

OMAR SKALI LAMI

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Doctor of Philosophy in Operations Research

2018 – 2022

• Relevant Coursework: Machine Learning Under a Modern Optimization Lens, Mathematical and Nonlinear Programming, Integer and Combinatorial Optimization, Probabilistic Modeling, Time Series Analysis, Operations Management, Inference and Information

• Top 1% (GPA: 5.0/5.0)

Master of Business Analytics, Sloan School of Management

2016 – 2017

• Relevant Coursework: Machine Learning, Applied Probability, Optimization Methods, Data Mining, Robust Optimization

• Ranked 1st (GPA: 5.0/5.0)

ÉCOLE CENTRALE PARIS

Paris, France

Master of Science in Applied Mathematics

2014 – 2016

• Relevant Coursework: Real Analysis, Advanced Statistics, Advanced Probability, Advanced Econometrics, Partial Differential Equations, Stochastic Modeling, Discrete Optimization, Software Engineering, Quantum and Statistical Physics

• Top 3% (GPA: 4.1/4.3)

LYCÉE LOUIS-LE-GRAND

Paris, France

Mathematics, Physics, Computer Science

2012 – 2014

• Preparation study for highly selective entrance exams to French Grandes Écoles

• Top 1% (GPA: 4.0/4.0)

INDUSTRY EXPERIENCE

MCKINSEY & COMPANY

Boston, MA

Senior Data Scientist, QuantumBlack

Jul 2022 – Present

Data Scientist, QuantumBlack

Oct 2017 – Sep 2018

Summer Intern, Advanced Analytics Solutions

Jun 2017 – Aug 2017

- Managing cross-functional teams of data scientists to improve client performance through advanced analytics
- Developed a large-scale mixed-integer optimization model (25M+ decision variables) to manage customer orders end-to-end for a major car manufacturer, factoring in parts availability and supply-demand constraints
- Created a stochastic optimization program for multi-echelon inventory management at a leading petrochemical company, resulting in a \$20M capital release and an annual profit increase of \$5M
- Led the development of SupplyRL, an advanced deep reinforcement learning model for supply chain management, which became a valuable asset applied across various industries
- Designed an innovative online clustering algorithm that detected and resolved systemic issues 40% faster for a leading engine manufacturing company, preventing 7K customer repairs and saving \$8.5M weekly

NASDAQ INC.

Cambridge, MA

Analytics-Lab Team Member

Sep 2016 – Nov 2016

- Partnered with the Nasdaq Trading and Markets Services team to develop algorithms predicting relative stock drivers
- Implemented Support Vector Machines and customized Neural Networks to analyze stock market trends over a 5-year period in activity during sleep, achieving the department's highest accuracy rate of 91%

RESEARCH EXPERIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Doctoral Research Assistant, Operations Research Center

Sep 2018 – Jul 2022

- Specialized in predictive-prescriptive analytics at the intersection of optimization, statistics, and machine learning, with a focus on operations management
- Published 10 academic papers in top-tier journals, accumulating over 600 citations
- Conducted research under the guidance of Prof. Georgia Perakis. Collaborated with MIT Quest, Johnson & Johnson (healthcare), Mass General (healthcare operations), Wayfair (revenue management), and OCP (predictive maintenance)

ÉCOLE NORMALE SUPÉRIEURE PARIS-SACLAY

Paris, France

Research Assistant, Center for Mathematical Studies and their Applications

Sep 2015 – Jan 2016

- Engineered novel mathematical representations for time series, resulting in a 12% reduction in error
- Built a clustering model for human brain activity during sleep, achieving the department's highest accuracy rate of 91%

TEACHING EXPERIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Teaching Assistant

Sep 2018 – Jul 2022

- 15.730 Data, Models, and Decisions, Executive MBA (Spring 2021)
- 15.094 Robust Modeling, Optimization, and Computation, PhD (Spring 2020)
- 15.071x The Analytics Edge, on edX (Fall 2018, Spring 2019, Fall 2019, Spring 2020, and Fall 2020)

Instructor

Sep 2019 – Jul 2022

- 15.003 Analytics Software Tools, Master of Business Analytics (IAP 2020, Summer 2020, IAP 2021)
- R Programming Tutorial, Executive MBA (Spring 2019, Spring 2020, Spring 2021)

Tutor

Sep 2019 – Jul 2020

- 15.095 Machine Learning under a Modern Optimization Lens, Masters and PhD (Fall 2019)
- 6.215 Optimization Methods, Masters and PhD (Fall 2019, Fall 2020)

LYCÉE LOUIS-LE-GRAND

Paris, France

Teaching Assistant

Sep 2014 – Jun 2016

- Teaching Assistant and oral examiner in Advanced Mathematics for second-year students

HONORS & AWARDS

- **Winner**, ICSS Best Conference Paper Award INFORMS, 2021
- **Runner-up**, Doing Good with Good OR Best Paper Competition INFORMS, 2021
- **Runner-up**, Public Sector OR Best Paper Award INFORMS, 2021
- **Finalist**, Service Science Section Best Student Paper INFORMS, 2021
- **Winner**, ORC Best Student Paper Award MIT, 2021
- **Runner-up**, MSOM Practice-Based Research Competition MSOM, 2021
- **Winner**, Innovative Application in Analytics Award INFORMS, 2021
- **Runner-up**, Boston Regional Datathon Citadel, 2021
- **Winner**, Pierskalla Award INFORMS, 2020
- **Winner**, Mathematical Modeling, Control, and Logistics COVID-19 Award C3, 2020
- **Runner-up**, Data Open Competition Citadel, 2020
- **Winner**, Robert B. Guenassia Award MIT, 2019
- Postgraduate Excellence Scholarship OCP, 2018
- Master of Business Analytics Class of 2017 Valedictorian MIT, 2017
- Academic Achievement Award, for outstanding academic achievement and contribution to the community MIT, 2017
- Dean's Fellowship, for outstanding academic record, personal achievements and professional promise MIT, 2016
- **Winner**, Centrale Paris Business Games Centrale Paris, 2016
- **Winner**, Centrale Paris Innovative Project Centrale Paris, 2015
- National Merit Scholarship Moroccan Government, 2014
- **Winner**, Casablanca Mathematical Olympiads University of Hassan II, 2012

PUBLICATIONS

Optimization and Machine Learning Methods

- **Holistic Prescriptive Analytics for Continuous and Constrained Optimization Problems**, Bertsimas, D., & Skali Lami, O. (2023). *INFORMS Journal on Optimization*, 5(2), 155-171
- **The Role of Optimization in Some Recent Advances in Data-driven Decision-making**, Baardman, L., Cristian, R., Perakis, G., Singhvi, D., Skali Lami, O., & Thayaparan, L. (2023). *Mathematical Programming*, 200(1), 1-35
- **Learning the Minimal Representation of a Dynamic System from Transition Data** (working paper), Bennouna, A., M., Pachamanova, D., Perakis, G., & Skali Lami, O., **Major Revision**, *Management Science*
- **Extended Sampled Trees for Classification and Regression** (working paper), Perakis, G., Singhvi, D., & Skali Lami, O.
- **Slowly Varying Regression under Sparsity** (working paper), Bertsimas, D., Digalakis Jr, V., Li, M., & Skali Lami, O.

Operations Management and Healthcare Analytics

- **Ancillary Services in Targeted Advertising: From Prediction to Prescription**, Borenstein, A., Mangal, A., Perakis, G., Poninghaus, S., Singhvi, D., Skali Lami, O., & Wei Lua, J. (2023). *Manufacturing & Service Operations Management*
- **COVID-19: Prediction, Prevalence, and the Operations of Vaccine Allocation**, Bennouna, A., Joseph, J., Nze-Ndong, D., Perakis, G., Singhvi, D., Skali Lami, O. S., & Tsiourvas, A. (2023). *Manufacturing & Service Operations Management*, 25(3), 1013-1032
- **COVID-19: A Multiwave SIR-based Model for Learning Waves**, Perakis, G., Singhvi, D., Skali Lami, O. & Thayaparan, L. (2023). *Production and Operations Management*, 32(5), 1471-1489
- **Forecasting COVID-19 and Analyzing the Effect of Government Interventions**, Li, M. L., Bouardi, H. T., Skali Lami, O., Trikalinos, T. A., Trichakis, N., & Bertsimas, D. (2023). *Operations Research*, 71(1), 184-201
- **Evaluation of Individual and Ensemble Probabilistic Forecasts of COVID-19 Mortality in the United States**, Cramer, E. Y., Ray, E. L., Lopez, V. K., Bracher, J., Brennen, A., Castro Rivadeneira, A. J., & Georgescu, A. (2022). *Proceedings of the National Academy of Sciences*, 119(15), e2113561119
- **The United States COVID-19 Forecast Hub Dataset**, Cramer, E. Y., Huang, Y., Wang, Y., Ray, E. L., Cornell, M., Bracher, J., & Reich, N (2022). *Scientific data*, 9(1), 462
- **From Predictions to Prescriptions: A Data-driven Response to COVID-19**, Bertsimas, D., Boussioux, L., Cory-Wright, ..., V., Jacquillat, A., & Zeng, C. (2021). *Health care management science*, 24, 253-272
- **The Power of Analytics in Epidemiology for COVID 19**, Bennouna, M. A., Ndong, D. A. N., Perakis, G., Singhvi, D., Skali Lami, O., Spantidakis, I., & Weisberg, S. (2021). In *AI and Analytics for Smart Cities and Service Systems: Proceedings of the 2021 INFORMS International Conference on Service Science* (pp. 254-268). Springer International Publishing
- **A Granular Approach to Optimal and Fair Patient Placement in Hospital Emergency Departments**, Canellas, M., Pachamanova, D., Perakis, G., Skali Lami, O., & Tsiourvas, A., **Minor Revision**, *Production and Operations Management*
- **Interpretable Framework for Optimal Sepsis Treatment with Limited Resources** (working paper), Le, L., Lin, A., Pachamanova, D., Perakis, G., & Skali Lami, O.

ADDITIONAL INFORMATION

- Programming Skills: Python, R, Julia, OCaml, Excel, PowerPoint, Access (Expert), Java, SQL, VBA, Scilab (Familiar)
- Languages: English, French, Arabic (Fluent), Spanish (Intermediate)