Guillaume Garrigos

Curriculum Vitae

Personal information and contact

Born in Toulouse (France), May 8th 1989.

Bâtiment Sophie Germain, Université de Paris, 75205 Paris CEDEX 13, France.

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Current position (2018–)

position	**Maître de conférences** at Université de Paris
affiliation	Laboratoire de Probabilités, Statistique et Modélisation (LPSM, UMR 8001)
research interests	optimization, statistical machine learning, inverse problems, image and signal processing, algorithms and continuous dynamical systems, tame optimization.

Previous positions (2015–2018)

2017–2018 **Post-doc**, *École Normale Supérieure*, Paris, France.
Lab: Département de Mathématiques et Applications
Main collaborator : Gabriel Peyré (ENS, CNRS, INRIA)
Research themes : inverse problems, signal and image processing, optimization

2015–2017 **Post-doc**, *Istituto Italiano di Tecnologia*, Genoa, Italy.
Lab: Laboratory for Computational and Statistical Learning
Main collaborators : Lorenzo Rosasco (IIT, MIT) and Silvia Villa (IIT)
Research themes : optimization and regularization methods for machine learning.

Ph.D. thesis (2012–2015)

title	*Descent dynamical systems and algorithms for tame optimization and multi-objective problems*
university	Université de Montpellier (France) and Universidad Santa Maria (Valparaíso, Chile)
supervisors	Hédy Attouch (UM) and Juan Peypouquet (USM)
committee	Hédy Attouch, Aris Daniilidis, Jalal Fadili, Pedro Gajardo, Adrian Lewis, Juan Peypouquet, Lionel Thibault

Education and Degrees

2013 **Agrégation de Mathématiques**, ranked 147/323.

2010–2012 **Master**, *Université de Montpellier*.
Mathématiques, Statistiques et Applications

2007–2010 **Licence**, *Université de Montpellier*.
Mathématiques Fondamentales et Appliquées

2007 **Baccalauréat**, *Lycée Diderot*, Narbonne.

Publications

Publications in international specialized journals.

- G. Garrigos, L. Rosasco and S. Villa. *Accelerated iterative regularization via dual diagonal descent*, SIAM Journal on Optimization, Vol. 31, No. 1, pp. 754–784, 2021.
- G. Garrigos, L. Rosasco and S. Villa. *Thresholding gradient methods in Hilbert spaces: support identification and linear convergence*, ESAIM: Control, Optimisation and Calculus of Variations, Vol. 26 (28), 2020.
- G. Garrigos, L. Rosasco and S. Villa. *Iterative regularization via dual diagonal descent*, Journal of Mathematical Imaging and Vision, Vol. 60, No. 2, pp. 189–215, 2018.
- G. Garrigos, L. Rosasco and S. Villa. *Convergence of the Forward-Backward algorithm: beyond the worst case with geometry*, Mathematical Programming, to appear, 2022.
- H. Attouch, G. Garrigos and X. Goudou. *A dynamic gradient approach to Pareto optimization with nonsmooth convex objective functions*, Journal of Mathematical Analysis and Applications, Vol. 422, No. 1, pp. 741–771, 2015.
- P. Frankel, G. Garrigos and J. Peypouquet. *Splitting methods with variable metric for KL functions and general convergence rates*, Journal of Optimization Theory and Applications, Vol. 165, No. 3, pp. 874–900, 2015.

Publications in international conferences.

- J. Chen, R. Yuan, G. Garrigos and R. M. Gower. *SAN: Stochastic Average Newton Algorithm for Minimizing Finite Sums*, 25th International Conference on Artificial Intelligence and Statistics (AISTATS), PMLR, Vol. 151, pp. 279–318, 2022.
- G. Garrigos, L. Rosasco and S. Villa. *Sparse Multiple Kernel Learning: Support Identification via Mirror Stratifiability*, IEEE 26th European Signal Processing Conference (EUSIPCO), pp. 1077–1081, 2018.
- J. Fadili, G. Garrigos, J. Malick and G. Peyré. *Model Consistency for Learning with Mirror-Stratifiable Regularizers*, 22nd International Conference on Artificial Intelligence and Statistics (AISTATS), PMLR, Vol. 89, pp. 1236–1244, 2019.
- G. Garrigos, L. Rosasco and S. Villa. *Iterative regularization via a dual diagonal descent method*, 9th NIPS Workshop on Optimization for Machine Learning, 2016.

Preprints.

- G. Garrigos and R. M. Gower. *Handbook of Convergence Theorems for (Stochastic) Gradient Methods*. Preprint on arXiv:2301.11235.
- G. Garrigos. *Square distance functions are Polyak-Łojasiewicz and vice-versa*. Preprint on arXiv:2301.10332.
- H. Attouch and G. Garrigos. *Multiobjective optimization : an inertial dynamical approach to Pareto optima*. Preprint on arXiv:1506.02823.

Miscellaneous

2019 PEPS grant funded by INSMI (CNRS), 3,5k EUR.

2017 SMAI-MODE Dodu Prize for the best young researcher talk: *Structured sparsity in inverse problems and support recovery with mirror-stratifiable functions*.

Responsibilities

Seminars, Events

2019 Co-organizer of the workshop "*Regularisation for Inverse Problems and Machine Learning*", in Paris

2018 Co-organizer of the session "*Dimensionality reduction tools for learning: A sketchy session*" for the International Symposium on Mathematical Programming (ISMP)

2017 Organizer of the NORIA group meeting at ENS

2017 Co-organizer of the Machine Learning summer school RegML 2017, in Oslo

2015–2017 Organizer of the Machine Learning Tutorials, between the LCSL groups at IIT (Genova) and MIT (Boston)

Editorial Activity

I am reviewing for various journals: SIAM Journal on Optimization, SIAM Journal on Imaging Science, Mathematics of Operations Research, Optimization, Mathematical Methods of Operations Research, Journal of Optimization Theory and Applications, Computational and Applied Mathematics, IEEE Computational Intelligence Magazine.