# ALI AOUAD

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## PERSONAL

Name: Mohammed, Ali, Lucien AOUAD
Department: Management Science and Operations
Date of Birth: 14 February 1990
Place of Birth: Meknes, Morocco
Citizenship: France and Morocco

## ACADEMIC APPOINTMENT

2018-Present **London Business School, London, United Kingdom**
*2024-* Associate Professor of Management Sciences and Operations (with tenure)
*2018-2024* Assistant Professor of Management Sciences and Operations

Fall 2021 **Visiting Scholar at Stanford Graduate School of Business, Stanford University**

Fall 2022 **Visiting Scientist at the Simons Institute for the Theory of Computing, Berkeley University**

## RESEARCH INTERESTS

Algorithm design under uncertainty; choice modeling and assortment optimization; matching and market design; cultural sector; food security management.

## EDUCATION

2013-2017 **Massachusetts Institute of Technology,** Cambridge, MA
*(Jan-June)* Ph.D. in *Operations Research*
Thesis on "Assortment and Inventory Optimization: From Predictive Choice Models to Near-Optimal Algorithms", Advisors: Profs. Vivek Farias and Retsef Levi

2009-2012 **Ecole Polytechnique,** Paris, France
B.S. and M.S., *Applied Mathematics*

## PUBLICATIONS

Journal papers:

A., V. Farias, R. Levi, and D. Segev (2018),[1] *The Approximability of Assortment Planning Under Ranking Preferences,* Operations Research.

A., R. Levi, and D. Segev (2018), *Approximation Algorithms for Dynamic Assortment Planning Models,* Mathematics of Operations Research.

A., R. Levi, and D. Segev (2018), *Greedy-Like Algorithms for Dynamic Assortment Planning Under Multinomial Logit Preferences,* Operations Research.

[1] Year of publication or first pre-print

A. and D. Segev (2019), *The Ordered Median Problem: Surrogate Models and Approximation Algorithms*, Mathematical Programming.

A., V. Farias, and R. Levi (2020), *Assortment Optimization Under Consider-then-Choose Choice Models*, Management Science.

A. and D. Segev (2020), *Display Optimization for Vertically Differentiated Locations Under Multinomial Logit Preferences*, Management Science.

A. and O. Saritac (2022), *Dynamic Stochastic Matching Under Limited Time*, Operations Research.

A. and D. Saban (2023), *Online Assortment Optimization for Two-sided Matching Platforms*, Management Science.
Spotlight Paper, INFORMS Revenue Management & Pricing conference (2021)

A., J. Feldman and D. Segev (2023), *The Exponomial Choice Model: An Alternative to the MNL Choice Model?*, Management Science.

A., and D. Segev (2023), *Technical Note – An Approximate Dynamic Programming Approach for the Incremental Knapsack Problem*, Operations Research.

A. and D. Segev (2023), *The Stability of MNL-Based Demand Under Dynamic Substitution and its Algorithmic Implications*, Operations Research.

A., A. Elmachtoub, K. Johnson Ferreira, and R. McNellis (2023), *Market Segmentation Trees*, Manufacturing & Service Operations Management.

Pre-print papers:

A., J. Feldman and D. Segev (2019), *Click-Based MNL: Algorithmic Frameworks for Modeling Click Data in Assortment Optimization*, Minor Revision in *Management Science*.
Spotlight Paper, INFORMS Revenue Management & Pricing conference (2019)

A. and A. V. den Boer (2021), *Algorithmic Collusion in Assortment Games*, R&R in *Management Science*.
Spotlight Paper, INFORMS Revenue Management & Pricing conference (2022)
Accepted in EC 2021 Workshop on the Design of Online Platforms: Frontiers and Challenges

A. and A. Desir (2022), *Representing Random Utility Choice Models with Neural Networks*, Under Submission in *Management Science* (R&R requested in Spring 2022).

A., A. Deshmane, and V. Martínez-de-Albéniz (2022), *Designing Layouts for Sequential Experiences: Application to Cultural Institutions*, Major Revision in *Management Science.*

A. and W. Ma (2022), *A Nonparametric Framework for Online Stochastic Matching with Correlated Arrivals*, R&R in *Management Science* requested in Spring 2023

A., K. Ramdas, and A. Sungu (2023), *Food Subsidies and Substitution: Experimental Evidence from Indian Micro Retail Panel Data*, Working paper.

A., O. Saritac, and Y. Chiwei (2023), *Centralized versus Decentralized Pricing Controls in Dynamic Matching Platforms*, Working paper.

A. AmaniHamedani, A., & D. Freund (2023), *Spatial Matching under Multihoming*, Working paper.

Conference papers

A. and O. Saritac (2020), *Dynamic Stochastic Matching Under Limited Time*, EC '20: The 20th ACM Conference on Economics and Computation

A. and D. Saban (2021), *Online Assortment Optimization for Two-sided Matching Platforms*, EC '21: The 21st ACM Conference on Economics and Computation

A., O. Saritac, and Y. Chiwei (2023), *Centralized versus Decentralized Pricing Controls in Dynamic Matching Platforms*, EC '23: The 23th ACM Conference on Economics and Computation

A. and W. Ma (2023), *A Nonparametric Framework for Online Stochastic Matching with Correlated Arrivals*, EC '23: The 23th ACM Conference on Economics and Computation

A., K. Ramdas, and A. Sungu (2023), *Food Subsidies, Food Shopping and Substitution: Experimental Evidence from a Mumbai Settlement*, The 3rd ACM conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO'23) / The 2023 Advances with Field Experiments (AFE) Conference / The North East Universities Development Consortium (NEUDC) Conference 2023

## SELECTED NON-LBS EMPLOYMENT

2019-2020 **Uber Technologies (Marketplace Science),** San Francisco, CA
*Scientific Consultant for Matching & Dynamic Pricing*

2017-2018 **Uber Technologies (Marketplace Optimization),** San Francisco, CA
*Applied Scientist*
Contributed to the design of marketplace-related product features on matching ("predictive dispatch"), dynamic pricing (redesign of "surge"), and driver preferences ("driver destinations").

2012-2013 **The Boston Consulting Group,** Paris, France
*(Sep-Jan)* *Visiting Associate (Intern & Employment Offer)*
Advisory to the government of an emerging country on agricultural subsidies for small-holder farmers and an agrarian reform to create cadastral data.

2012 **Nomura International Plc,** London, UK
*(Apr-Aug)* *Quantitative Research Analyst (Intern) at the Structured Volatility Desk*

## INDUSTRY COLLABORATIONS

Bolt (2023), Artefact (2023-current), Van Gogh Museum (2021-current), OCP Group (2020-current), Snapbizz* (2020-current), Uber Technologies (2019-2020), MediaMath* (2018-2020), Alibaba* (2019), Infoscout (2015-2016)

## TEACHING ACTIVITIES

2023 **Summer School on Retail Operations,** Euro WG & Stockholm Business School
Mini PhD-level course "From Operations to Machine Learning: The Case of Choice Modelling" (3 sessions, jointly taught with Antoine Désir)

2020-Present **London Business School**, Masters in Analytics and Management (MAM) program, London, UK
Decision Analytics and Modelling (10 sessions, AM13), Ratings: 4.7-4.95 out of 5
**Instructor + development of all teaching materials**

* Collaboration through co-authors

2018-Present **London Business School**, Executive MBA program, London, UK
Data Analytics for Managers (6 or 5 sessions, CD24, C024), Avg. rating: 4.4-4.8 out of 5

2018-Present **London Business School**, PhD program, London, UK
Inventory Theory (2 sessions), Emerging Topics 1 (5 sessions) and 2 (5 sessions), Advanced Optimization (3 sessions), Machine Learning (1/3 session) Avg. rating: 4.5-5 out of 5

2014-2016 **MIT Sloan School of Management**, Executive-Fellows & MBA program, Cambridge, MA

- Teaching assistant for **Operations Management** (15.778), Summer 2016
- **Risk Management** (15.S04), IAP 2016
- **Introduction to Operations Management** (15.734), Summer 2015
- **Introduction to Healthcare Delivery Systems** (15.S75), Fall 2014

## INVITED PRESENTATIONS

**Adaptive Policies and Approximation Schemes for Dynamic Matching**
BIRS workshop on Combinatorial Optimization for Online Platforms, Spring 2024

**Spatial Matching under Multihoming**
London Operations Research Day, Spring 2024

**Food Subsidies and Substitution: Experimental Evidence from Indian Micro Retail Panel Data**
IRIS conference, UM6P, Fall 2023; IESE Business School, Spring 2023; Africa Business School, Fall 2023

**Advancements in the Control of Dynamic Matching Markets**[3]
"From matchings to markets, A tale of Mathematics, Economics and Computer Science", CIRM, Fall 2023; UM6P Mathematics & Decision Conference, Fall 2023;

**A Nonparametric Framework for Online Stochastic Matching**
ACM Conference on Economics and Computation (EC 23), Summer 2023; INFORMS Applied Probability Society Conference, Summer 2023; Workshop in Innovation and Learning, INSEAD Summer 2023; MIT Sloan, Spring 2023; INFORMS Annual Meeting, 2023; SNAPP seminar, Spring 2023; Distinguished Speaker Series, NEOMA Paris, Spring 2023

**Representing Random Utility Choice Models with Neural Networks**
MSOM Conference, 2022; INFORMS Revenue Management and Pricing, 2022

**Analytics in Museums: Layout Optimization for Sequential Experiences**
Bilkent University, 2023; Imperial College Business School, Analytics & Operations seminar 2022; Indian School of Business, 2022, MSOM Conference, 2022,2021; INFORMS Annual Meeting, 2021

**Centralized vs. Decentralized Pricing Controls for Dynamic Matching Markets**
SWIMS workshop, 2023; 2021 Marketplace Innovation Workshop (<30% acceptance), MSOM Conference, 2022, 2021, 2023; INFORMS Revenue Management and Pricing, 2021, 2023

**Online Assortment Optimization for Two-sided Matching Platforms**
ACM Conference on Economics and Computation (EC 21), INFORMS Revenue Management and Pricing, 2021 "Spotlight Track"; INFORMS Annual Meeting, 2020, 2021

**Algorithmic Collusion in Assortment Games**

[3] The presentations' titles may differ from the papers' titles and/or correspond to short talks rather than full-length seminars.

Workshop in Innovation and Learning, IESE Summer 2022; INFORMS Revenue Management and Pricing, 2022 "Spotlight Track"; University of California, Berkeley IEOR, 2021; INFORMS Annual Meeting, 2021; EC 2021 Workshop on the Design of Online Platforms: Frontiers and Challenges

Dynamic Stochastic Matching Under Limited Time
HKUST, ISOM seminar, Fall 2022; Imperial College, Control and Optimisation seminar, Spring 2022; Duke University, Fuqua Business School, Decision Sciences, Fall 2021; Uber Technologies, Summer 2021; USC Marshall, Spring 2021; MIT Sloan, Spring 2021; Stanford GSB, OIT group, Fall 2020; Olin Business School, Washington University, Fall 2020; European TOM seminar series, Fall 2020; Deliveroo, Data Science team UK, Fall 2020; McCombs School of Business, University of Texas, Fall 2020; ACM Conference on Economics and Computation (EC 20), Summer 2020; MIT, Prof. Simchi-Levi 's group seminar, Spring 2020 (Cancelled due to COVID-19); INFORMS Annual Meeting, 2019, 2020, 2021

Click-Based MNL: Algorithmic Frameworks for Modeling Click Data in Assortment Optimization
Stanford MS&E, RAIN seminar, 2019; INFORMS Annual Meeting, 2019; INFORMS Revenue Management and Pricing, 2019 "Spotlight Track" (<20% acceptance); MSOM Conference, 2019

A Data-Driven Lens on the Design and Operations of Online Platforms
OCP Group, Casablanca, Fall 2019

Market Segmentation Trees (Updated Title)
INFORMS Revenue Management and Pricing, 2020; INFORMS Annual Meeting, 2019, 2020; INFORMS Revenue Management and Pricing, 2019; MSOM Conference, 2019

Resource Allocation Problems for Revenue Management
Square, Inc., Data Science Seminar, San Francisco, CA, July 2019

Matching Optimization
Uber Tech., Marketplace Optimization and Data Science Seminar, San Francisco CA, March 2018

Display Optimization for Vertically Differentiated Products Under Multinomial Logit Preferences
INFORMS Annual Meeting, 2017, 2018, 2019; MSOM Conference, 2016

Greedy-Like Algorithms for Dynamic Assortment Planning Under Multinomial Logit Preferences
INFORMS Annual Meeting, 2017; INFORMS Revenue Management and Pricing, 2017; MIT Sloan, Operations Management Seminar Series, Fall 2016; MSOM Conference, 2016

Revenue Management in Face of Choice Heterogeneity
Jan-Feb 2017: London Business School; HEC Business School; University of British Columbia Sauder Business School; McGill Desautels Faculty of Management; Chicago Booth School of Business; Columbia Business School, The Decision, Risk and Operations Division; Columbia University, Industrial Engineering and Operations Research Department; Harvard Business School Technology and Operations Management Unit; INSEAD Paris Technology and Operations Management; Michigan Ross School of Business; Yale School of Management; Fuqua School of Business.

Assortment Optimization Under Consider-then-Choose Choice Models
Young Researchers Workshop, *Data-Driven Decision-Making*, Cornell ORIE, Fall 2016; MIT ORC, Seminar Series, Spring 2016; INFORMS Annual Meeting, 2013, 2014; MSOM Conference, 2014

Approximation Algorithms for Dynamic Assortment Optimization Models
INFORMS Annual Meeting, 2015

## PROFESSIONAL SERVICE

Supervision of PhD students:
Omer Saritac (2019-2024; first placement at Singapore Management University), Alp Sungu (2019-; secondary advisor; first placement at the Wharton School, University of Pennsylvania), Abhishek Deshmane (2019-; co-author and mentor; first placement at Georgia Tech, Scheller College of Business), Alireza AmaniHamedani (2021-), Vincent Auriau (2023; co-author, CIFRE thesis)

Internal LBS service:

- Revamping of MSO PhD student webpage and promotion of students research through short videos
- Postdoctoral fellow search committee member, MSO area (2023)
- Member of the LBS AI Taskforce (2023)
- Member of the MSO faculty search committee (2022-2023)
- Initiated and taught a seminar course on "Model and Policy Robustness in Online Optimization" (Spring 2022, unpaid extra teaching). This reading group prompted the creation of a new PhD-level course: P241 Emerging topic in MSO I & II
- PhD co-Coordinator of the Management Science and Operations area and member of the PhD Committee (2018-Present)
- Contribution to the design of a new PhD level course on Machine Learning and hiring of the instructors (2020-2021)
- Member of the IT Faculty Working Group (2019-2020)
- PhD Second Year Paper Committee Member: Cem Aydin (2019), Bhavna Jha (2020), Tong Wang (2021), Baizhi Song (2023)
- PhD Transfer Proposal Committee Member: Cem Aydin (2020), Ömer Saritac (2021), Alireza Amanihamedani (2023)
- Marketing & Communications: Speaker in an AI-themed Dinner at the Dean's house (Fall 2018), Fireside chat with MAM prospective students (Spring 2020)

External service:

- Associate Editor in the journal Operations Research, in the Stochastic Models area (2024-) and the journal Management Science in the Market design, Platforms, and Demand Analytics area (2024-)
- Program Committee member for the 25th ACM Conference on Economics and Computation (EC'24)
- Ad-hoc reviewer: Management Science, Operations Research, Mathematics of Operations Research, Management Science & Operations Management (MSOM), SODA Conference, Operations Research Letters, INFORMS Journal on Optimization, Naval Research Letters
- Management Science Meritorious Service Award in 2020, 2023
- Committee member of the INFORMS Revenue Management & Pricing Student Prize Competition (2020, 2021, 2023)
- Committee member of the INFORMS Nicholson Student Prize Competition (2020, 2021)

Prior to LBS: Co-organizer of the MIT ORC Fall Seminar Series (2015), Vice-President of AMGE-Caravane (2009-2010), a nationwide student organization in France

## HONORS & AWARDS

2024 **Designing Layouts for Sequential Experiences: Application to Cultural Institutions**
Winner of the 2024 POMS Applied Research Challenge

2024 **Food Subsidies and Substitution: Experimental Evidence from Indian Micro Retail Panel Data**
Finalist in the 2024 POMS Applied Research Challenge

2023 **Food Subsidies and Substitution: Take-up, Substitution Effects and Nutrition**
Runner-up in 2023 INFORMS TIMES Best Working Paper Award
Entrant: Alp Sungu
Finalist in 2023 INFORMS Public Sector OR Best Paper Award

First Prize in 2023 INFORMS Revenue Management & Pricing and MSOM Student Paper Competitions

2023 **Funding from Wheeler Institute (£8K),** with Abhishek Deshmane and Victor Martínez-de-Albéniz
*Recommendation and information provision for sequential experiences in the cultural sector*

2023 **Selected by the 2022 ERC Starting Grant panel and funded by UKRI (£1.1M)**
*Pathway Operations: Theory and Application to Museums*

2023 **Runner-up for the Best Teacher Award MAM 2023 (London Business School)**
Determined by student votes for the 2022/2023 academic year

2022 **Second Prize in 2022 INFORMS Junior Faculty Interest Group, Best Paper Award**
*Representing Random Utility Choice Models with Neural Networks*

2022 **Designing Layouts for Sequential Experiences: Application to Cultural Institutions**
Entrant: Abhishek Deshmane
2nd Prize in 2022 INFORMS Revenue Management & Pricing Student Paper Competition
First prize in 2022 INFORMS IBM Service Sciences Student Paper Competition
Finalist in 2023 POMS College of Service Operations Management & INFORMS SOLA Paper Competitions

2022 **Best Teacher Award MAM 2022 (London Business School)**
Determined by student votes for the 2021/2022 academic year

2021 **Runner-up for the Best Teacher Award MAM 2021 (London Business School)**
Determined by student votes for the 2020/2021 academic year

2021 **Junior Faculty Research Award (London Business School)**
Granted by the Research & Faculty office on the recommendation of Subject Area Chairs

2021 **Finalist in the 2021 MS&OM Best OM Paper Published in Operations Research**
*Greedy-Like Algorithms for Dynamic Assortment Planning Under Multinomial Logit Preferences*

2020-2021 **Research funding# from the OCP Group (£30K), the Wheeler Institute (£40K), and the Institute of Innovation and Entrepreneurship (£25K)**
Jointly with Kamalini Ramdas and Alp Sungu for *"Food subsidies in Indian Groceries"*

2016 **Finalist in the 2016 INFORMS George Nicholson Prize Competition**
*Greedy-Like Algorithms for Dynamic Assortment Planning Under Multinomial Logit Preferences*

2015 **Best student paper awarded by the Operations Research Center (MIT)**
*Assortment Optimization Under Consider-then-Choose Choice Models*

2007-2012 **Scholarship of Excellence (Major-AEFE)**
Granted by French Government to foreign students (top 1%) to pursue their studies in France

2007 **4th Prize of "Concours General des Lycées" (French nationwide competition)**
Awarded the 4th prize of Mathematics, in the national competition of French senior High School

## OTHER SKILLS & INTERESTS

**Programming languages:** Regular use of Python, Julia, Gurobi. Experience with R and Hive and contributed to production codebases, written in Java and Python
**Languages:** French (native), Arabic (native), English
**Extracurricular activities:** Literature, boxing, drawing

# Co-principal investigator