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Academic appointments

Assistant Professor in Operations Management *Aug 2021 - Present*
Department of Information Systems and Operations Management
HEC Paris, France

Education

Columbia University, New York, NY *Jun 2016 – Jul 2021*
Ph.D. in Operations Research.
Advisors: Prof. Vineet Goyal and Prof. Carri Chan.
Thesis: *Robust and Interpretable Sequential Decision-Making for Healthcare*.

Ecole Polytechnique, Paris, France *Sep 2013 – Jun 2016*
Master and Bachelor in Applied Mathematics.

Publications

Refereed journal publications:

The Best Decisions Are Not the Best Advice: Making Adherence-Aware Recommendations
with J. Pauphilet.
Forthcoming in **Management Science** (accepted in 2023)

Solving Optimization Problems with Blackwell Approachability
with C. Kroer.
Forthcoming in **Mathematics of Operations Research** (accepted in 2023)

Robustness of Proactive Intensive Care Unit Transfer Policies
with C. Chan, V. Goyal and G. Escobar.
Operations Research (2022) 71(5):1653-1688

Quantifying Utilitarian Outcomes to Inform Triage Ethics: Simulated Performance of a Ventilator Triage Protocol Under SARS-CoV-2 Pandemic Surge Conditions
with C. Chan, E. Chuang, J.-T. Chen, V. Goyal and M. Ng Gong.
American Journal of Bioethics - Empirical Bioethics, 1-9, 2022 Apr 18

A First-Order Approach to Accelerated Value Iteration
with V. Goyal.
Operations Research (2022), 71(2):517-535

Robust Markov Decision Processes: Beyond Rectangularity

with V. Goyal.

Mathematics of Operations Research (2022), 48(1):203-226

Ecole Polytechnique Research Prize in Applied Mathematics, 2016.

The Operator Approach to Entropy Games

with S. Gaubert, M. Akian and J. Guillaud.

Theory of Computing Systems (2019) 63(5), 1089-1130

Refereed conference proceedings:

Regret Matching+: (In)Stability and Fast Convergence in Games

with C.-W. Lee, G. Farina, H. Luo, and C. Kroer.

37th Advances in Neural Information Processing Systems (**NeurIPS 2023**, spotlight)

Reducing Blackwell and Average Optimality to Discounted MDPs via the Blackwell Discount factor,
with M. Petrik.

37th Advances in Neural Information Processing Systems (**NeurIPS 2023**)

*Estimation of Excess Mortality Resulting from Use of a Ventilator Triage Protocol Under Sars-CoV-2
Pandemic Surge Conditions*

with C. Chan, E. Chuang, J.-T. Chen, P. Cartas, V. Goyal and M. Ng Gong.

American Journal of Respiratory and Critical Care Medicine ; 203(9):1, 2021

Conic Blackwell Algorithm: Parameter-Free Convex-Concave Saddle-Point Solving

with C. Kroer.

Proceedings of the 35th Advances in Neural Information Processing Systems (**NeurIPS 2021**), 34:9587-9599, 2021

First-Order Methods For Wasserstein Distributionally Robust MDPs

with C. Kroer.

Proceedings of the 38th International Conference on Machine Learning (**ICML 2021**), PMLR 139:2010-2019, 2021

Scalable First-Order Methods for Robust MDPs

with C. Kroer.

Proceedings of the AAAI Conference on Artificial Intelligence (**AAAI 2021**), 35(13), 12086-12094

Under review:

Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage

with C. Chan, E. Chuang and V. Goyal.

On the convex formulations of robust Markov decision processes

with M. Petrik.

Last-iterate convergence of Regret Matching-based algorithms

with Y. Cai, W. Zheng, C.-W. Lee, G. Farina, H. Luo, and C. Kroer.

Awards

Columbia Business School Deming Fellowship Initiative, 2019/2020.

Winner of *Ecole Polytechnique Research Prize in Applied Mathematics*, 2016.

National Defense Medal (Bronze level), 2014.

Grants and fundings

“*Data-driven Models and Algorithms to Mitigate Imbalances via Resource Allocation for Pandemic Resilience*”, NFRFR-2022-00209, United Nations New Frontiers in Research Fund - Special Call: Research of Postpandemic Recovery. 500,000 Canadian Dollars (CAD) in total, HEC’s share: 125 000 CAD.

Teaching experience

HEC Paris, Assistant Professor, ~ 200 students

2021 – present

Operations and Supply Chain Management (graduate, ~ 200 students)

PhD class on Optimization and Operations (graduate, ~ 10 students)

Sustainable Operations (undergraduate, ~ 130 students)

Sustainable Artificial Intelligence (undergraduate, ~ 350 students)

Columbia University, Teaching Assistant, ~ 500 students

2016 – 2021

Convex Optimization, IEOR 6616 (PhD)

Advanced Optimization, IEOR 4004 (Graduate)

Dynamic Pricing and Revenue Management, IEOR 4601 (Graduate)

Game Theoretic Models of Operations, IEOR 4407 (Graduate)

Operations Management, IEOR 4000 (Graduate)

Foundations of Optimization, IEOR 3608 (Undergraduate)

Professional services

Co-Organizer of the fourth *European Technology and Operations Management Day* at HEC Paris, June 2023

Organizer of a session on *Robust Optimization and Applications* at PGM Days 2023, EDF Lab Paris-Saclay, Palaiseau, France

Organizer of a session on *Advances in Markov Decision Processes* in the cluster *Optimization under uncertainty* at ICCOPT 2022, Lehigh University, PA

Ad-hoc reviewer for Operations Research, Management Science, MSOM Special Interest Groups (SIG), Mathematical Programming, SIAM Journal on Optimization, SIAM Journal on Matrix Analysis and Applications, Machine Learning, INFORMS Journal on Optimization, Annals of

Operations Research, Journal of Machine Learning Research, NeurIPS, ICLR, Artificial Intelligence and Statistics Conference (AISTATS).

Professional experience

Amazon, Research Scientist intern, New York, NY *Summer 2020*
Develop an optimization framework for improved order plannings in uncertain environments.

Kaiser Permanente, Research Scientist intern, Oakland, CA *Summer 2019*
Improving timing of patients' discharges using Markov decision processes.

Skills

Programming: Python, Matlab, R.
Language: French, English (fluent), Spanish, Russian (intermediate).

Invited talks

Talks at seminars and workshops:

1. Workshop "From matchings to markets. A tale of Mathematics, Economics and Computer Science", CIRM, France, *Regret Matching+: (In)Stability and Fast Convergence in Games*, December 2023
2. Workshop on Information and Learning in Decisions and Operations (WIL), INSEAD, France, *Regret Matching+: (In)Stability and Fast Convergence in Games*, July 2023
3. Information and Decision Sciences department, University of Illinois Chicago, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, October 2022
4. Booth School of Business, University of Chicago, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, October 2022
5. Workshop on Deep Learning and Applications in Inventory and Healthcare, TU Munich - campus Heilbronn, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, September 2022
6. European Technology and Operations Management (TOM) Day, IESE, Barcelona, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, September 2022
7. International Conference on Continuous Optimization, Lehigh University, Bethlehem *A First-Order Approach to Accelerated Value Iteration*, July 2022
8. Séminaire Parisien d'Optimisation, Institut Henri Poincaré, Paris, *Conic Blackwell Algorithm: Parameter-Free Convex-Concave Saddle-Point Solving*, May 2022
9. Internal seminar on healthcare, Judge Business School, Cambridge, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, April 2022
10. 5th Annual Research Roundtable: Data Analytics in Healthcare, University of Toronto, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, April 2022
11. HEC Paris Data Day, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, November 2021
12. Hi! Paris Roundtable on Sustainable Artificial Intelligence, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, October 2021

13. Department of Operations Analytics, Vrije Universiteit Amsterdam, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, February 2021
14. Marshall School of Business, University of Southern California, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, January 2021
15. Department of Analytics, Marketing and Operations, Imperial College London, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, January 2021
16. Department of Mathematics, University College London, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, January 2021
17. Center of Excellence in Supply chain, Kedge Business School, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, January 2021
18. Sloan School of Management, MIT, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, January 2021
19. Information Systems and Operations Management, HEC Paris, *Robust, Scalable, and Interpretable Sequential Decision-Making for Healthcare*, December 2020

Talks at conferences:

1. NeurIPS@Paris 2023, France, *Regret Matching+: (In)Stability and Fast Convergence in Games and Reducing Blackwell and Average Optimality to Discounted MDPs via the Blackwell Discount factor*, December 2023
2. INFORMS Annual Meeting, Indianapolis, IN, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, October 2022
3. INFORMS Annual Meeting, Anaheim, CA, *Interpretable Machine Learning for Resource Allocation with Application to Ventilator Triage*, October 2021
4. INFORMS Annual Meeting, Seattle, WA, *Robust Policies for Proactive Transfer to Intensive Care Unit*, October 2019
5. INFORMS Healthcare Society Conference, MIT Sloan, Boston, *Robust Policies for Proactive Transfer to Intensive Care Unit*, July 2019
6. 15th International Conference on Stochastic Programming (ICSP), Trondheim, Denmark, *Robust Policies for Proactive Transfer to Intensive Care Unit*, July 2019
7. MSOM International Conference, NUS, Singapore, *Robust Policies for Proactive Transfer to Intensive Care Unit*, July 2019
8. BIRS Workshop, Models and Algorithms for Sequential Decision Problems under Uncertainty, Banff, CA, *Robust Markov Decision Processes: Beyond Rectangularity*, January 2019
9. 23rd International Symposium on Mathematical Programming (ISMP), Bordeaux, France, *Robust Markov Decision Processes: Beyond Rectangularity*, July 2018
10. INFORMS Annual Meeting, Phoenix, AZ, *Robust Markov Decision Processes: Beyond Rectangularity*, October 2018
11. INFORMS Optimization Society Conference, Denver, CO, *Robust Markov Decision Processes: Beyond Rectangularity*, October 2018
12. INFORMS Annual Meeting, Houston, TX, *Robust Markov Decision Processes: Beyond Rectangularity*, October 2017