Meyer Scetbon

Curriculum Vitae

Center for Research in Economics and Statistics
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Research Interests

I am interested in optimal transport for machine learning, with a focus on causal inference related problems.

Education

2019– **Ph.D. Candidate, Applied Mathematics**, *Center for Research in Economics and Statistics, Paris.*

- Dissertation Topic: *Causal Inference through Optimal Transport.*
- Advisor: Marco Cuturi.

2017–2018 **M.Sc. in Applied Mathematics**, *École Normale Supérieure Paris-Saclay, Paris.*

- Major in Mathematics, Vision and Learning. Highest honors.

2015–2019 **École Normale Supérieure Paris-Saclay**, Paris.

- Admitted in mathematics as "Normalien". One of France's leading school in mathematical sciences.

Papers

Published

Triangular Flows for Generative Modeling: Statistical Consistency, Smoothness Classes, and Fast Rates, Nicholas J. Irons, Meyer Scetbon, Soumik Pal, Zaid Harchaoui, in *Proceedings of the* 25^{th} *International Conference on Artificial Intelligence and Statistics (**AISTATS**),* 2022.

Deep K-SVD Denoising, Meyer Scetbon, Michael Elad, Peyman Milanfar, in *IEEE Transactions on Image Processing (**TIP**),* 2021.

Low-Rank Sinkhorn Factorization, Meyer Scetbon, Marco Cuturi, Gabriel Peyré, in *Proceedings of the* 38^{th} *International Conference on Machine Learning (**ICML**),* 2021.

Mixed Nash Equilibria in the Adversarial Examples Game, Laurent Meunier*, Meyer Scetbon*, Rafael Pinot, Jamal Atif, Yann Chevaleyre, in *Proceedings of the* 38^{th} *International Conference on Machine Learning (**ICML**),* 2021.

A Spectral Analysis of Dot-product Kernels, Meyer Scetbon, Zaid Harchaoui, in *Proceedings of the* 24^{th} *International Conference on Artificial Intelligence and Statistics (**AISTATS**),* 2021.

Equitable and Optimal Transport with Multiple Agents, Meyer Scetbon*, Laurent Meunier*, Jamal Atif, Marco Cuturi, in *Proceedings of the* 24^{th} *International Conference on Artificial Intelligence and Statistics (**AISTATS**),* 2021.

Linear Time Sinkhorn Divergences using Positive Features, Meyer Scetbon, Marco Cuturi, in *Advances in Neural Information Processing Systems* 33 *(**NeurIPS**),* 2020.

Harmonic Decompositions of Convolutional Networks , Meyer Scetbon, Zaid Harchaoui, in *Proceedings of the* 37^{th} *International Conference on Machine Learning (**ICML**),* 2020.

Comparing distributions: l1 geometry improves kernel two-sample testing, Meyer Scetbon, Gaël Varoquaux, **Spotlight** in *Advances in Neural Information Processing Systems* 32 *(**NeurIPS**),* 2019.

Working papers

An lp-based Kernel Conditional Independence Test Meyer Scetbon*, Laurent Meunier*, Yaniv Romano, *Manuscript available at arXiv:2110.14868,* 2021.

Linear-Time Gromov Wasserstein Distances using Low Rank Couplings and Costs, Meyer Scetbon, Gabriel Peyré, Marco Cuturi, *Manuscript available at arXiv:2106.01128,* 2021.

Software

2021 **LinearGromov**, Main contributor, `https://github.com/meyerscetbon/LinearGromov`.

2021 **LOT**, Main contributor, `https://github.com/meyerscetbon/LOT`.

2021 **EOT**, Main contributor, `https://github.com/meyerscetbon/EOT`.

2020 **LinearSinkhorn**, Main contributor, `https://github.com/meyerscetbon/LinearSinkhorn`.

2020 **Deep KSVD**, Main contributor, `https://github.com/meyerscetbon/Deep-K-SVD`.

2019 **l1 two sample test**, Main contributor, `https://github.com/meyerscetbon/l1_two_sample_test`.

Teaching Assistant

Spring 2021 **Optimal Transport: theory, computations, statistics and ML**, *ENSAE*, Paris.
Introduction to the theory of optimal transport and its various recent tools developed for applications in machine learning. 40 students.

2020–2021 **Optimization**, *ENSAE*, Paris.
Presentation of the processes for formalising an optimization problem and its useful techniques for econometrics, statistics and machine learning. 25 students.

2020–2021 **Probability Theory**, *ENSAE*, Paris.
Introduction to the fundamental concepts in the probability calculus. Conditional and convergence laws are studied in detail. 25 students.

Automn 2020 **Introduction to stochastic processes**, *ENSAE*, Paris.
This course is an introduction to discrete-time martingales and Markov chains and their applications in statistics. 25 students.

Academic service

Conference Reviewer Neural Information Processing Systems (NeurIPS) 2020-2021 (**Outstanding Reviewer**), International Conference on Machine Learning (ICML) 2021-2022, International Conference on Artificial Intelligence and Statistics (AISTATS) 2021-2022 (**Top Reviewer**).

Journal Reviewer Journal of Machine Learning Research, Bernoulli Journal, IEEE Transactions on Pattern Analysis and Machine Intelligence, Journal of Computational and Graphical Statistics.

Work Experiences

Autumn 2021 **Visit at the Simons Institute, University of Califronia**, *Berkeley*.
Enrolled in the program on the geometric methods in optimization and sampling. Invited by Peter Bartlett.

Autumn 2019 **Visit at the University of Washington**, *Seattle*.
Research project on the optimal learning rates for deep networks on the sphere. Invited by Zaid Harchaoui.

Spring 2019 **Research internship at Technion**, *Haifa*.
Research project on sparse coding and dictionary learning adapted to deep architectures. Under the supervision of Michael Elad.

Winter 2019 **Research internship at the University of Washington**, *Seattle*.
Research project on the learning theory of deep neural networks. Under the supervision of Zaid Harchaoui.

Spring 2018 **Research internship at the French Institute for Research in Computer Science and Automation (Inria)**, *Paris*.
Research project on kernel-based two-sample testing. Under the supervision of Gaël Varoquaux.

Languages and Skills

- **Language**
  French (mother tongue), English(fluent), Spanish (working knowledge).
- **Computer skills**
  Python, MATLAB, R, LaTeX.