

LUCA BALDASSARRE

PERSONAL DETAILS

Citizenship: Italian

Contact address: Via Felice Romani 10/5, 16122, Genoa, Italy.

Email: baldassarre@disi.unige.it baldazen@gmail.com

Homepage: <http://www.disi.unige.it/person/BaldassarreL>

PROFILE

I am a quick learner, very adaptive to new environments, sociable, with good interpersonal skills and an attitude towards team work. I am able to work determinedly by myself, respecting goals and deadlines, while maintaining an excellent quality of the outcomes of my work. I love tackling challenges and solving interesting problems. I am fluent in English and Italian, in which I can give seminars and lessons and write scientific articles and reports.

RESEARCH INTERESTS

My main interest is computational and machine learning within the framework of statistical learning theory. Learning is widely recognized as the key for understanding human and artificial intelligence. To effectively acquire knowledge it is essential to distill, process and summarize information from data, avoiding memorization. At its core, learning is an inference problem from complex, high-dimensional noisy data and it is tackled by way of statistical, analytical and computational tools. I am interested into the principles that allow us to learn from (possibly few) samples of data and into the algorithms that implement these principles. More specifically, my research interest is focused on understanding and leveraging the similarities between many related learning problems in the context of multi-output functions, kernel methods and convex optimization. Furthermore, I am interested in the empirical assessment of machine learning methods and in developing learning tools for practical applications, such as the iron overload diagnosis tool I devised for a hospital in Genoa, Italy.

Keywords: Machine Learning, Statistical Learning Theory, Regularization and Ill-posed Problems, Spectral Methods, Reproducing Kernels, Multi-Output Learning, Sparsity, Convex Optimization.

EDUCATION & EMPLOYMENT

- 2010 Jan-May postdoctoral fellowship, Computer Science Department (DISI), University of Genoa, Via Dodecaneso 35, 16146, Genoa, Italy.
- 2009 Feb-May visiting student working with Dr. Massimiliano Pontil and Dr. Andreas Argyriou at The Centre for Computational Statistics and Machine Learning of University College London.
- 2007 - 2009 PhD student in the Physics Department (DIFI) and the Computer Science Department (DISI) at the University of Genoa, Via Dodecaneso, 35, 16146, Genoa, Italy. Thesis title: *Multi-Output Learning with Spectral Filters*. Supervisor: Prof. Alessandro Verri.
- 1999 - 2006 Laurea (MSc equivalent) degree in Physics (110/110 cum laude), University of Genoa, Italy. Dissertation title: *Comparison of Statistical Methods and Adaptive Fuzzy Systems for the Analysis and Prediction of Geophysical Time Series*. Supervisors: Prof. Lorenzo Papa, Physics Department (DIFI), Prof. Massimo Riani, Physics Department, (DIFI).
- 1997 - 1999 International Baccalaureate (IB) (42/45), Red Cross Nordic United World College, Norway.

AWARDS

- 2010 The Magnetic Iron Detector (MID) project coordinated by Prof. Mauro Marinelli of the Physics Department (DIFI), University of Genoa, for which I developed the learning module for the estimation of the iron overload received the [InventiOn award](#) in the category *Health and Nutrition*.

PUBLICATIONS

Working papers

1. M. Pontil, A. Maurer, L. Baldassarre, *On Bernstein Bounds for Learning*.

Conference Papers

1. L. Baldassarre, L. Rosasco, A. Barla and A. Verri, *Vector Field Learning via Spectral Filtering*, 2010, ECML.
2. L. Baldassarre, N. Noceti, A. Barla, F. Odone, *Learning how to grasp objects*, 2010, ESANN.
3. N. Noceti, B. Caputo, C. Castellini, L. Baldassarre, A. Barla, L. Rosasco, F. Odone and G. Sandini, *Towards a theoretical framework for learning multi-modal patterns for embodied agents*, 2009, ICIAP
4. L. Baldassarre, A. Barla, B. Gianesin and M. Marinelli, *Vector Valued Regression for Iron Overload Estimation*, 2008, ICPR.

Journal Papers

1. L. Baldassarre, A. Barla, L. Rosasco, A. Verri, *Multi-Output Learning via Spectral Filtering*, (Accepted subject to revision).

Technical Reports

1. L. Baldassarre, *Multi-Output Learning with Spectral Filters*, Ph.D. Thesis, University of Genoa, 2010.
2. L. Baldassarre, L. Rosasco, A. Barla and A. Verri, *Multi-Output Learning via Spectral Filtering*, DISI-TR, 2010.
3. L. Baldassarre, B. Gianesin, A. Barla and M. Marinelli, *A Statistical Learning Approach to Liver Iron Overload Estimation*, DISI-TR, 2008.

TEACHING

- 2009 - 2010 *General Physics I*. Undergraduate Course, Environmental and Civil Engineering Department, University of Genoa (with Prof. Corrado Ratto and Prof. Mario Sannino)
- 2008 *Statistical Learning*, (Laboratory assistant), Master Course, Computer Science Department (DISI), University of Genoa (with Prof. Alessandro Verri)

INVITED SEMINARS

- Apr 2010 Seminar: *Learning how to grasp objects*. European Symposium on Artificial Neural Networks, Bruges.
- Jan 2010 Seminar: *Multi-Output Learning with Spectral Filters*, Physics Department, University of Genoa, Italy.
- Sep 2009 Seminar: *Towards a Theoretical Framework for Learning Multi-Modal Patterns for Embodied Agents*, Genoa Cognitive Sciences (GESCO), Italy.
- Dec 2008 Poster: *Vector Valued Regression for Iron Overload Estimation*, International Conference on Pattern Recognition (ICPR), Tampa, Florida.
- Nov 2008 Seminar: *Feature Selection: an in-depth analysis of two methods*, Physics Department, University of Genoa, Italy.

SKILLS

Excellent *MATLAB* programming skills and good *Mathematica* and C++ programming skills.

Experience on running experiments on a grid of desktop PCs.

REFERRALS

- Prof. Alessandro Verri, Director of the Department of Computer Science, University of Genoa, Via Dodecaneso 35, 16146, Genoa, Italy (verri@disi.unige.it)
- Dr. Massimiliano Pontil, Reader in Machine Learning, Department of Computer Science, University College London, Malet Place, London, WC1E 6BT, UK (m.pontil@cs.ucl.ac.uk)
- Dr. Lorenzo Rosasco, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology & Department of Computer and Information Science, University of Genoa, 46-5177B, 43 Vassar Street, Cambridge, MA 02142 (lrosasco@mit.edu)