

Anna Korba

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Academic positions

Simons Institute for the Theory of Computing <i>Visiting Scientist</i>	Sep. 2021–Dec 2021 <i>Berkeley, U.S.</i>
Statistics department, ENSAE/CREST <i>Assistant Professor</i>	Sep. 2020–Present <i>Palaiseau, France</i>
Gatsby Unit, University College London (UCL) <i>Postdoctoral Research Fellow</i> Laboratory of Pr. Arthur Gretton.	Dec. 2018–Aug. 2020 <i>London, U.K.</i>

Education

Télécom ParisTech <i>Ph.D. in Applied Mathematics (Machine Learning)</i> <ul style="list-style-type: none">Title: Learning from Ranking Data: Theory and MethodsSupervisor: Stephan Cléménçon	Oct. 2015–Oct. 2018 <i>Paris, France</i>
ENS Cachan <i>Master MVA, First class honours</i> Applied Mathematics for Computer Vision and Machine Learning.	Sep. 2014–Jun. 2015 <i>Cachan, France</i>
ENSAE ParisTech <i>Engineering degree, First class honours</i> Applied Mathematics, Advanced Statistics & Economics.	Sep. 2012–Jun. 2015 <i>Paris, France</i>
Lycée Henri IV <i>Classes préparatoires</i> Mathematics, Physics, Computer Science.	Sep. 2009–Jun. 2012 <i>Paris, France</i>

Publications

Below, * denotes equal contribution. My research is focused on kernel methods, optimal transport and ranking data.

- [1] T. Huix, S. Majewski, A. Korba, A. Durmus, E. Moulines. *Variational Inference for Overparametrized Bayesian Neural Networks: a Theoretical and Empirical Study*. Submitted, 2022.
- [2] L. Xu, A. Korba, D. Slepcev. *Accurate Quantization for Particle-Based Optimization*. Submitted, 2022.
- [3] A. Korba, F. Portier. *Adaptive Importance Sampling Meets Mirror Descent*. Artificial Intelligence and Statistics (AISTATS), 2022.
- [4] A. Korba, P-C. Aubin-Frankowski, S. Majewski, P. Ablin. *Kernel Stein Discrepancy Descent*. International Conference of Machine Learning (ICML), 2021.
- [5] A. Mastouri, Y. Zhu, L. Gultchin, A. Korba, M. Kusner, R. Silva, K. Muandet, A. Gretton. *Proximal Causal Learning with Kernels: Two-Stage Estimation and Moment Restriction*. International Conference of Machine Learning (ICML), 2021.
- [6] A. Korba, A. Salim, M. Arbel, G. Luise, A. Gretton. *A Non Asymptotic Analysis of Stein Variational Gradient Descent*. Advances in Neural Information Processing Systems (NeurIPS), 2020.
- [7] A. Salim, A. Korba, G. Luise. *Wasserstein Proximal Gradient*. Advances in Neural Information Processing Systems (NeurIPS), 2020.

- [8] M. Arbel, A. Korba, A. Salim, A. Gretton. *Maximum Mean Discrepancy Gradient Flow*. Advances in Neural Information Processing Systems (NeurIPS), 2019.
- [9] M. Achab*, A. Korba*, S. Cléménçon. *Dimensionality Reduction for Bucket Ranking: A Mass Transportation Approach*. Algorithmic Learning Theory (ALT), 2019.
- [10] A. Korba, A. Garcia, F. D'Alché-Buc. *A Structured Prediction Approach for Label Ranking*. Advances in Neural Information Processing Systems (NeurIPS), 2018.
- [11] S. Cléménçon, A. Korba. *On Aggregation in Ranking Median Regression*. European Symposium on Artificial Neural Networks (ESANN), 2018.
- [12] S. Cléménçon, A. Korba, E. Sibony. *Ranking Median Regression: Learning to Order through Local Consensus*. Algorithmic Learning Theory (ALT), 2018.
- [13] A Korba, S. Cléménçon, E. Sibony. *A Learning Theory of Ranking Aggregation*. Artificial Intelligence and Statistics (AISTATS) 2017.
- [14] Y. Jiao, A. Korba, E. Sibony. *Controlling the distance to a Kemeny consensus without computing it*. International Conference on Machine Learning (ICML) 2016.

Selected Invited talks

- Applied Optimal Transport Workshop, Institute for Mathematical and Statistical Innovation, Chicago, May 2022.
- Frontiers in kinetic equations for plasmas and collective behavior, Isaac Newton Institute, Cambridge, April 2022.
- Quantization, Location, Sampling and Matching Workshop, Lagrange Research Center, Paris, March 2022.
- Interaction Mechanisms in Monte Carlo, Heilbronn Institute for Mathematical Research, Bristol, December 2021.
- Sampling Algorithms and Geometries on Probability Distributions workshop , Simons institute, Berkeley, September 2021.
- Entropic Regularization of Optimal Transport and Applications, Banff International Research Station (online), June 2021.
- Heriot-Watt University, Edinburgh (online), February 2021.
- Parisian Optimization Seminar, Institut Henri Poincaré, October 2020.
- Second Symposium on Machine Learning and Dynamical Systems, Fields Institute, Toronto (online), September 2020.
- Stuttgart Workshop on Statistical Learning, Stuttgart, July 2019.
- Statistics/Learning at Paris-Saclay (3rd edition), Institut des Hautes Etudes Scientifiques (IHES), Bures-sur-Yvette, January 2018.
- French Forum of Young Women in Mathematics, Institut Élie Cartan de Lorraine, Nancy, November 2017.
- France/Japan Machine Learning Workshop, École Normale Supérieure, Paris, Sep. 2017.
- European Conference on Operational Research (Preference Learning stream), Poznań, July 2016.
- International Conference of Machine Learning (Ranking session), New York, June 2016.

Other research activities

Supervision.....

Co-supervising one PhD student (Tom Huix) with Eric Moulines (CMAP, Polytechnique) and Alain Durmus (CMLA, ENS Paris-Saclay).

PhD committees.....

Examinator for the PhD defence of Grégoire Mialon (INRIA Toth) co-advised by Julien Mairal and Alexandre d'Aspremont in January 2021.

Reviewing.....

- **Conferences:** Neural Information Processing System (NeurIPS), International Conference of Machine Learning (ICML), Artificial Intelligence and Statistics (AISTATS).
- **Journals:** Journal of Machine Learning Research, (occasionally) Bernoulli, Journal of the Royal Statistical Society.

Seminars organization.....

- Co-organizer of the CSML seminar (Computer Science and Machine Learning) at University College London and of Gatsby Unit external seminar (2019/2020).
- Organizer of the weekly working group/seminar on "Sampling with kernelized Wasserstein gradient flows" at the Geometric Methods in Optimization and Sampling (GMOS) program at Simons institute (Fall 2021).

Professional experience

Teaching.....

ENSAE ParisTech

Sep. 2020- Present

Lecturer

Palaiseau, France

- Measure theory lectures for 1st year students at ENSAE.

Télécom ParisTech

Oct. 2015–Oct. 2018

Teaching assistant

Paris, France

- Practical sessions for Master's students for several courses: Machine Learning (Python), Econometrics (Matlab), Introduction to Bayesian Learning (R).
- Supervision of long-run Master's students Machine Learning projects with companies.

Industrial.....

Principal Researcher

Jan. 2019–Present

Fentech

Paris, France

Development of algorithms for research projects in machine learning (themes: recommendation, causal inference).

Data Scientist consultant

Sep. 2015–Sep. 2017

Various companies

Paris, France

Development of algorithms for computer vision, text mining, pricing strategies.

Skills

Languages: French (native), English (fluent), Italian (intermediate).

Programming: Python, R, MATLAB (advanced).

Others: Latex (advanced), HTML/CSS, D3.js (basics).