Pierre LAFORGUE

PhD in Machine Learning

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Research Experience

2020 - Present **University of Milan**, Postdoctoral researcher (Sup. N. Cesa-Bianchi)
RESEARCH TOPICS: Online Learning, Bandit Algorithms, Online Convex Optimization
SUPERVISING: Co-supervising a PhD thesis on sketching OVK machines with F. d'Alché-Buc

2016 - 2020 **Télécom Paris**, PhD in Machine Learning (Sup. F. d'Alché-Buc, S. Clémençon)
RESEARCH TOPICS: Kernel Methods, Robust Learning, Median-of-Means, Sample Bias Issues
DISSERTATION: *Deep Kernel Representation Learning for Complex Data and Reliability Issues*

Grants, awards Recipient of a research grant by the industrial chair *Good in Tech* (2020)
2nd Best Thesis of IP Paris's computer science department (2021)

Other 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

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

Education

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

Skills & Languages

Research interests : Learning Theory, Online Learning, Robust Learning, Kernel Methods
Computer skills : Python (numpy, pytorch, pandas, scikit-learn), Latex, R
Languages : French (native), English (fluent), Italian (basics)

Publications by Topics

Online Learning and Bandits

Break your Bandit Routine with LSD Rewards (Preprint 2021).
P. Laforgue, G. Clerici, N. Cesa-Bianchi, R. Gilad-Bachrach.

Multitask Online Mirror Descent (Preprint 2021).
N. Cesa-Bianchi, P. Laforgue, A. Paudice, M. Pontil.

Robust Learning and Median-of-Means

Concentration Bounds in the Presence of Outliers: a Median-of-Means Study (ICML 2021).
P. Laforgue, G. Staerman, S. Clémençon.

When OT meets MoM: Robust estimation of Wasserstein Distance (AISTATS 2021).
G. Staerman, P. Laforgue, P. Mozharovskyi, F. d'Alché-Buc.

On Medians-of-(Randomized)-Pairwise Means (ICML 2019).
P. Laforgue, S. Clémençon, P. Bertail.

Kernel Methods and Vector-Valued RKHSs

Duality in RKHSs with Infinite Dimensional Outputs: Application to Robust Losses (ICML 2020).
P. Laforgue, A. Lambert, L. Brogat-Motte, F. d'Alché-Buc.

Autoencoding any Data through Kernel Autoencoders (AISTATS 2019).
P. Laforgue, S. Clémençon, F. d'Alché-Buc.

Statistical Learning and Sample Bias Issues

Statistical Learning from Biased Training Samples (Preprint 2021).
S. Clémençon, P. Laforgue.

Visual Recognition with Deep Learning from Biased Image Datasets (Preprint 2021).
R. Vogel, S. Clémençon, P. Laforgue.

PhD Dissertation

Deep Kernel Representation Learning and Reliability Issues (2020).
P. Laforgue.

Research Activities

Reviewing for : NeurIPS, ICML, COLT, ICLR, AISTATS, ALT, JMLR, Machine Learning Journal
Teaching for : RLVS 2021 Summer School, *Online Learning Theory* PhD course at University of Milan
Talking for : University of Genova 2021, ELLIS 2021 (Online), Datacraft 2020, ENSAE 2020, Tōdai University of Tokyo 2019, CAp 2019 (University of Toulouse), JDS 2018 (EDF Lab)

Miscellaneous

Young talent : Selected as a *Young Talent in Big Data* for the France-Netherlands *Erasmus Conference* (2017)
Applications : Contributed to *Affluences* (queuing time forecasting), and *Pollux Vote* (political matching)
Associations : President of the ENSAE student *journal* (2014-2015)