Francesca Mastrogiuseppe

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Webpage – **Google Scholar** – **Github**

EDUCATION

PhD in Theoretical Neuroscience — 2017
École Normale Supérieure, Paris

Master in Theoretical Physics of Complex Systems, double degree: — 2014
- Politecnico di Torino, SISSA and ICTP Trieste, result: 110/110 *cum laude*
- Universités Paris 6, 7, 11, École Normale Supérieure Saclay, mention: *très bien*

Bachelor in Physics — 2012
University of Bologna, result: 110/110 *cum laude*

RESEARCH

Post-doctoral fellow — 2018 - present
Gatsby Computational Neuroscience Unit, University College London
(advisor: P. Latham)

PhD research student — 2014 - 2018
Group for Neural Theory, École Normale Supérieure, Paris
(advisor: S. Ostojic, V. Hakim)

Master research student — 2014
Unité Physico-Chemie, Institut Curie, Paris
(advisors: H. Isambert, R. Zecchina)

INTENSIVE COURSES

- Cajal Course in Computational Neuroscience (Lisbon) — 2016
- Methods in Computational Neuroscience (Woods Hole) — 2015
- Physics of Complex Systems Spring School (Trieste) — 2014

INVITED TALKS

Seminar at SISSA Data Science (Trieste) — 2021
Simons-Emory workshop on Computations through Dynamics (Atlanta) — 2020
Physics of the Brain workshop (York) — 2020
Seminar at Saxe Lab Meeting (Oxford) — 2020
Workshop of Bernstein Conference (Berlin) — 2020
Seminar at IDIBAPS (Barcelona) — 2020
Columbia Grossman Center Workshop (Aspen) — 2019
Workshop of Bernstein Conference (Berlin) — 2019

Workshop of Cosyne Conference (Lisbon) 2019
Workshop of Bernstein Conference (Berlin) 2018
INSPIRE Neural Dynamics workshop (Cergy) 2018
Mean-field approaches for neural networks workshop, EITN (Paris) 2018
Seminar at EPFL (Lausanne) 2017

CONTRIBUTED TALKS

Gatsby tri-center meeting (London) 2019
International Conference of Mathematical Neuroscience (Boulder) 2017
Cosyne Conference (Salt Lake City) - top 5% submission 2017

POSTER PRESENTATIONS

Cosyne Conference (Denver) 2020
Neural Coding, Computation and Dynamics (Capbreton) 2019
Neural networks: from brains to machines (Paris) 2018
Bernstein Conference (Berlin) 2018
Cosyne Conference (Denver) 2018
Cosyne Conference (Salt Lake City) 2016
Neural Coding, Computation and Dynamics (Bilbao) 2015

PUBLICATIONS

L. Susman*, F. Mastrogiuseppe*, N. Brenner and O. Barak, *"Quality of internal representation shapes learning performance in feedback neural networks"*, arXiv:2011.06066, under review (2020)

F. Schuessler, F. Mastrogiuseppe, A. Dubreuil, S. Ostojic and O. Barak, *"The interplay between randomness and structure during learning in RNNs"*, NeurIPS (2020) - top 1% submission, selected for oral presentation

M. Beiran, A. Dubreuil, A. Valente, F. Mastrogiuseppe and S. Ostojic, *"Shaping dynamics with multiple populations in low-rank recurrent networks"*, accepted at Neural Computation (2020)

A. Dubreuil, A. Valente, M. Beiran, F. Mastrogiuseppe and S. Ostojic, *"Complementary roles of dimensionality and population structure in neural computations"*, arXiv:2007.02062, under review (2020)

F. Schuessler, A. Dubreuil, F. Mastrogiuseppe, S. Ostojic and O. Barak, *"Dynamics of random recurrent networks with correlated low-rank structure"*, Physical Review Research 2(1) 013111 (2020) - editor's choice

A. Dubreuil, A. Valente, F. Mastrogiuseppe and S. Ostojic, *"Disentangling the roles of dimensionality and cell classes in neural computations"*, NeurIPS workshop Real Neurons and Hidden Units (2019)

F. Mastrogiuseppe and S. Ostojic, *"A geometrical description of global dynamics in trained networks"*, Neural Computation 31(6) 1139-1182 (2019)

F. Mastrogiuseppe and S. Ostojic, *"Linking connectivity, dynamics and computations in low-rank recurrent neural networks"*, Neuron 99(3) 609 - 623 (2018)

F. Mastrogiuseppe and S. Ostojic, *"Intrinsically generated fluctuations in excitatory-inhibitory networks"*, PLOS Computational Biology 13(4) e1005498 (2017) - top 10% most cited papers

* = equal contribution, listed in random order

TEACHING

- Cosyne Conference Tutorial, teaching assistant 2021
- Theoretical Neuroscience course, guest lecturer 2020
(Graduate program, Gatsby Computational Neuroscience Unit)
- Advanced Theoretical Neuroscience course, teaching assistant 2018
(Master of Cognitive Science, École Normale Supérieure Paris)
- Theoretical Modelling practical course, lecturer 2017
- Theoretical Modelling practical course, lecturer 2016
- Theoretical Modelling practical course, lecturer 2015
(Master of Cognitive Science, École Normale Supérieure Paris)

MENTORING

Supervisor of two undergraduate students from PSL and Sorbonne University 2016-2018
Supervisor of a graduate student from École de Neurosciences de Paris 2016

OUTREACH

Guest scientist for the Computational Neuroscience course 2021
(Master in Psycology and Computer Science, Goldsmiths University of London)

PROFESSIONAL SERVICE

- Reviewer for PLOS Computational Biology, Physical Review X, Physical Review E, Cosyne Conference (2019 - 2020 - 2021)
- Organiser of Gatsby Unit External Seminar Series 2020
- Organiser of Gatsby Unit Theoretical Neuroscience Journal Club 2019-2020
- Member of the Faculty Search committee for Theoretical Neuroscience at Gatsby Unit 2019
- Member of SWC/Gatsby self-assessment committee for Athena SWAN equality award 2020

AWARDS AND GRANTS

Travel grant: International Conference of Mathematical Neuroscience 2017
Travel grant: Cosyne Conference 2016
Travel grant: Neural Coding, Computation and Dynamics 2015
Travel grant: Marine Biological Laboratory, Woods Hole 2015
PhD scolarship from the École Doctorale Physique en Ile de France 2014
Merit scholariship from Université Paris Saclay 2013
Merit award from University of Bologna for best ranked students 2012

Merit award from Ministry of Education for best ranked high-school students 2009

TECHNICAL STRENGTHS

Programming	C/C++, Python, R, MATLAB, Fortran, Mathematica, LaTeX
Languages	Italian (native), English (fluent), French (fluent)