

# LUCA BALDASSARRE

Passage François Bocion 4, 1007 Lausanne, Switzerland

+41 789 40 13 48, [luca.baldassarre@epfl.ch](mailto:luca.baldassarre@epfl.ch)

Nationality: Italian

I am enthusiastic about tackling complex challenges. As well as possessing a strong and extensive analytical skill set, I am keen on knowledge acquisition and exhibit good communication and interpersonal skills. My present goal is to leverage all my expertise in order to contribute to the sustainable development of society.

**Key expertise:** machine learning; big data; optimization; compressive sensing; signal processing.

## AWARDS

2010 *Alintec InvenTiON award (Italy):* Magnetic Iron Detector (MID) for which I developed the machine learning module.

## EDUCATION & EMPLOYMENT

- 2012 - current **Postdoc, Laboratory for Information and Inference Systems, EPFL, Switzerland, with Prof. V. Cevher:**
- Conduct research on compressive sensing, machine learning and optimization for large scale datasets;
  - Writing proposal for research grants;
  - Supervise PhD students and interns;
  - Coordinate research across different labs;
  - Responsible for cluster management, improvement and purchase;
  - Teach graduate lectures on convex optimization and machine learning;
  - Help teach and organize undergraduate course "Circuits and Systems I" followed by 150 students.
  - Reviewer for premiere international conferences and journals, such as: NIPS, ICML, AISTATS, Journal of Machine Learning, Trans. on Information Theory, Trans. on Signal Processing, Trans. on Image Processing.
- 2010 Sep - 2012 **Research Associate, Computer Science Department, University College London, with Prof. M. Pontil:**
- Research on machine learning and convex optimization;
  - Coordinate research across different labs within UCL and abroad;
  - Teach graduate lectures on convex optimization and machine learning;
  - Reviewer for premiere international conferences and journals.
- 2010 Jan-May **Postdoctoral fellowship, Computer Science Department, University of Genoa, Italy**
- 2009 Feb-May **Visiting researcher at The Centre for Computational Statistics and Machine Learning of University College London with Prof. Massimiliano Pontil.**
- 2007 - 2010 **PhD student in the Physics and the Computer Science Departments at the University of 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 and Prof. Massimo Riani, DIFI.
- 1997 - 1999 **International Baccalaureate (IB) (42/45), Red Cross Nordic United World College, Norway.**

## TEACHING

- 2013 Co-teacher for the undergraduate course *Circuits and Systems I* attended by more than 150 students at EPFL. Excellent students feedback, score 5.4 out of 6, e.g., "This course is close to perfection".
- 2012 Lectures for the EPFL graduate course *Theory and Methods for Linear Inverse Problems* by Prof. Volkan Cevher.
- 2011 Lectures for the *Advanced Topics in Machine Learning* graduate course, University College London.
- 2009 - 2010 *General Physics I*. (Teaching Assistant). Undergraduate Course, University of Genoa, Italy.
- 2008 *Statistical Learning*. (Laboratory assistant), Master Course, University of Genoa, Italy.

## SELECTED PUBLICATIONS (143 citations, h-index 8)

### 2014

- *Convexity in Source Separation: Models, geometry and algorithms*, M. McCoy, V. Cevher, Q. Tran-Dinh, A. Asaei, L. Baldassarre, Signal Processing Magazine.
- *Model-based sketching and recovery with expanders*, B. Bah, L. Baldassarre, V. Cevher, ACM-SIAM Symposium on Discrete Algorithms.

### 2013

- *To Convexify or Not? Regression with clustering penalties on Graphs*, M. El Halabi, L. Baldassarre, V. Cevher, CAMSAP
- *Group-Sparse Model Selection: Hardness and Relaxations*, L. Baldassarre, B. Nirav, A. Kyrillidis, V. Cevher, submitted to IEEE Transactions on Information Theory.
- *Accelerated and Inexact Forward-Backward Splitting*, S. Villa, S. Salzo, L. Baldassarre, A. Verri, SIAM Journal on Optimization.

### 2012

- *Optimal Computational Trade-Off of Inexact Proximal Methods*, P. Machart, S. Anthoine, L. Baldassarre, NIPS workshop.
- *Conditional mean embeddings as regressors*, S. Grünewälder, G. Lever, L. Baldassarre, S. Patterson, A. Gretton, M. Pontil, ICML.
- *Modeling transition dynamics in MDPs with RKHS embeddings of conditional distributions*, S. Grünewälder, G. Lever, L. Baldassarre, M. Pontil, A. Gretton, ICML.
- *Structured Sparsity Models for Brain Decoding from fMRI data*, L. Baldassarre, J. Mourao-Miranda, M. Pontil, PRNI.
- *A General Framework for Structured Sparsity via Proximal Optimization*, L. Baldassarre, J. Morales, A. Argyriou, M. Pontil, AISTATS.
- *Multi-Output Learning via Spectral Filtering*, L. Baldassarre, A. Barla, L. Rosasco, A. Verri, Machine Learning.

### 2010

- *Vector Field Learning via Spectral Filtering*, L. Baldassarre, L. Rosasco, A. Barla and A. Verri, ECML.
- *Computational Models for Estimating Liver Iron Overload with the Magnetic Iron Detector*, B. Gianesin and L. Baldassarre, Fourth International Conference on Advanced Engineering Computing and Applications in Sciences
- *Learning how to grasp objects*, L. Baldassarre, N. Noceti, A. Barla and F. Odone, ESANN.

## LANGUAGES

- Italian: mother tongue.
- English: full professional oral and written fluency.
- French: basic professional fluency.

## TECHNICAL SKILLS

- Excellent programming skills in MATLAB.
- Basic programming skills in Python and C.
- Fair understanding and experience of running parallel computations on clusters.

## SPORTS

- Mountain biking, rock climbing, mountaineering, ski touring, snowboarding and trail running.
- Swimming and free-diving.

## OTHER ACTIVITIES AND INTERESTS

- Outdoor and street photography, contemporary art and poetry.
- Meditation, mind & consciousness.
- Sustainable living, in particular food.
- Chess.

## PLACES I HAVE LIVED IN:

- Genoa, Italy: 27 years overall
- Red Cross Nordic United World College, Flekke, Norway: 2 years
- London, England: 2 years
- Lausanne, Switzerland: 2 years and counting.

## REFERENCES

- Prof. Volkan Cevher, Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland ([volkan.cevher@epfl.ch](mailto:volkan.cevher@epfl.ch))
- Prof. Massimiliano Pontil, Department of Computer Science, University College London, UK ([m.pontil@cs.ucl.ac.uk](mailto:m.pontil@cs.ucl.ac.uk))
- Prof. Alessandro Verri, Vice-director of the Department of Computer Science, Bioengineering, Robotics and System Engineering, University of Genoa, Italy ([verri@disi.unige.it](mailto:verri@disi.unige.it))