Pierre Gaillard

Curriculum Vitæ

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Research interests

- Online learning (prediction of individual sequences, multi-armed bandits, reinforcement learning)
- Industrial applications of machine learning: electricity consumption (EDF R&D), on-line advertising (AlephD), survival analysis (Nokia & Safran)

Professional and educational background

2020 – now	Researcher (CRCN) at INRIA Grenoble in the THOTH project team.
2017 – 2020	Researcher (CRCN) at INRIA Paris in the SIERRA project team.
Oct. – Déc. 2016	Post-doctoral researcher at Telecom Paris.
2015 – 2016	Post-doctoral researcher at the University of Copenhagen.
2012 – 2015	Doctoral researcher in applied mathematics (industrial Ph.D. with EDF R&D) and teaching assistant at the University Paris-Sud.
2008 – 2012	Student in mathematics (as a civil servant) at the École Normale Supérieure in Paris. Two research internships: 6 months at MIT (Cambridge, US) and 6 months at Technion (Israel Institute of Technology, Haïfa, Israel).
2011	M.Sc. in applied mathematics, computer vision and machine learning (MVA), *ENS Cachan*, summa cum laude.

Awards

2018	IJF Tao Hong Award 2018, *Best-Paper award in the International Journal of Forecasting for the period 2015 – 2016.*
Dec 2016	AMIES Ph.D. dissertation award, *for French industrial Ph.D. in mathematics.*
Oct 2016	Paul Caseau Ph.D. dissertation award, awarded by the French Academy of Technologies and EDF.
Aug – Dec 2014	Rank 1 in two online international machine learning challenges, *GEFCom2014: Probabilistic Electric Load Forecasting, Crowdanalytix Competition*.

Teaching and student supervision

2018 – now	Sequential learning class, *(Master MVA, ENS Cachan, 24h, 60 students).*
2017 – 2020	Introduction to machine learning, *(Bachelor, ENS Paris, 14h, 40 students).*
2012 – 2015	Teaching assistant at Paris-Sud University as a Ph.D. fellow, *Department of mathematics. 4 classes in probability, statistics, and machine learning.*
2019 – 2020	Supervision of a Post-doctoral researcher.
2017 – now	Co-supervision of four Ph.D. students (2 have already defended).
2017 – now	Supervision of five M.Sc. research internships.

Research activity

Publications

Number of citations ≥ 770. H-index ≥ 13.

Articles in international journals

[1] R. Berthier, F. Bach, and P. Gaillard, "Accelerated gossip in networks of given dimension using jacobi polynomial iterations," *SIAM Journal on Mathematics of Data Science*, 2020.

[2] P. Gaillard, Y. Goude, and R. Nedellec, "Additive models and robust aggregation for gefcom2014 probabilistic electric load and electricity price forecasting," *International Journal of Forecasting*, 2016.

[3] M. Devaine, P. Gaillard, Y. Goude, and G. Stoltz, "Forecasting the electricity consumption by aggregating specialized experts; application to Slovakian and French country-wide (half-)hourly predictions," *Machine Learning*, 2013.

Articles in proceedings of international conferences

[4] A. Saha and P. Gaillard, "Versatile dueling bandits: Best-of-both-world analyses for online learning from preferences," *ICML*, To appear, 2022.

[5] H. Zenati, A. Bietti, E. Diemert, *et al.*, "Efficient kernel ucb for contextual bandits," *AISTAT*, To appear, 2022.

[6] M. Even, R. Berthier, F. Bach, *et al.*, "A continuized view on nesterov acceleration for stochastic gradient descent and randomized gossip," *NeurIPS*, (oral, <1%, outstanding paper award), 2021.

[7] R. Jézéquel, P. Gaillard, and A. Rudi, "Mixability made efficient: Fast online multiclass logistic regression," *NeurIPS*, (spotlight, <3%), 2021.

[8] R. Ouhamma, R. Degenne, P. Gaillard, and V. Perchet, "Online sign identification: Minimization of the number of errors in thresholding bandits," *NeurIPS*, To appear (spotlight, <3%), 2021.

[9] A. Saha and P. Gaillard, "Dueling bandits with adversarial sleeping," *NeurIPS*, 2021.

[10] R. Berthier, F. Bach, and P. Gaillard, "Tight nonparametric convergence rates for stochastic gradient descent under the noiseless linear model," *NeurIPS*, 2020.

[11] R. Jézéquel, P. Gaillard, and A. Rudi, "Efficient improper learning for online logistic regression," *COLT*, 2020.

[12] A. Saha, P. Gaillard, and M. Valko, "Improved sleeping bandits with stochastic action sets and adversarial rewards," *ICML*, 2020.

[13] M. Brégère, P. Gaillard, Y. Goude, and G. Stoltz, "Target tracking for contextual bandits: Application to demand side management," *ICML*, 2019.

[14] P. Gaillard, S. Gerchinovitz, M. Huard, and G. Stoltz, "Uniform regret bounds over $\mathbb{R}^d$ for the sequential linear regression problem with the square loss," *ALT*, 2019.

[15] R. Jézéquel, P. Gaillard, and A. Rudi, "Efficient online learning with kernels for adversarial large scale problems," *NeuriPS*, 2019.

[16] P. Gaillard and O. Wintenberger, "Efficient online algorithms for fast-rate regret bounds under sparsity," *NeurIPS*, 2018.

[17] N. Cesa-Bianchi, P. Gaillard, C. Gentile, and S. Gerchinovitz, "Algorithmic Chaining and the Role of Partial Feedback in Online Nonparametric Learning," *COLT*, 2017.

[18] P. Gaillard and O. Wintenberger, "Sparse accelerated exponential weights," *AISTATS*, 2017.

[19] P. Gaillard and S. Gerchinovitz, "A chaining algorithm for online nonparametric regression," *COLT*, 2015.

[20] P. Gaillard, G. Stoltz, and T. van Erven, "A second-order bound with excess losses," *COLT*, 2014, finalist for best student paper award.

[21] N. Cesa-Bianchi, P. Gaillard, G. Lugosi, and G. Stoltz, "Mirror descent meets fixed share (and feels no regret)," *NIPS*, 2012.

Book chapters

[22] P. Gaillard and Y. Goude, "Forecasting electricity consumption by aggregating experts; how to design a good set of experts," *Modeling and Stochastic Learning for Forecasting in High Dimensions*, ser. Lecture Notes in Statistics, 2015.

Miscellaneous

[23] M. Faure, P. Gaillard, B. Gaujal, and V. Perchet, "Online learning and game theory. A quick overview with recent results and applications," *ESAIM: Proceedings*, 2015.

[24] P. Gaillard, "Contributions à l'agrégation séquentielle robuste d'experts : Travaux sur l'erreur d'approximation et la prévision en loi. applications à la prévision pour les marchés de l'énergie," PhD thesis, Université Paris-Sud 11, 2015.

Software

[25] P. Gaillard, *Opera: Online prediction by experts aggregation*, `R` package version 0.01, 2015. [Online]. Available: `https://github.com/Dralliag/opera.git`.

Reviewing experiences

Int. Journals	Journal of Machine Learning Research, Machine Learning, Journal of International Forecasting, ESAIM Probability and Statistics, Mathematics of Operations Research.
Int. Conferences	COLT, AISTAT, NeurIPS, ALT, ICML.
Books	MIT Press.