

GUILLAUME GARRIGOS

CURRICULUM VITAE

GENERAL INFORMATION

Personal information and contact

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

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Electronic address : guillaume.garrigos@gmail.com

Postal address : Département de Mathématiques et Applications, École Normale Supérieure
45 Rue d'Ulm, 75005 Paris.

Actual position (2017-)

Post-doc at École Normale Supérieure.

Main collaborator : Gabriel Peyré (ENS, CNRS, INRIA).

Research themes : Inverse problems, signal and image processing, optimization.

Previous position (2015-2017)

Post-doc at the Laboratory for Computational and Statistical Learning, in the Istituto Italiano di Tecnologia.

Main collaborators : Lorenzo Rosasco (IIT, MIT) and Silvia Villa (IIT).

Research themes : Optimization and regularization methods for machine learning.

Doctorate (2012-2015)

Ph.D. student in Fundamental and Applied Mathematics at Université de Montpellier (France) and Universidad Técnica Federico Santa María (Valparaíso, Chile).

Advisors : Hédya Attouch (UM) and Juan Peypouquet (UTFSM).

Dissertation title : *Descent dynamical systems and algorithms for tame optimization and multi-objective problems.*

TEACHING & RESPONSIBILITIES

Teaching

2017 : Labs during the machine learning summer school RegML 2017 (8h).

2013 : Agrégation externe de Mathématiques, ranked 147/323.

2012-2015 : Lectures and study groups in Linear Algebra at Polytech' Montpellier (3×64h).

Responsibilities

2017 : Co-organizer of the session "*Dimensionality reduction tools for learning: A sketchy session*" for the International Symposium on Mathematical Programming (ISMP), to be held in Bordeaux, July 2018.

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).

I am also reviewer 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.

RESEARCH

Main research interests

Convex optimization, inverse problems, image and signal processing, machine learning, algorithms and continuous dynamical systems, tame optimization, multiobjective optimization.

Prize

2018: SMAI-MODE Dodu Prize for the best young researcher talk: *Structured sparsity in inverse problems and support recovery with mirror-stratifiable functions.*

Publications in international specialized journals

- (3) G. Garrigos, L. Rosasco and S. Villa. Iterative regularization via dual diagonal descent. *Journal of Mathematical Imaging and Vision*, doi:10.1007/s10851-017-0754-0, to appear (2017).
- (2) 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.
- (1) 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

- (1) G. Garrigos, L. Rosasco and S. Villa. Iterative regularization via dual diagonal descent. *9th NIPS Workshop on Optimization for Machine Learning* (2016).

Preprints

- (5) J. Fadili, G. Garrigos, J. Malick and G. Peyré. Model Consistency for Learning with Mirror-Stratifiable Regularizers. *Preprint on arXiv:1803.08381*.
- (4) G. Garrigos, L. Rosasco and S. Villa. Sparse Multiple Kernel Learning: Support Identification via Mirror Stratifiability. *Preprint on arXiv:1803.00783*.
- (3) G. Garrigos, L. Rosasco and S. Villa. Thresholding gradient methods in Hilbert spaces: support identification and linear convergence. *Preprint on arXiv:1712.00357*.
- (2) G. Garrigos, L. Rosasco and S. Villa. Convergence of the Forward-Backward algorithm: beyond the worst case with geometry. *Preprint on arXiv:1703.09477*.
- (1) H. Attouch and G. Garrigos. Multiobjective optimization : an inertial dynamical approach to Pareto optima. *Preprint on arXiv:1506.02823*.

Talks

- Journée Parcimonie et Applications du GdR MIA. IMB, Bordeaux, France. 2018 May 05.
- Séminaire Signal, Statistique et Apprentissage. Telecom, Paris, France. 2018 Avr 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, Universita 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 Universidad Catolica de Valparaiso, Valparaiso, 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, Universidad de Chile. Santiago, Chile. 2013 Sep 25.
- Journées annuelles du GdR MOA. Paris, France. 2013 Jun 17-19.