Anna Korba

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Academic Positions

Statistics department, ENSAE/CREST   Sep. 2020–Present
Assistant Professor   *Palaiseau, France*

Gatsby Unit, University College London (UCL)   Dec. 2018–Aug. 2020
Postdoctoral Research Fellow   *London, United Kingdom*
Laboratory of Pr. Arthur Gretton.

Education

Télécom ParisTech   Oct. 2015–Oct. 2018
Ph.D. in Applied Mathematics (Machine Learning)   *Paris, France*

- Title: Learning from Ranking Data: Theory and Methods
- Supervisor: Stephan Clémençon

ENS Cachan   Sep. 2014–Jun. 2015
Master MVA, First class honours   *Cachan, France*
Applied Mathematics for Computer Vision and Machine Learning.

ENSAE ParisTech   Sep. 2012–Jun. 2015
Engineering degree, First class honours   *Paris, France*
Applied Mathematics, Advanced Statistics & Economics.

Lycée Henri IV   Sep. 2009–Jun. 2012
Classes préparatoires   *Paris, France*
Mathematics, Physics, Computer Science.

Publications

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

[1] A. Korba, A. Salim, M. Arbel, G. Luise, A. Gretton. *A Non Asymptotic Analysis of Stein Variational Gradient Descent.* Submitted, 2020.

[2] A. Salim, A. Korba, G. Luise. *Wasserstein Proximal Gradient.* Submitted, 2020.

[3] M. Arbel, A. Korba, A. Salim, A. Gretton. *Maximum Mean Discrepancy Gradient Flow.* Avances in Neural Information Processing Systems (NeurIPS), 2019.

[4] M. Achab*, A. Korba*, S. Clémençon. *Dimensionality Reduction for Bucket Ranking: A Mass Transportation Approach.* Algorithmic Learning Theory (ALT), 2019.

[5] A. Korba, A. Garcia, F. D'Alché-Buc. *A Structured Prediction Approach for Label Ranking.* Advances in Neural Information Processing Systems (NeurIPS), 2018.

[6] S. Clémençon, A. Korba. *On Aggregation in Ranking Median Regression.* European Symposium on Artificial Neural Networks (ESANN), 2018.

[7] S. Clémençon, A. Korba, E. Sibony. *Ranking Median Regression: Learning to Order through Local Consensus.* Algorithmic Learning Theory (ALT), 2018.

[8] A Korba, S. Clémençon, E. Sibony. *A Learning Theory of Ranking Aggregation.* Artificial Intelligence and Statistics (AISTATS) 2017.

[9] Y. Jiao, A. Korba, E. Sibony. *Controlling the distance to a Kemeny consensus without computing it.* International Conference on Machine Learning (ICML) 2016.

Invited Talks

- Second Symposium on Machine Learning and Dynamical Systems, Fields Institute, Toronto (virtual), September 2020.
- Statistics seminar, Laboratoire de Probabilités, Statistique et Modélisation (LPSM), Paris, March 2020.
- Probability and Statistics seminar, Orsay, January 2020.
- CMStatistics conference, London, December 2019.
- INRIA MAGNET, Lille, November 2019.
- Stuttgart Workshop on Statistical Learning, Stuttgart, July 2019.
- Algorithmic Learning Theory (ALT), Chicago, March 2019.
- LAMSADE, Université Paris Dauphine, February 2019.
- Gatsby Computational Neuroscience Unit, University College London, August 2018.
- Laboratory for Computational and Statistical Learning (LCSL) seminar, Universita di Genova, June 2018.
- Conférence sur l'Apprentissage Automatique (CAp 2018), INSA Rouen, June 2018.
- Journée des Statistiques (JDS18 - Ranking session), EDF Lab, May 2018.
- Machine Learning for Big Data Chair day, Paris, April 2018.
- Algorithmic Learning Theory (ALT), Lanzarote, April 2018.
- Statistics/Learning at Paris-Saclay (3rd edition), Institut des Hautes Etudes Scientifiques (IHES), Bures-sur-Yvette, January 2018.
- Discrete Structures In Machine Learning Workshop at NIPS 2017, Long Beach, Dec. 2017.
- 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.
- Machine Learning for Big Data Chair Day, Paris, May 2017.
- Junior Conference on Data Science and Engineering, Paris, September 2016.
- European Conference on Operational Research (Preference Learning stream), Poznań, July 2016.
- International Conference of Machine Learning (Ranking session), New York, June 2016.
- Machine Learning for Big Data Chair Day, Paris, June 2016.

Other research activities

Organization

- Co-organizer of a minisymposium "Gradient flows and interactions between optimization and simulation algorithms" (two sessions) at SIAM International Conference on Optimization 2020 (SIAM OP20), Hong Kong (delayed to 2021).
- Co-organizer of the CSML seminar (Computer Science and Machine Learning) at University College London and of Gatsby's external seminar.

Reviewing

- **Conferences:** Asian Conference on machine Learning ACML (2018), Neural Information Processing System (NeurIPS, 2018-2019), International Conference of Machine Learning (ICML, 2019), Artifical Intelligence and Statistics (AISTATS, 2019).
- **Journals:** Journal of Machine Learning Research (2019-2020).

Professional Experience

Teaching and Supervision

ENSAE ParisTech **Sep. 2020- Dec. 2020**
Professor *Palaiseau, France*
Measure theory lectures for 1rst year students at ENSAE.

Télécom ParisTech **Oct. 2015–Oct. 2018**
Teaching assistant *Paris, France*
Practical sessions for Master's students:

- Machine Learning, with Python (32 hours a year, 2016-2018)
- Econometrics, with MATLAB (32 hours a year, 2015-2016)
- Introduction to Bayesian Learning, with R (8 hours a year, 2017-2018)

Supervision of long-run Master's students Machine Learning projects with companies (32 hours a year, 2015-2018):

- Search-engine improvement for the start-up Clustaar
- French presidential elections predictions for the newspaper LePoint
- Recommendation for personalized newsfeed for the MonsterMessenger app

Industrial

Principal Researcher **Jan. 2019–Present**
Fentech *Paris, France*
Development of algorithms for research projects in machine learning (themes: recommandation, causal inference).

Data Scientist consultant **Sep. 2015–Sep. 2017**
Zebria (Jan. 2017–Sep. 2017) *Paris, France*
Text-mining on data from patients suffering from chronic diseases: scraping, pre-processing with the nltk library, Word2Vec analysis.
Temiseo (May 2016–Oct. 2016)
Development of algorithms for vision tasks on images (detection and recognition of media device and logos with OpenCV and Keras, barcode detection and reading with zbar).
The PriceHub (Sep. 2015–Jan. 2016)
Implementation of a pricing algorithm for industrial mechanical parts.

Data Scientist intern **Jul. 2014–Sep. 2014**
Over-Graph (909c agency) *Paris, France*
Optimization of strategies for marketing campaigns on Facebook.

Skills

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

Programming: Python, R, MATLAB (advanced).

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