

# Francis Bach

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## Education

- 2009 Habilitation à diriger les recherches, Ecole Normale Supérieure, Cachan, France
- 2005 Ph.D. in Computer Science, University of California, Berkeley, CA, USA  
Dissertation: “Machine learning for blind source separation”  
Advisor: Prof. Michael I. Jordan.
- 2000 M.S. in Applied Mathematics, Ecole Normale Supérieure, Cachan, France
- 2000 Master of Public Administration (M.P.A.), Corps National des Mines, Paris, France
- 1997 B.S. in Mathematics, Ecole Polytechnique, Palaiseau, France

## Professional experience

- 2007 - present Research faculty, INRIA - Ecole Normale Supérieure, Paris, France  
Member of WILLOW project-team (2007-2010)  
Head of SIERRA project-team (since 2011)  
Adjunct professor at ENS (since 2016)
- 2005 - present Lecturer for M. S. class on graphical models, Ecole Normale Supérieure, Cachan
- 2005 - 2007 Assistant Professor, Ecole des Mines de Paris, Fontainebleau, France

## Awards and distinctions

- 2017 Thomson-Reuters highly-cited researcher (also in 2014)
- 2016 European Research Council (ERC) consolidator grant
- 2015 Schlumberger Chair, Institut des Hautes Etudes Scientifiques
- 2014 10-year best paper award, ICML conference
- 2012 INRIA Young Researcher Prize
- 2009 European Research Council (ERC) starting investigator grant
- 2005 Eli Jury Award, U.C. Berkeley (Best thesis in signal processing)
- 2005 Best student paper award, AISTATS conference
- 2004 Best paper, honorable mention, ICML conference
- 2002 Microsoft Research Fellowship, awarded to 12 Computer Science students in the U.S.
- 1997 Prix d’Option, department of mathematics, Ecole Polytechnique

## Professional activities

- Editor-in-Chief, Journal of Machine Learning Research (JMLR), since 2018
- General chair, International Conference on Machine Learning (ICML), 2018
- Program co-chair, International Conference on Machine Learning (ICML), 2015
- Associate Editor, Mathematical Programming, since 2018
- Associate Editor, Electronic Journal of Statistics, since 2016

## Selected publications

30,000 citations (<https://scholar.google.fr/citations?user=6PJWcFEAAAAJ>)

- F. Bach. Submodular Functions: from Discrete to Continuous Domains. *Mathematical Programming*, 2018.
- D. Scieur, A. d’Aspremont, F. Bach. Regularized Nonlinear Acceleration. *Advances in Neural Information Processing Systems (NIPS)*, 2016
- A. Dieuleveut, F. Bach. Non-parametric Stochastic Approximation with Large Step sizes. *The Annals of Statistics*, 44(4):1363-1399, 2016.
- F. Bach. Duality between subgradient and conditional gradient methods. *SIAM Journal of Optimization*, 25(1):115-129, 2015
- J. Mairal, F. Bach, J. Ponce. Sparse Modeling for Image and Vision Processing. *Foundations and Trends in Computer Vision*, 8(2-3):85-283, 2014
- F. Bach. Learning with Submodular Functions: A Convex Optimization Perspective. *Foundations and Trends in Machine Learning*, 6(2-3):145-373, 2013
- F. Bach and E. Moulines. Non-strongly-convex smooth stochastic approximation with convergence rate  $O(1/n)$ . *Advances in Neural Information Processing Systems (NIPS)*, 2013
- N. Le Roux, M. Schmidt, F. Bach. A stochastic gradient method with an exponential convergence rate for strongly-convex Optimization with Finite Training Sets. *Advances in Neural Information Processing Systems (NIPS)*, 2013
- F. Bach, R. Jenatton, J. Mairal, G. Obozinski. Structured sparsity through convex optimization. *Statistical Science*, 27(4):450-468, 2012
- F. Bach, R. Jenatton, J. Mairal, G. Obozinski. Optimization with sparsity-inducing penalties. *Foundations and Trends in Machine Learning*, 4(1):1-106, 2012
- R. Jenatton, G. Obozinski, F. Bach. Structured sparse principal component analysis. *Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2010
- J. Mairal, F. Bach, J. Ponce, G. Sapiro. Online learning for matrix factorization and sparse coding. *Journal of Machine Learning Research*, 11:10-60, 2010
- K. Fukumizu, F. Bach, and M. I. Jordan. Kernel dimension reduction in regression. *Annals of Statistics*, 37(4):1871-1905, 2009
- F. Bach. Consistency of the group Lasso and multiple kernel learning. *Journal of Machine Learning Research*, 9:1179-1225, 2008
- A. d’Aspremont, F. Bach and L. El Ghaoui. Optimal solutions for sparse principal component analysis. *Journal of Machine Learning Research*, 9:1269-1294, 2008
- F. Bach, M. I. Jordan, Learning spectral clustering, with application to speech separation. *Journal of Machine Learning Research*, 7:1963-2001, 2006
- F. Bach, D. Heckerman, E. Horvitz, Considering cost asymmetry in learning classifiers. *Journal of Machine Learning Research*, 7:1713-1741, 2006
- F. Bach, G. R. G. Lanckriet, M. I. Jordan. Multiple kernel learning, conic duality, and the SMO algorithm. *Proceedings of the International Conference on Machine Learning (ICML)*, 2004
- F. Bach, M. I. Jordan. Kernel independent component analysis. *Journal of Machine Learning Research*, 3:1-48, 2002