Thomas Mesnard

Graduated Student in Applied Mathematics and Machine Learning from École Normale Supérieure

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Homepage

Education

2015 – 2016 **École Normale Supérieure**, *in partnership with École Polytechnique*, Paris, France.
MSc in Applied Mathematics, Machine Learning, Computer Vision (a.k.a Master MVA).
Supervisor: Francis Bach. Completed summa cum laude.

2013 – 2016 **École Normale Supérieure**, Paris, France.
MSc in General Science, Majoring in Neuroinformatics (Cogmaster).

2011 – 2013 **Lycée René Cassin**, *"Classes préparatoires PC*"*, Bayonne, France.
Two-year program in Mathematics and Physics for competitive entrance to top French engineering schools. Completed summa cum laude.

Work Experience

2016 **EPFL**, *Research Intern*, Switzerland. Supervisors:**Wulfram Gerstner**, **Johanni Brea**.
4 months
- Exploring deep learning techniques with spiking neurons in energy based models
- Investigating backpropagation with random feedback weights in deep neural networks

2016 Participating to a Kaggle Competition organized by Allen Institute AI

2015 **Montreal Institute of Learning Algorithms**, *Research Intern*, Montreal, Canada.
5 months Supervisor: **Yoshua Bengio**.
- Focusing on new biologically plausible deep learning algorithms
- Exploring new versions of RNNs/Clockwork RNNs using LSTM and GRU
- Attended Deep Learning class by Aaron Courville

2014 **Institut Curie**, *Research Intern*, Paris, France. Supervisor: **Filippo Del Bene**.
2 months
- ZebraFish visual system mapping using data-analysis and machine learning

Publications

[1] Yoshua Bengio, **Thomas Mesnard**, Asja Fischer, Saizheng Zhang, and Yuhai Wu. "STDP as presynaptic activity times rate of change of postsynaptic activity approximates back-propagation". In: *Neural computation* 29.1 (2017).

[2] **Thomas Mesnard**, Wulfram Gerstner, and Johanni Brea. "Towards deep learning with spiking neurons in energy based models with contrastive Hebbian plasticity". In: *Proceedings of the 29th Neural Information Processing Systems*. Computing with Spikes Workshop. 2016.

[3] Yoshua Bengio, Asja Fischer, **Thomas Mesnard**, and Yuhai Wu. "From STDP towards Biologically Plausible Deep Learning". In: *Proceedings of the 32th international conference on Machine learning*. Deep Learning Workshop. 2015.

[4] Yoshua Bengio, Dong-Hyun Lee, Jorg Bornschein, **Thomas Mesnard**, and Zhouhan Lin. "Towards biologically plausible deep learning". In: *arXiv preprint:1502.04156v3* (2015).

Computer Skills and Languages

IT Skills
- General: Python, Julia, Matlab, Octave, Git, Unix, LaTeX
- Deep Learning: Theano, Torch, Tensorflow
- Machine Learning: Numpy, Scikit-learn

Languages
- French — Native
- English — Fluent
- Spanish — Intermediate

Teaching and Academic Awards

2015 **École Normale Supérieure**, Paris, France.
Talk about Deep Learning

2014 **Louis Le Grand and Stanislas High Schools**, Paris, France.
Delivered lectures during the National Olympiad

2014 **Saint Louis High School**, Paris, France.
Examiner in "Classes Préparatoires" for nationwide competitive entrance to top French engineering schools

2013 – 2014 **École Normale Supérieure**, Paris, France.
Delivered lectures during the International Olympiad

2012 Selected for the French final of the International Olympiad, 3^{rd} out of 310

2011 Selected for the final of the National Olympiad, 21^{st} out of 2,000

Interests and Activities

Music
- Cello, 12 years

Arts
- Performed concerts alone or in an orchestra
- Photography, 8 years

Sports
- Athletics
- Surf
- Trekking

Travel
- Many road trips around Asia, America, Africa, Europe