PhD Candidate in Operations Research 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 Paris, France
Bachelor of Science and Master of Science in Applied Mathematics and Computer Science 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
  Under review 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
  Minor Revision 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 New York, NY
Third year internship at the ORIE department, Cornell Tech. 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 La Défense, France
Second year internship at the Data Analytics for Production, at EDF. 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 polytechique France
Machine learning project with Carrefour, a leading French multinational retail corporation. 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 Palaiseau, France
Put in place and executed the business strategy of the Junior-Entreprise. 2019–2020

Leadership training, Albert Einstein high school   St-G.-des-Bois, France
Part of Ecole polytechnique's curriculum.   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

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