Luca **Saglietti**

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Nationality: Italian - American
Birth: 27/12/1989, Turin, Italy

Employment

Bocconi University, Milan, Italy — Feb 2022 – present
Assistant Professor in the Department of Computing Sciences (DCS)

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland — Oct 2020 – Oct 2021
Postdoctoral Associate in the SPOC laboratory
Group leader: Prof. Lenka Zdeborová

École Normale Supérieure, Paris, France — Sep 2019 – Sep 2020
"Laplace chair" in Data Science, Independent Postdoctoral Fellow

Microsoft Research New England (MSRNE), Cambrigde (MA), USA — Jan 2018 – Jun 2019
Visiting Researcher
Manager: Dr. Jennifer T. Chayes

Education

Politecnico di Torino, Turin, Italy — Apr 2018
PhD in Physics, *magna cum laude*
Thesis: *"Out of Equilibrium Statistical Physics of Learning"*
Supervision: Prof. R. Zecchina

Università degli Studi di Torino, Turin, Italy — Nov 2013
Master's degree in Theoretical Physics, *magna cum laude*
Thesis: *"Time Evolution and Approach to Equilibrium in Integrable Field Theories"*
Supervision: Prof. G. Mussardo, Prof. R. Tateo

Università degli Studi di Torino, Turin, Italy — Jun 2011
Bachelor's degree in Physics, *magna cum laude*

Honors and Fellowships

IOP *trusted reviewer* — Sep 2020
"Laplace Chair" fellowship (1 year), CFM and ENS (competitive pay), Paris — Sep 2019
Fellowship (10 months), Human Genetics Foundation, Turin — Feb 2014
Scholarship (6 months), SISSA, Trieste — Jan 2013
"Optime" award, Regione Piemonte — 2012 and 2014

Research Interests

Statistical Physics, Machine Learning, Deep Learning, Message-Passing, Non-convex Optimization, Computational Neuroscience

Publications

Journal Articles

[1] H. Cui, **L. Saglietti**, L. Zdeborová. *"Large deviations of semisupervised learning in the stochastic block model"*. Physical Review E, 105, 3, March 2022.

[2] F. Gerace, **L. Saglietti**, S.S. Mannelli, A. Saxe, L. Zdeborová. *"Probing transfer learning with a model of synthetic correlated datasets"*. Machine Learning: Science and Technology, Feb 2022.

[3] H. Cui, **L. Saglietti** and L. Zdeborova. *"Large deviations for the perceptron model and consequences for active learning"*. Machine Learning: Science and Technology,2,4, 2021.

[4] C. Baldassi, F. Gerace, A. Ingrosso, **L. Saglietti**, and R. Zecchina. *"From statistical inference to a differential learning rule for stochastic neural networks"*. Interface Focus, Dec 2018.

[5] C. Baldassi, F. Gerace, H.J. Kappen, C. Lucibello, **L. Saglietti**, E. Tartaglione, and R. Zecchina. *"Role of Synaptic Stochasticity in Training Low-Precision Neural Networks"*. Phys. Rev. Lett., Jun 2018.

[6] C. Baldassi, F. Gerace, **L. Saglietti**, R. Zecchina. *"From inverse problems to learning: a Statistical Mechanics approach"*. Journal of Physics: Conference Series 955, 2018.

[7] C. Baldassi, C. Borgs, J. Chayes, A. Ingrosso, C. Lucibello, **L. Saglietti** and R. Zecchina. *"Unreasonable Effectiveness of Learning Neural Networks: From Accessible States and Robust Ensembles to Basic Algorithmic Schemes"*. PNAS, 2016.

[8] C. Baldassi, F. Gerace, C. Lucibello, **L. Saglietti**, and R. Zecchina. *"Learning may need only few bits of synaptic precision"*. PRE, May 2016.

[9] C. Baldassi, A. Ingrosso, C. Lucibello, **L. Saglietti**, and R. Zecchina. *"Local entropy as a measure for sampling solutions in Constraint Satisfaction Problems"*. JSTAT, 2016.

[10] C. Baldassi, A. Ingrosso, C. Lucibello, **L. Saglietti**, and R. Zecchina. *"Subdominant Dense Clusters Allow for Simple Learning and High Computational Performance in Neural Networks with Discrete Synapses"*. Physical Review Letters, Sep 2015.

Conference Proceedings

[11] **L. Saglietti** and L. Zdeborova. *"Solvable Model for Inheriting the Regularization through Knowledge Distillation"*. Arxiv. MSML 2021.

[12] C. Lucibello, **L. Saglietti**, and Yue Lu. *"Generalized Approximate Survey Propagation for High-Dimensional Estimation"*. ICML 2019.

[13] F.P. Casale, A.V. Dalca, **L. Saglietti**, J. Listgarten, N. Fusi. *"Gaussian Process Prior Variational Autoencoders"*. NeurIPS 2018.

Preprints

[14] **L. Saglietti**, S.S. Mannelli, A. Saxe. *"An Analytical Theory of Curriculum Learning in Teacher-Student Networks"*.arXiv preprint arXiv:2106.08068, 2021.

[14] S.S. Mannelli, F. Gerace, N. Rostamzadeh, **L. Saglietti**. *"Inducing bias is simpler than you think"*.arXiv preprint arXiv:2205.15935, 2022.

Working Papers

[15] C. Lucibello, **L. Saglietti**, P. Urbani and L. Zdeborova. *"Efficient message-passing for compressed sensing"*. In preparation.

Thesis

[16] **L. Saglietti**. *"Out of Equilibrium Statistical Physics of Learning"*. Iris, Politecnico di Torino, 2018.

Schools and Conferences

talk	MSML, 2021
	NeurIPS, 2020
invited talk	Youth in High Dimensions, 2020
poster	Physics Workshop, Les Houches, 2020
talk and poster	ICML, Long Beach, 2019
poster	NeurIPS, Montreal, 2018
	INFORMS, Phoenix, 2018
poster	Statistical Physics and Machine Learning Workshop, Cargese, 2018
	Microsoft "TechFest", Redmond, 2018
	"DeepLearn" Summer School, Bilbao, 2017
poster	Spring college, Trieste, 2017
poster	Summer school, Beg Rohu, 2016
talk	XXI Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi, Parma, 2016

Selected Talks

University of Oxford, Department of Experimental Psychology (Jan 2021)
Title: *"Inheriting Regularization through Knowledge Distillation"*

École Polytechnique Fédérale de Lausanne, SPOC, IDEPHICS, PCSL Nov 2020
Title: *"Inheriting Regularization through Knowledge Distillation"*

Berkeley University, Simon's Institute Oct 2020
Title: *"Catching Solutions in the Random Binary Perceptron"*

Youth in High Dimensions, Online conference Jul 2020
Title: *"Investigating the limits of active learning in the Perceptron model"*

École Normale Supérieure, Laboratoire de Physique Jan 2020
Title: *"Mean-field Approximations and Graph Neural Networks"*

École Normale Supérieure, Laboratoire de Physique Oct 2019
Title: *"MAP Estimation via Message-Passing"*

ICML 2019, Conference Jun 2019
Title: *"Generalized Approximate Survey Propagation for High-dimensional Estimation"*

Microsoft Research New England, Whiteboard talks series Mar 2018
Title: *"Local Entropy and the Robust Ensemble"*

Academic Experience

Teaching

Course director, Bachelor: Mathematical and Computing Sciences for Artificial Intelligence (BAI), Bocconi, Milan (2022)
Course: *"Foundations of Physics I"*

Instructor, Bachelor: Mathematical and Computing Sciences for Artificial Intelligence (BAI), Bocconi, Milan (2022)
Course: *"Mathematical Modelling in Machine Learning"*

Instructor, Bachelor of Science in Economics, Management and Computer Science (BEMACS), Bocconi, Milan (2022)
Course: *"Machine Learning"*

Teaching Assistant, doctoral course, EPFL, Lausanne (2021)
Course: *"Statistical Physics Methods for Learning"*

Teaching Assistant, undergraduate course, Bocconi, Milan 2017
Course: *"Fundamentals of Computer Science"*

Supervision

Co-supervision (Prof. L. Zdeborová), Hugo Cui, Master thesis, ENS 2019 – 2020
Project: *"Large Deviations in Active Learning Problems"*
Publications: [3]

Co-mentoring (Prof. R. Zecchina), Federica Gerace, PhD, Politecnico di Torino 2016 – 2017
Project: *"Inference and Learning in Asymmetric Recurrent Neural Networks"*
Publications: [4,6]

Referee and Reviewer

Ellis PhD program, Evaluator 2020

ICLR 2021	NeurIPS 2020 Workshops	NeurIPS 2020
ICML 2019	NeurIPS 2018	
Physical Review Letters	Physical Reviews E	Physical Reviews B
Journal of Physics A	JSTAT	Physical Review
Reviews of Modern Physics		

Seminars Organization

Laplace Reading Group, ENS, France 2019 – 2020
Data Science Colloquium, ENS, France 2019 – 2020

Technical Skills

Programming	Python, Julia, C++, MATLAB, Mathematica, Git, Bash, LaTeX
Environments	Linux (proficient), Windows (familiar)

Languages

Italian (mother tongue) English (fluent C2) French (intermediate B1)

Personal Interests

Music **Conservatory Diploma in Trumpet**, Turin, 2006 (bachelor's degree)

Professional collaborations with: *Teatro Regio*, *Stefano Tempia* Orchestra, *Piedmont Philarmonic* Orchestra, Harvard *Dudley* Orchestra, MIT *IAP* Orchestra, *COGE* Orchestra and other symphonic and chamber music ensembles

Private music lessons

References

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