



Guillaume Garrigos

Curriculum Vitae

Personal information and contact

- 👤 Born in Toulouse (France), May 8th 1989. 30 y.o.
- ✉ Bâtiment Sophie Germain, Université Paris Diderot, 75205 Paris CEDEX 13, France.
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Current position (2018–)

- position **Maître de conférences** at Université Paris Diderot
- affiliation Laboratoire de Probabilités, Statistique et Modélisation (LPSM, UMR 8001)
- research optimization, statistical machine learning, inverse problems, image and signal processing
- interests 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 Hédya Attouch (UM) and Juan Peypouquet (USM)
- committee Hédya 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.

Teaching

- 2019–2020 Optimization, CM-TD-TP, L3, 78h
Optimization for Machine Learning, CM, M2, 36h
Information Theory, TD, M1, 36h
Matrix Numerical Analysis, TD-TP, L3, 42h
- 2018–2019 Optimization, TD, L3, 36h
Information Theory, TD, M1, 36h
Matrix Numerical Analysis, TD-TP, L3, 54h
- 2017 Labs during the machine learning summer school RegML 2017, 8h
- 2014–2015 Linear Algebra, CM-TD, L1, 128h
- 2012–2013 Linear Algebra, CM-TD, L1, 64h

Publications

Publications in international specialized journals.

- G. Garrigos, L. Rosasco and S. Villa. *Iterative regularization via dual diagonal descent*. Journal of Mathematical Imaging and Vision, Vol. 60, No. 2, pp. 1898–215, 2018.
- 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, pp. 874–900, 2015.

Publications in international conferences.

- J. Fadili, G. Garrigos, J. Malick and G. Peyré. *Model Consistency for Learning with Mirror-Stratifiable Regularizers*. AISTATS, 2019. Preprint on arXiv:1803.08381.
- G. Garrigos, L. Rosasco and S. Villa. *Sparse Multiple Kernel Learning: Support Identification via Mirror Stratifiability*. EUSIPCO 2018, pp. 1077–1081, 2018.
- G. Garrigos, L. Rosasco and S. Villa. *Iterative regularization via dual diagonal descent*. 9th NIPS Workshop on Optimization for Machine Learning, 2016.

Preprints.

- G. Garrigos, L. Rosasco and S. Villa. *Thresholding gradient methods in Hilbert spaces: support identification and linear convergence*. Preprint on arXiv:1712.00357.
- G. Garrigos, L. Rosasco and S. Villa. *Convergence of the Forward-Backward algorithm: beyond the worst case with geometry*. Preprint on arXiv:1703.09477.
- H. Attouch and G. Garrigos. *Multiobjective optimization : an inertial dynamical approach to Pareto optima*. Preprint on arXiv:1506.02823.

Miscellaneous

- 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

- 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.

List of given talks

- ICCOPT, Berlin, Germany. 2019 Aug 07.
- Séminaire. Limoges, France. 2019 Jun 21.
- Séminaire LCSL, Genova, Italy. 2019 May 22.
- AISTATS, Okinawa, Japan. 2019 Apr 17.
- Séminaire Parisien de Statistique, IHP, Paris, France. 2019 Feb 18.
- Séminaire. Avignon, France. 2019 Feb 14.
- European Signal Processing Conference (EUSIPCO), Roma, Italia. 2018 Sep 03-07.
- International Symposium on Mathematical Programming, Bordeaux. 2018 May 05.
- SIAM Conference on Imaging Science, Bologna, Italia. 2018 June 05-08.
- Inverse Problems: Modeling and Simulation conference, Malta. 2018 May 21-25.
- Journée Parcimonie et Applications du GdR MIA. IMB, Bordeaux, France. 2018 May 05.
- Séminaire Signal, Statistique et Apprentissage. Telecom, Paris, France. 2018 Apr 16.
- Journées SMAI-MODE. Grenoble, France. 2018 Mar 28-30.
- Séminaire commun de Statistique P6-P7, Paris, 2018 Feb 20.
- Séminaire Images Optimisation et Probabilités, Université de Bordeaux, 2018 Feb 07.
- LCSL Machine Learning Seminar, Università di Genova, Italy, 2018 Jan 29.
- Séminaire du Centre de Vision Numérique, Centrale Supélec, Paris, France. 2018 Jan 23.
- Mathematics and Image Analysis, Humboldt University, Berlin, Germany. 2018 Jan 15-17.
- Dynamics and Algorithms in Convex Optimization, U. de Chile, Santiago. 2017 Dec 14.
- V-Coloquio, Pontifica U. Católica de Valparaíso, Valparaíso, Chile. 2017 Dec 11.
- Séminaire du LJK de Statistique & Probabilités, Grenoble, France. 2017 Dec 07.
- Journées du GDR MOA-MIA, IMB, Bordeaux, France. 2017 Oct 17.
- Optimization 2017, Lisboa, Portugal. 2017 Sep 08.
- Journées Franco-Chiliennes d'Optimisation, IMT, Toulouse, France. 2017 Jul 05.
- Séminaire SIERRA, INRIA, Paris, France. 2017 Feb 14.

- Séminaire Mathématiques de l'apprentissage, IMT, Toulouse, France. 2017 Feb 09.
- Seminario DeMat, Universidad Santa Maria, Valparaiso, Chile. 2016 Dec 19.
- Seminar of Optimization and Equilibrium, CMM, Santiago, Chile. 2016 Dec 14.
- NIPS, Barcelona, Spain. 2016 Dec 10.
- ICCOPT, Tokyo, Japan. 2016 Aug 09.
- Journées SMAI-MODE. Toulouse, France. 2016 Mar 23-25.
- Journées annuelles du GdR MOA, Dijon, France. 2015 Dec 02.
- International Symposium on Mathematical Programming, Pittsburgh, USA. 2014 Jul 14.
- Séminaire SPOC, Université de Bourgogne, Dijon, France. 2015 Mar 04.
- Encuentro anual de la Sociedad Matematica de Chile, Quinamavida, Chile. 2014 Dec 04.
- Seminario DeM, Universidad Santa Maria, Valparaiso, Chile. 2014 Oct 30.
- Franco-Italian Workshop, Sestri-Levante, Italia. 2014 Sep 09.
- Séminaire ACSIOM, Université de Montpellier, Montpellier, France. 2014 Sep 02.
- Journées SMAI-MODE. Rennes, France. 2014 Mar 26-28.
- Centro de Modelamiento Matemático, U. de Chile. Santiago, Chile. 2013 Sep 25.
- Journées annuelles du GdR MOA. Paris, France. 2013 Jun 17-19.