Born March 9th 1996,
Bristol (United Kingdom)

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Stéphane d'Ascoli

EDUCATION

2019 –   **Ph.D. in Theoretical Physics / Artificial Intelligence, supervised by G. Biroli / Levent Sagun**
Laboratoire de Physique de l'ENS / Facebook Artificial Intelligence Research, Paris
Theory of deep learning from a theoretical physics point of view

2018 – 2019   **Pre-Ph.D. in Theoretical Physics / Artificial Intelligence, supervised by G. Biroli**
Laboratoire de Physique de l'ENS, Paris
Member of the Simons Collaboration on Cracking the Glass Problem
Theory of deep learning from a theoretical physics point of view

2016 – 2018   **Master's degree in Theoretical Physics**
ENS Ulm, Paris
Obtained with first class honours (average grade : 16.48/20)

2015 – 2016   **Bachelor's degree in Fundamental Physics**
ENS Ulm, Paris
Obtained with first class honours (average grade : 17.00/20)

2015   **Entered the École Normale Supérieure (ENS)**
ENS Ulm, Paris
Ranked 6th nationwide, accepted in all other top French schools including École Polytechnique

2013 – 2015   **"Classe Préparatoire aux Grandes Écoles"**
Lycée Thiers, Marseille
Intensive two-year undergraduate course in Mathematics, Physics and Chemistry, in preparation for the nationwide competitive entrance exams for the top French schools

2013   **Science Baccalaureate, specialized in maths**
Lycée Sainte-Marie, Aubagne
Obtained with first class honours (average grade : 19.63/20)

Experience

Apr – Aug 2019	**Machine learning research internship, supervised by M. Lelarge and A. Coucke**
	Inria and Snips, Paris
	Variational Auto-Encoders for Text Generation
	GitHub repository open-sourced at *github.com/snipsco/automatic-data-generation*
Apr – Jul 2018	**Research internship, supervised by G. Biroli**,
	ENS Ulm, Paris / *CEA*, Saclay
	Member of the Simons Collaboration on Cracking the Glass Problem
	Loss landscape of deep neural networks
Feb – Jul 2017	**Research internship, supervised by S. Noble and M. Campanelli**,
	NASA Goddard Space Flight Center, Greenbelt, Maryland / *Center for Computational Relativity and Gravitation*, Rochester, New York
	Electromagnetic counterparts to gravitational waves in supermassive binary black hole mergers
Jun – Jul 2016	**Research internship, supervised by C. Schimd**
	Laboratoire d'Astrophysique de Marseille, Marseille
	Cosmological simulations for the spectro-imager BATMAN

Publications

Peer-reviewed :

— Stéphane d'Ascoli, Scott C Noble, Dennis B Bowen, Manuela Campanelli, Julian H Krolik, and Vassilios Mewes. Electromagnetic emission from supermassive binary black holes approaching merger. *The Astrophysical Journal*, 865(2) :140, 2018

— Mario Geiger, Stefano Spigler, Stéphane d'Ascoli, Levent Sagun, Marco Baity-Jesi, Giulio Biroli, and Matthieu Wyart. Jamming transition as a paradigm to understand the loss landscape of deep neural networks. *Physical Review E*, 100(1) :012115, 2019

— S Spigler, M Geiger, S d'Ascoli, L Sagun, G Biroli, and M Wyart. A jamming transition from under-to over-parametrization affects generalization in deep learning. *Journal of Physics A : Mathematical and Theoretical*, 52(47) :474001, 2019

— Mario Geiger, Arthur Jacot, Stefano Spigler, Franck Gabriel, Levent Sagun, Stéphane d'Ascoli, Giulio Biroli, Clément Hongler, and Matthieu Wyart. Scaling description of generalization with number of parameters in deep learning. *Journal of Statistical Mechanics : Theory and Experiment*, 2020(2) :023401, 2020

— Stéphane d'Ascoli, Levent Sagun, Giulio Biroli, and Joan Bruna. Finding the needle in the haystack with convolutions : on the benefits of architectural bias. In *Advances in Neural Information Processing Systems*, pages 9330–9340, 2019

— Stéphane d'Ascoli, Maria Refinetti, Giulio Biroli, and Florent Krzakala. Double trouble in double descent : Bias and variance (s) in the lazy regime. In *International Conference on Machine Learning*, pages 9210–9220, 2020

— Stéphane d'Ascoli, Alice Coucke, Francesco Caltagirone, Alexandre Caulier, and Marc Lelarge. Conditioned text generation with transfer for closed-domain dialogue systems. In *International Conference on Statistical Language and Speech Processing*, pages 23–34. Springer, 2020

Preprints :

— Stéphane d'Ascoli, Levent Sagun, and Giulio Biroli. Triple descent and the two kinds of overfitting : Where & why do they appear ? *arXiv preprint arXiv :2006.03509*, 2020
Accepted at NeurIPS 2020

Books :

— Stéphane d'Ascoli. *Comprendre la révolution de l'intelligence artificielle.* First, 2020
— Stéphane d'Ascoli. *L'Intelligence Artificielle en 5 minutes par jour.* First, 2020
— Stéphane d'Ascoli and Arthur Touati. *Voyage au coeur de l'espace-temps.* First, 2021

TEACHING

Fall-Winter 2019	**Deep Learning M1 Course**
	ENS Ulm, Paris
	Teacher assistant of Marc Lelarge for the graduate course on theory and applications of deep learning
Sep 2017 – Sep 2019	**"Classe Préparatoire aux Grandes Écoles" examiner**
	Lycée Henri-IV, Lycée Saint-Louis, and Lycée Michelet, Paris
	Oral examinations in Physics given on a weekly basis to undergraduate students

TALKS

Dec 2020	**Triple descent in deep learning**
	Online
	Spotlight at NeurIPS 2020
Nov 2020	**On Double and Triple descent in deep learning**
	Online
	Contributed talk at DeepMath 2020
Aug 2020	**On Double and Triple descent in deep learning**
	Ecole de Physique des Houches, Les Houches
	Contributed talk at Summer School on Statistical Physics and Machine Learning
Jul 2020	**Bias and Variances in deep learning**
	Online
	Poster at ICML 2020
May 2020	**Reconciling double descent with older ideas**
	Abdus Salam International Centre for Theoretical Physics, Trieste
	Contributed talk at the Youth in High-dimensions Conference
Dec 2019	**Architectural priors in deep learning**
	Exhibition Centre, Vancouver
	Poster at NeurIPS 2019

Jul 2019	**Architectural priors in deep learning**
	Istanbul Center for Mathematical Sciences, Istanbul
	Contributed talk at the Theoretical Advances in Deep Learning Workshop
Jun 2019	**Generative models in deep learning**
	Université Pierre et Marie Curie, Paris
	Lecture at the Inria Summer School on Deep Learning

▬ REVIEWING DUTIES

— Information and Inference : a journal of the IMA
— Nature Communications

▬ SKILLS

Languages	French : fluent	*Father's first language*
	English : fluent	*Mother's first language*
	German : proficient	*Attended school near Stuttgart*
Programming	Python, C/C++, Matlab, Mathematica...	
	Familiar with Unix systems and multiprocessing	
	Solid knowledge of machine learning algorithms (sklearn, keras, pytorch...)	
Driving	Current full European driving licence	

▬ INTERESTS

Music	Clarinet :	
	∗ 2019 : Second prize, Amiens Clarinet Competition	
	∗ 2017-present : Solo clarinet at the "Philharmonie du COGE"	
	∗ 2014 : "Diplôme d'Etudes Musicales" (Toulon Conservatoire)	
	∗ 2012 : First prize, Hyères Clarinet Competition	
Sport	Tennis, squash, badminton, cycling, climbing, swimming, surf, snowboard...	
Outreach	Published two general public books on Artificial Intelligence	
Other	Economics, neuroscience, philosophy, musicology	*Courses followed at ENS*
	Cinema, painting, pottery, theatre...	