



# Pierre LAFORGUE

## PhD in Machine Learning

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**Others:** [Google Scholar](#), [GitHub](#), [LinkedIn](#)

## Research Experience

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- 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. Cléménçon)  
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

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- 2021 - Present** **Lecturer in machine learning**  
- Online learning with applications to digital markets (PhD course, Scuola Superiore di Pisa 2022)  
- Online Learning: Theory & Algorithms (PhD course, University of Milan 2021)  
- Reinforcement Learning Virtual School (Teaching assistant, Online 2021)
- 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 - 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)

## Education

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- 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

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- 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

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### ONLINE LEARNING AND BANDITS

**AdaTask: Adaptive Multitask Online Learning** (Preprint 2022).

P. Laforgue\*, A. Della Vecchia\*, N. Cesa-Bianchi, L. Rosasco.

**Multitask Online Mirror Descent** (Preprint 2022).

N. Cesa-Bianchi, P. Laforgue, A. Paudice, M. Pontil.

**A Last Switch Dependent Analysis of Satiation and Seasonality in Bandits** (AISTATS 2022).

P. Laforgue, G. Clerici, N. Cesa-Bianchi, R. Gilad-Bachrach.

### 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. Cl  men  on.

**When OT meets MoM: Robust estimation of Wasserstein Distance** (AISTATS 2021).

G. Staerman, P. Laforgue, P. Mozharovskyi, F. d'Alch  -Buc.

**On Medians-of-(Randomized)-Pairwise Means** (ICML 2019).

P. Laforgue, S. Cl  men  on, P. Bertail.

### KERNEL METHODS AND VECTOR-VALUED RKHSs

**$p$ -Sparsified Sketches for Fast Multiple Output Kernel Methods** (Preprint 2022).

T. El Ahmad, P. Laforgue, F. d'Alch  -Buc.

**Duality in RKHSs with Infinite Dimensional Outputs: Application to Robust Losses** (ICML 2020).

P. Laforgue, A. Lambert, L. Brogat-Motte, F. d'Alch  -Buc.

**Autoencoding any Data through Kernel Autoencoders** (AISTATS 2019).

P. Laforgue, S. Cl  men  on, F. d'Alch  -Buc.

### STATISTICAL LEARNING AND SAMPLE BIAS ISSUES

**Statistical Learning from Biased Training Samples** (Preprint 2021).

S. Cl  men  on, P. Laforgue.

**Visual Recognition with Deep Learning from Biased Image Datasets** (Preprint 2021).

R. Vogel, S. Cl  men  on, P. Laforgue.

### PHD DISSERTATION

**Deep Kernel Representation Learning and Reliability Issues** (2020).

P. Laforgue.

## Research Activities

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**Reviewing** NeurIPS, ICML, COLT, ICLR, AISTATS, JMLR, TMLR, Machine Learning Journal, ELLIS PhD Program

**Talks** University College London, DELTA group (Online, 2022), ELLIS Theory Workshop (Arenzano, 2022), Journ  es de Statistique (Lyon, 2022), Hi! Paris AI Symposium (Paris region, 2022), University of Genova, MALGA group (Genova, 2021), ELLIS Interactive Learning Workshop (Online, 2021)