

STÉPHANE D'ASCOLI

Ph.D. student

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EXPERIENCE

Ph.D. student & Teacher Assistant

École Normale Supérieure (ENS) & Facebook AI Research (FAIR)

Sep 2018 – Present

Paris

My research focuses on understanding and improving neural networks, from toy models to realistic architectures.

Teacher assistant of Prof. Marc Lelarge for graduate courses on deep learning at ENS.

AI research intern

Snips.ai

Feb 2020 – Aug 2020

Paris

Developed an AI software to generate text for data-privacy concerned speakers.

Visiting scholar

Center for Computational Relativity and Gravitation

Feb 2017 – Aug 2017

Rochester, NY

Produced the first simulation of the image of a binary black hole in collaboration with NASA. News feature in many newspapers (*Daily Mail*, *L'Obs*, *Science & Vie...*).

INTERESTS

Science outreach

Wrote three science books (two on artificial intelligence and one on astrophysics), all published by First Editions.

Spoke on radio and TV (France Bleu, France Culture, France Info, ...).

Music

Obtained a final Conservatoire diploma in clarinet, and earned several prizes in international clarinet competitions. Performed in solo, chamber music and orchestra concerts. See my YouTube channel for some videos. Managed an orchestra for a year.

EDUCATION

M.Sc. in Theoretical Physics

École Normale Supérieure, Paris

Sep 2016 – Sep 2018

First class honours (average grade: 16.48/20).

B.Sc. in Physics

École Normale Supérieure, Paris

Sep 2015 – Sep 2016

First class honours (average grade: 17.00/20).

“Classe préparatoire”

Lycée Thiers, Marseille

Sep 2013 – Sep 2015

Entered ENS Paris (ranked 6th nationwide). Prior to this, obtained a scientific baccalauréate (average grade: 19.63/20).

SKILLS

Music: Clarinet Piano Trumpet

Sports: Running Cycling Swimming

Tennis Squash Skiing Hiking

Other: Programming Driving license

LANGUAGES

English ●●●●●

French ●●●●●

German ●●●●●

Spanish ●●●●●

PUBLICATIONS

Books

- d'Ascoli, Stéphane, & Touati, A. (2021). *Voyage au coeur de l'espace-temps*. **First**.
 - d'Ascoli, Stéphane. (2020a). *Comprendre la révolution de l'intelligence artificielle*. **First**.
 - d'Ascoli, Stéphane. (2020b). *L'intelligence artificielle en 5 minutes par jour*. **First**.
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Journal Articles

- Geiger, M., Jacot, A., Spigler, S., Gabriel, F., Sagun, L., d'Ascoli, Stéphane, ... Wyart, M. (2020). Scaling description of generalization with number of parameters in deep learning. *Journal of Statistical Mechanics: Theory and Experiment*.
 - Geiger, M., Spigler, S., d'Ascoli, Stéphane, Sagun, L., Baity-Jesi, M., Biroli, G., & Wyart, M. (2019). Jamming transition as a paradigm to understand the loss landscape of deep neural networks. *Physical Review E*.
 - Spigler, S., Geiger, M., d'Ascoli, Stéphane, Sagun, L., Biroli, G., & Wyart, M. (2019). A jamming transition from under-to over-parametrization affects generalization in deep learning. *Journal of Physics A: Mathematical and Theoretical*.
 - d'Ascoli, Stéphane, Noble, S. C., Bowen, D. B., Campanelli, M., Krolik, J. H., & Mewes, V. (2018). Electromagnetic emission from supermassive binary black holes approaching merger. *The Astrophysical Journal*.
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Conference Proceedings

- d'Ascoli, Stéphane, Touvron, H., Leavitt, M., Morcos, A., Biroli, G., & Sagun, L. (2021). Convit: Improving vision transformers with soft convolutional inductive biases. In *ICML*.
 - d'Ascoli, Stéphane, Coucke, A., Caltagirone, F., Caulier, A., & Lelarge, M. (2020). Conditioned text generation with transfer for closed-domain dialogue systems. In *SLSP*.
 - d'Ascoli, Stéphane, Refinetti, M., Biroli, G., & Krzakala, F. (2020). Double trouble in double descent: Bias and variance (s) in the lazy regime. In *ICML*.
 - d'Ascoli, Stéphane, Refinetti, M., Ohana, R., & Goldt, S. (2020). The dynamics of learning with feedback alignment. In *ICML*.
 - d'Ascoli, Stéphane, Sagun, L., & Biroli, G. (2020). Triple descent and the two kinds of overfitting: Where and why do they appear? In *NeurIPS (Spotlight)*.
 - d'Ascoli, Stéphane, Sagun, L., Biroli, G., & Bruna, J. (2019). Finding the needle in the haystack with convolutions: On the benefits of architectural bias. In *NeurIPS*.
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Preprints

- d'Ascoli, Stéphane, Gabrié, M., Sagun, L., & Biroli, G. (2021). More data or more parameters? investigating the effect of data structure on generalization.
- d'Ascoli, Stéphane, Sagun, L., Biroli, G., & Morcos, A. (2021). Transformed cnns: Recasting pre-trained convolutional layers with self-attention.

COMMUNITY

Organizer of the Data Science seminar at ENS Paris .

Reviewer for:

- **Journals:** Nature Communications, Information and Inference: a journal of the IMA, Journal of Physics A, IEEE Transactions.
- **Conferences:** ICML, NeurIPS, ICLR.