Ludovic Stephan

ludovic.stephan@epfl.ch
www.lstephan.fr

Employment

2021– **Post-doc**, Information, Learning and Physics (IdePHICS) Team, EPFL, Lausanne, Switzerland
Advisor: Florent Krzakala

Education

2018–2021 **Applied Mathematics and Computer Science Thesis**, *PhD*, Inria Paris – DYOGENE Team, DI ENS, Sorbonne Université, Paris, France
Topic : Inference in random graphs and the stochastic block model.
PhD advisor : Laurent Massoulié.

2017–2018 **Master's Degree in Probability and Statistics**, *M2*, Paris-Saclay University, Orsay, France
Specialized in Statistics and Machine Learning. First class honours.

2014–2015 **Bachelor's Degree in Mathematics**, *L3*, École Normale Supérieure, Paris, France

2014–2015 **Bachelor's Degree in Computer Science**, *L3*, École Normale Supérieure, Paris, France

Teaching Experience

2018–2021 **Teaching assistant on « Network Models and Algorithms » course**, École Normale Supérieure, Paris, France
Master's degree course taught by Ana Busic.

2014–2019 **Association TALENS**, École Normale Supérieure, Paris, France
Taught mathematics courses for high school students from underprivileged areas.

Talks

2023 **LMO Probability seminar**, Orsay, France

2022 **UCSD Probability seminar**, San Diego, USA

2022 **UCI Probability seminar**, Irvine, USA

2022 **Foundations of Computer Science (FOCS)**, Denver, USA

2021 **SPOC seminar**, EPFL, Lausanne, Switzerland

2020 **DYOGENE working group on random graphs**, Inria, Paris, France

2019 **Networking Days**, Paris-Saclay University, Paris, France

2019 **Conference on Learning Theory (COLT)**, Phoenix, USA

2019 **DYOGENE seminar**, Inria, Paris, France

2018 **Networking Days**, Paris-Saclay University, Paris, France

2017 **Combinatorics seminar**, IMPA, Rio de Janeiro, Brazil

Seminars and visits

2023 **Young European Probabilists**, Eindhoven, Netherlands

2023 **Towards a theory of artificial and biological neural networks**, Les Houches, France

2022 **Summer school on Statistical Physics & Machine learning**, Les Houches, France

2022 **Youth in High-Dimensions: Recent Progress in Machine Learning, High-Dimensional Statistics and Inference**, SISSA, Trieste, Italy

2021 **On Future Synergies for Stochastic and Learning Algorithms**, CIRM, Marseille, France

2020 **Spectra, Algorithms and Random Walks on Random Networks**, CIRM, Marseille, France

2019 **ALEA Days 2019**, CIRM, Marseille, France

2018 **4-month research internship**, Inria Paris – DYOGENE Team, Paris, France
Topic : Robustness of spectral methods in community detection.
Supervised by Laurent Massoulié.

2015 **2-month research internship**, Inria Rennes, Rennes, France
Topic : Fast Fourier Transform in graph signal processing
Supervised by Rémi Gribonval and Nancy Bertin.

Publications

A non-backtracking method for long matrix completion, *With Y.Zhu*, Preprint

Universality laws for Gaussian mixtures in generalized linear models, *With Y.Dandi, F.Krzalala, B.Loureiro and L.Zderobová*, Preprint

Are Gaussian data all you need? Extents and limits of universality in high-dimensional generalized linear estimation, *With L. Pesce, F.Krzakala and B.Loureiro*, Preprint

From high-dimensional & mean-field dynamics to dimensionless ODEs: A unifying approach to SGD in two-layers networks, *With L. Arnaboldi, F. Krzakala and B. Loureiro*, Preprint

Gaussian Universality of Linear Classifiers with Random Labels in High-Dimension, *With F. Gerace, F. Krzakala, B. Loureiro and L. Zdeborova*, Preprint

Sparse random hypergraphs: Non-backtracking spectra and community detection, *With Y. Zhu*, FOCS 2022

Phase diagram of Stochastic Gradient Descent in high-dimensional two-layer neural networks, *With R. Veiga, B. Loureiro, F. Krzakala and L. Zdeborová*, NeurIPS 2022

A simpler spectral approach for clustering in directed networks, *With S. Coste*, Preprint

Non-backtracking spectra of weighted inhomogeneous random graphs, *With L. Massoulié*, To appear in Mathematical Statistics and Learning

Planting trees in graphs, and finding them back, *With L. Massoulié and D. Towsley*, COLT 2019

Robustness of spectral methods for community detection, *With L. Massoulié*, COLT 2019

Reviewing

Journals	SIAM Journal on Mathematics of Data Science, Random Structures and Algorithms, IEEE Transactions on Signal and Information Processing over Networks, IEEE Transactions on Information Theory
Conferences	NeurIPS, ICML, ICLR