

# Pierre Gaillard

## Curriculum Vitæ

8 rue Linné  
38 000 Grenoble, France

☎ +336 50 65 44 58

✉ pierre.gaillard@inria.fr

🌐 <http://pierre.gaillard.me>

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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)

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## 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.

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## 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*.

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## 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.

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## Research activity

### Publications

Number of citations  $\geq 650$ . H-index  $\geq 9$ .

#### *Articles in 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] M. Even, R. Berthier, F. Bach, *et al.*, "A continuized view on nesterov acceleration for stochastic gradient descent and randomized gossip," *NeurIPS*, To appear (oral, <1%), 2021.
- [5] R. Jézéquel, P. Gaillard, and A. Rudi, "Mixability made efficient: Fast online multiclass logistic regression," *NeurIPS*, To appear (spotlight, <3%), 2021.
- [6] 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.
- [7] A. Saha and P. Gaillard, "Duelling bandits with adversarial sleeping," *NeurIPS*, To appear, 2021.
- [8] R. Berthier, F. Bach, and P. Gaillard, "Tight nonparametric convergence rates for stochastic gradient descent under the noiseless linear model," *NeurIPS*, 2020.
- [9] R. Jézéquel, P. Gaillard, and A. Rudi, "Efficient improper learning for online logistic regression," *COLT*, 2020.
- [10] A. Saha, P. Gaillard, and M. Valko, "Improved sleeping bandits with stochastic action sets and adversarial rewards," *ICML*, 2020.
- [11] M. Brégère, P. Gaillard, Y. Goude, and G. Stoltz, "Target tracking for contextual bandits: Application to demand side management," *ICML*, 2019.
- [12] 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.
- [13] R. Jézéquel, P. Gaillard, and A. Rudi, "Efficient online learning with kernels for adversarial large scale problems," *NeurIPS*, 2019.
- [14] P. Gaillard and O. Wintenberger, "Efficient online algorithms for fast-rate regret bounds under sparsity," *NeurIPS*, 2018.
- [15] N. Cesa-Bianchi, P. Gaillard, C. Gentile, and S. Gerchinovitz, "Algorithmic Chaining and the Role of Partial Feedback in Online Nonparametric Learning," *COLT*, 2017.
- [16] P. Gaillard and O. Wintenberger, "Sparse accelerated exponential weights," *AISTATS*, 2017.
- [17] P. Gaillard and S. Gerchinovitz, "A chaining algorithm for online nonparametric regression," *COLT*, 2015.

- [18] P. Gaillard, G. Stoltz, and T. van Erven, “A second-order bound with excess losses,” *COLT*, 2014, finalist for best student paper award.
- [19] N. Cesa-Bianchi, P. Gaillard, G. Lugosi, and G. Stoltz, “Mirror descent meets fixed share (and feels no regret),” *NIPS*, 2012.

*Book chapters*

- [20] 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*

- [21] 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.
- [22] 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*

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

[Reviewing experiences](#)

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| 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.  |