Vivien Cabannes

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Throughout my schooling, I have developed a strong interest in the rigorous knowledge offered by science, as well as its real-world applications. I find motivation in learning, collaborating with bright individuals, and tackling complex challenges. Currently, I am interested in understanding and improving large-scale neural networks, notably through the lens of associative memory.

Curriculum

09/2022-Current	**Meta AI**, Postdoctoral Researcher, New York Deep learning theory, active and self-supervised learning. Advisor: *Léon Bottou*.
09/2019-08/2022	**Ph.D. in Machine Learning**, INRIA & ENS Paris Statistical aspects of weakly supervised learning. Advisors: *Francis Bach*, *Alessandro Rudi.*
06/2019-08/2019 01/2018-08/2018	**Quantitative Research Intern**, Cubist Systematic Strategies, New York Portfolio Manager: *Cyril Deremble*. Permanent Return Offer.
09/2014-08/2019	**Ecole Normale Supérieure**, Graduate Student in Mathematics M.S. in Applied Mathematics (MVA, 2017) with highest honors (top 2%). B.S. in Mathematics (2015), B.S. in Computer Science (2015). Internships at Inria (2019, 2015), Point72 (2018), Duke (2017) and UCSD (2016).
09/2012-08/2014	**Classes Préparatoires**, Paris, France

Extra Curricular

CODE PACKAGES :	klap; mepf; loan; time-monitoring.
REVIEWING :	ICML, NeurIPS, ICLR, JMLR, ACHA, SIMODS, ACM Comput. Surv., Mach. Learn.
PAST ACTIVITIES :	Refugees & social monitoring, student representative, oral examiner in prépa (maths & physics), board member of the *Cercle du Comitium*, think tank analyst for *Le Grand Continent*, district youth board member, scouting.

Selected Publications

Learning Theory through Associative Memories

V.C., C. ARNAL, W. BOUAZIZ, A. YANG, F. CHARTON, and J. KEMPE (2024). Iteration Head: A Mechanistic Study of Chain-of-Thought. *Preprint*.

V.C., B. ŞIMŞEK and A. BIETTI (2024). Learning associative memories with gradient descent. *ICML*.

V.C., E. DOHMATOB, and A. BIETTI (2024). Scaling laws for associative memory. *ICLR (Spotlight)*.

A. BIETTI, **V.C.**, D. BOUCHACOURT, H. JEGOU, and L. BOTTOU (2023). Birth of a transformer: a memory viewpoint. *NeurIPS (Spotlight)*.

Other Recent Publications

C. ARNAL*, **V.C.*** and V. PERCHET (2024). Mode estimation with partial feedback. *COLT*.

V.C. and F. BACH (2024). The Galerkin method beats graph-based approaches for spectral algorithms. *AISTATS*.

V.C. and C. ARNAL (2024). Touring sampling with pushforward maps. *ICASSP (Best Industry Paper Award)*.

V.C. and S. VIGOGNA (2023). How many samples are needed to leverage smoothness? *NeurIPS*.

V.C. and S. VIGOGNA (2023). A case of exponential convergence rates for SVM. *AISTATS*.

V.C., L. BOTTOU, Y. LECUN and R. BALESTRIERO (2023). Active self-supervised learning: a few low-cost relationships are all you need. *ICCV*. *Large scale follow-up in preparation*.