

Quentin Berthet

Research Scientist
Google Research
Brain team, Paris

qberthet@google.com
q-berthet.github.io

× Positions

Google Research

Brain team, Paris

- × Research Scientist (since 2019)

University of Cambridge

Statistical Laboratory, Department of Pure Mathematics and Mathematical Statistics

- × Lecturer - equivalent to Assistant Professor (2015-2019)

California Institute of Technology

Computing & Mathematical Sciences Department

- × CMI Postdoctoral fellow - hosted by Venkat Chandrasekaran (2014-2015)

× Education

Princeton University (2009-2014)

O.R.F.E. Department

- × Ph.D. thesis : Statistical and Computational Tradeoffs in High-dimensional Problems.
Advisor : Philippe Rigollet.

Ecole Polytechnique (2006-2009)

Lycée Louis-le-Grand, Paris (2004-2006)

× Grants & Awards

- ERC Starting Grant *Computational Trade-offs and Algorithms for Statistics* (2019), 1.48M euro (awarded)
- Isaac Newton Trust Early Career Support Scheme (2016), £9,250
- Best Paper award, Conference on Learning Theory (COLT 2013)
- Bernoulli Society New Researcher Award 2019 (Honorable mention)
- NIPS 2017 Best Reviewer award

× Editorial activity

- Program Committee for the *Conference on Learning Theory* - COLT 2018, 2020
- Area chair for the *International Conference on Artificial Intelligence and Statistics* - AISTATS 2020
- Area chair for the *International Conference on Machine Learning* - ICML 2020
- Associate Editor of the *Journal of the Royal Statistical Society, B* (since 2018)
- Associate Editor of the *ESAIM Probability and Statistics Journal* (since 2017)

× Fellowships & visiting positions

- Invited professor, INRIA Paris (2019)
- Alan Turing Institute faculty fellowship (2016-2019)
- Fellow of St John's College, Cambridge (2015-2019)
- Gordon Y.S. Wu Fellowship in Engineering, Princeton University (2009)

× Publications and preprints

Full list on Google scholar profile:

<http://scholar.google.com/citations?user=bHwGZjcAAAAJ>

1. Learning with Differentiable Perturbed Optimizers
Q. Berthet, M. Blondel, O. Teboul, M. Cuturi, J-P. Vert, F. Bach
Preprint
2. Stochastic Optimization for Regularized Wasserstein Estimators
M. Ballu, Q. Berthet, F. Bach
accepted at ICML 2020
3. Fast Differentiable Sorting and Ranking
M. Blondel, O. Teboul, Q. Berthet, J. Djolonga
accepted at ICML 2020
4. Statistical and Computational Rates in Graph Logistic Regression
N. Baldin and Q. Berthet
accepted at AISTats 2020
5. Estimation of smooth densities in Wasserstein distance
J. Weed and Q. Berthet
COLT 2019
6. Regularized Contextual Bandits
X. Fontaine, Q. Berthet, and V. Perchet
AISTats 2019
7. Statistical Windows in Testing for the Initial Distribution of a Reversible Markov Chain
Q. Berthet and V. Kanade
AISTats 2019
8. Unsupervised Embedding Alignment with Wasserstein Procrustes
A. Joulin, E. Grave and Q. Berthet
AISTats 2019
9. Detection of Planted Solutions for Flat Satisfiability Problems
Q. Berthet and J.S. Ellenberg
AISTats 2019
10. Exact Recovery in the Ising Blockmodel
Q. Berthet, P. Rigollet, and P. Srivastava
Annals of Statistics, 47 (4), 1805-1834 (2019)
11. Bandit Optimization with Upper-Confidence Frank-Wolfe
Q. Berthet and V. Perchet
*NeurIPS 2017 **Spotlight***

12. Average-case Hardness of RIP Certification
T. Wang, Q. Berthet, and Y. Plan
NeurIPS 2016
13. Resource Allocation for Statistical Estimation
Q. Berthet and V. Chandrasekaran
Proceedings of the IEEE, 104 (1), 111-125, (2016)
14. Statistical and Computational Trade-offs in Estimation of Sparse Principal Components
T. Wang, Q. Berthet, and R. J. Samworth
Annals of Statistics, 44(5), 1896-1930, (2016)
15. Optimal Testing for Planted Satisfiability Problems
Q. Berthet
Electronic Journal of Statistics, 9, 298-317, (2015)
16. Complexity Theoretic Lower Bounds for Sparse PCA
Q. Berthet and P. Rigollet
J. Mach. Learn. Res., 30, 1046-1066, (2013) **Best Paper award at COLT 2013**
17. Optimal detection of Sparse Principal Components in High Dimension
Q. Berthet and P. Rigollet *Annals of Statistics, 41(4), 1780-1815. (2013)*

× **Supervision**

- N. Baldin, Ph.D. co-supervised with R. Nickl (2015-19)
- M. Ballu, Ph.D. supervisor (since 2018)
- Undergraduate summer research supervisor (2016-18)

× **Organisation**

- CFE CM Statistics 2019, Session organizer “Optimal transport in statistics” (12/2019)
- AIStats 2019, Session chair on “Optimization” (04/2019)
- ISMP 2018, Session organizer on “Optimization in Statistical Learning” (07/2018)
- Alan Turing Institute workshops organization (10/2017, 06/2018, 01/2019)
- Statistics Seminar organizer, University of Cambridge (2015-2018)

× **Invited presentations**

Tutorial or keynote presentation:

- Institut des Hautes Etudes Scientifiques (IHES), *Bures-sur-Yvette*, 03/2016
Keynote speaker at “Workshop on Computational and Statistical Trade-offs in Learning”
- YES IX Workshop: Statistics and Computational Complexity, *Eindhoven*, 03/2018
Tutorial speaker, giving three lectures.
- van Dantzig Seminar, *Leiden*, 03/2018

Invited talks in workshops and conferences:

- CIRM workshop on Optimization for Machine Learning, *Luminy*, 03/2020
- Monge-Ampère Géométrie Algorithmique days, *Orsay*, 11/2019
- European Statistical Meeting, *Palermo*, 07/2019
- Meetings in Mathematical Statistics, *Fréjus*, 12/2018
- CFE CM Statistics, *Pisa*, 12/2018
- BIRS workshop "Spin Glasses and Related Topics", *Banff*, 10/2018
- Statistical Physics and Machine Learning Summer school, *Cargese*, 08/2018
- Joint Statistical Meetings, *Vancouver*, 07/2018
- Workshop on Multi-Armed Bandits, Learning Algorithms, *Rotterdam*, 05/2018
- CRM workshop in Combinatorial Statistics, *Montreal*, 04/2018
- Isaac Newton Institute workshop on Statistical Scalability, *Cambridge*, 01/2018
- CIRM Meeting in Mathematical Statistics, *Luminy*, 12/2017
- Simons Institute "Optimization, Statistics, and Uncertainty" workshop, *Berkeley*, 12/2017
- INFORMS Applied Probability Society Conference, *Northwestern University*, 07/2017
- Optimization and Statistical Learning Workshop, *Les Houches*, 03/2017
- Statistical Learning Workshop, *Lancaster*, 03/2017
- ICSA Conference, invited session, *Shanghai*, 12/2016
- Meeting in Mathematical Statistics, *Fréjus*, 12/2016
- IEEE Information Theory Workshop, *Cambridge*, 09/2016
- IMS Asia-Pacific Rim Meeting, *Hong-Kong*, 06/2016
- International Society for Nonparametric Statistics Conference, *Avignon*, 06/2016
- Cambridge INET/Cemmap Econometric Methods Symposium, *Cambridge*, 06/2016
- MFO workshop "Computationally Efficient Inference, Large Data", *Oberwolfach*, 03/2016
- UCL Workshop on the Theory of Big Data, *London*, 01/2016
- International Symposium for Mathematical Programming, *Pittsburgh*, 07/2015
- MFO workshop "Probabilistic Techniques in Modern Statistics", *Oberwolfach*, 05/2015
- Fields Institute workshop on Optimization in Big Data, *Toronto*, 02/2015
- CIRM Meeting in Mathematical Statistics, *Luminy*, 12/2014
- Joint Statistical Meetings invited session, *Boston*, 08/2014
- CIRM workshop on "High-dimensional Statistics", *Luminy*, 12/2012

Invited presentation at department seminars:

- Bocconi, 11/2019
- UCL Gatsby Unit, 05/2019
- Ecole Nationale des Ponts et Chaussées, 03/2019
- INRIA Paris, 02/2019
- ENSAE, 12/2018
- Alan Turing Institute, 11/2018
- University of Oxford, 05/2018
- Ecole Polytechnique Fédérale de Lausanne, 04/2018
- INRIA Lille, 09/2017
- New York University, 04/2016
- London School of Economics, 03/2016
- INRIA Lille, 12/2015
- University of Birmingham, 11/2015
- University of Cambridge, 03/2015
- University of California, Irvine, 03/2015
- University of California, San Diego, 03/2015
- University of Texas, Austin, 03/2015
- Yale University, 11/2014
- University of Wisconsin, Madison, 10/2014
- California Institute of Technology, 05/2014
- University of Maryland, 03/2014
- University of Southern California, 02/2014
- Massachusetts Institute of Technology, 01/2014
- University of Illinois, Urbana-Champaign, 01/2014
- University of California, Davis, 01/2014
- INRIA Paris, 08/2013
- Princeton University, 03/2012