Francis Bach

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Formation

2009	Habilitation à diriger les recherches, Ecole Normale Supérieure, Cachan
2005	Thèse en Informatique, Université de Californie, Berkeley, Etats-Unis Dissertation: "Machine learning for blind source separation" Directeur de thèse: Prof. Michael I. Jordan.
2000	D.E.A. en mathématiques appliquées (M.V.A.), Ecole Normale Supérieure, Cachan
2000	Corps National des Mines, Paris
1997	Ecole Polytechnique, Palaiseau

Expérience professionnelle

Depuis 2007	Ingénieur Général des Mines, détaché à INRIA, Paris Responsable de l'équipe-projet SIERRA - Ecole Normale Supérieure (depuis 2011) Membre de l'équipe-projet WILLOW - Ecole Normale Supérieure (2007-2010)
2005 - 2007	Maître-assistant, Ecole des Mines de Paris, Fontainebleau

Prix et distinctions

2021	Prix du meilleur article et prix du meilleur article "10 ans après", congrès NeurIPS
2020	Election à l'Académie des Sciences
2019	Prix Jean-Jacques Moreau
2019	Prix du meilleur article "10 ans après", congrès ICML
2018	Prix du meilleur article, congrès NeurIPS
2018	Prix Lagrange en optimisation continue
2018	Thomson-Reuters / Clarivate highly-cited researcher (ainsi qu'en 2014 et 2017)
2016	European Research Council (ERC) consolidator investigator grant
2015	Chaire Schlumberger, Institut des Hautes Etudes Scientifiques
2014	Prix du meilleur article "10 ans après", congrès ICML
2012	Prix INRIA jeune chercheur
2009	European Research Council (ERC) starting investigator grant
2005	Eli Jury Award, U.C. Berkeley (meilleure thèse en traitement du signal)
2005	Prix du meilleur article par un étudiant, congrès AISTATS
2004	Prix du meilleur article, mention honorable, congrès ICML
1997	Prix d'Option, Département de mathématiques, Ecole Polytechnique

Activités professionnelles

Président, International Conference on Machine Learning (ICML) board, 2021-2023
Co-éditeur-en-chef, Journal of Machine Learning Research (JMLR), 2018-2023

Sélections de publications

64,000 citations (`https://scholar.google.fr/citations?user=6PJWcFEAAAAJ`)

- F. Bach, L. Chizat. Gradient Descent on Infinitely Wide Neural Networks: Global Convergence and Generalization. *Proceedings of the International Congress of Mathematicians*, 2022.
- L. Pillaud-Vivien, A. Rudi, F. Bach. Statistical Optimality of Stochastic Gradient Descent on Hard Learning Problems through Multiple Passes. *Advances in Neural Information Processing Systems (NeurIPS)*, 2018.
- 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
- 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
- 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