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)

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

2014   Thomson-Reuters highly-cited researcher

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

Professionnal activities

General chair, International Conference on Machine Learning (ICML), 2018

Program co-chair, International Conference on Machine Learning (ICML), 2015

Action editor, Journal of Machine Learning Research (JMLR), since 2008

Associate editor, IEEE Trans. on Pattern Analysis and Machine Intelligence (2009-2014)

Associate editor, SIAM Journal on Imaging Sciences, since 2010

Program committee member: conf. NIPS 2007, 2008, 2013, ECCV 2010, ICCV 2011 (area chair)

Senior program committee member: conference UAI 2012, ICML 2009-2014 (area chair)

Program committee member: conference COLT 2009, 2012, 2013

Selected publications

– 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

– F. Bach. Self-concordant analysis for logistic regression. *Electronic Journal of Statistics*, 4, 384-414, 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. Bolasso: model consistent Lasso estimation through the bootstrap. *Proceedings of the Twenty-fifth International Conference on Machine Learning (ICML)*, 2008

– 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