Pierre LAFORGUE

PhD in Machine Learning

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Education

2016 - 2020 **Télécom Paris, Institut Polytechnique de Paris**, PhD in Machine Learning, prepared under the supervision of professors F. d'Alché-Buc and S. Clémençon
DISSERTATION: *Deep Kernel Representation Learning for Complex Data and Reliability Issues*
KEYWORDS: learning theory, kernel methods, structured prediction, representation learning, robust machine learning, Median-of-Means estimator, debiasing methods
GRANTS: recipient of a **research grant** by the industrial chair Good in Tech (2020)
PUBLICATIONS: [1, 2, 3, 4, 5, 6], Google Scholar, Github

2015 - 2016 **ENS Cachan, Université Paris Dauphine**, master's degree MASH
Theoretical machine learning courses (joint with MVA's: statistical learning theory, kernel methods, convex optimization, graphical models) and applied ones (data marketing, privacy and fairness)

2013 - 2016 **ENSAE Paris**, master's degree in Statistical Learning
French engineering school (grande école) specialized in statistics and applied mathematics

2010 - 2013 **Lycée Henri IV (Paris)**, preparatory classes MPSI/MP
Undergraduate courses in mathematics and physics to prepare nationwide competitive exams

Professional Experience

2016 - 2019 **Scientific advisor on Data Science projects at Télécom Paris**
- Energy saving in a silicon furnace (Bearing Point & Ferroglobe 2019)
- Multi-dimensional time series visualization (Safran 2018)
- Predictive maintenance on helicopters (Safran 2017)

2016 - 2019 **Teaching assistant at Télécom Paris** (64 hrs / yr)
- Theoretical classes: Statistics, Linear Models, Advanced Statistical Learning
- Practical sessions and computer classes: Applied Machine Learning, Data Mining

2016 **Research intern at Télécom Paris** (6 months)
- Within machine learning department, under the supervision of professor S. Clémençon
- Research topic: *Biased Stochastic Approximation of M-estimation Problems*

2015 **Statistical assistant at Assistance Publique des Hôpitaux de Paris** (5 months)
- Birth evolution forecasting in Île-de-France (Paris region)
- Optimization of the obstetrical care services in the region

2014 **Statistician at *Affluences*, mobile application startup** (4 months)
- Queuing time forecasting for the Bibliothèque Beaubourg (Paris)
- Data visualization on occupancy rates

Skills & Languages

Computer skills : Python (numpy, pytorch, pandas, scikit-learn), Latex, R
Languages : French (mother tongue), English (fluent), Spanish (intermediate)

Publications

[1] G. Staerman, **P. Laforgue**, P. Mozharovskyi, F. d'Alché-Buc. *When OT meets MoM: Robust estimation of Wasserstein Distance*. Submitted, ArXiv preprint available at arXiv:2006.10325, 2020.

[2] **P. Laforgue**, G. Staerman, S. Clémençon. *How Robust is the Median-of-Means? Concentration Bounds in Presence of Outliers*. Submitted, ArXiv preprint available at arXiv:2006.05240, 2020.

[3] **P. Laforgue**, S. Clémençon. *On Statistical Learning from Biased Training Samples*. Submitted, ArXiv preprint available at arXiv:1906.12304, 2020.

[4] **P. Laforgue**, A. Lambert, L. Brogat-Motte, F. d'Alché-Buc. *Duality in RKHSs with Infinite Dimensional Outputs: Application to Robust Losses*. In Proceedings of ICML 2020.

[5] **P. Laforgue**, S. Clémençon, P. Bertail. *On Medians-of-(Randomized)-Pairwise Means*. In Proceedings of ICML 2019.

[6] **P. Laforgue**, S. Clémençon, F. d'Alché-Buc. *Autoencoding any Data through Kernel Autoencoders.* In Proceedings of AISTATS 2019.

Research Activities

Reviewing for : NeurIPS since 2019 (top reviewer 2019), ICML since 2020, ICLR since 2021

Selected talks : ENBIS 2018, JDS 2018, CAp 2019, CODA 2019, Tōdai 2019, Le Palaisien 2020, Datacraft 2020

Summer school : Participant to the Machine Learning Summer School (MLSS) in January 2019, South Africa

Miscellaneous

Young talent : Selected as a *Young Talent in Big Data* for the France-Netherlands *Erasmus Conference* (2017)

Startups : Involved in the development of the mobile application *Pollux Vote* (2016)

Associations : President of the ENSAE student *journal* (2014-2015)