

Emile MATHIEU

PERSONAL DATA

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RESEARCH INTERESTS

My current research centres around deep probabilistic machine learning, geometry and invariance.

WORK EXPERIENCE

SINCE SEPT 2021	EPSRC Postdoctoral Research Associates at Department of Statistics, Oxford Collaborating with Prof. Arnaud Doucet and Prof. Yee Whye TEH.
SEPT-DEC 2019	Research Intern at Facebook Artificial Intelligence Research , New York Developed normalizing flows on manifolds (3), with climate science application, supervised by Maximilian Nickel.
MAY-SEP 2017	Research Intern at Department of Statistics, Oxford Studied sampling methods for discrete random probability measures in probabilistic programs (7). Contributed to the open source probabilistic program TURING.JL .
JAN-JUL 2016	Machine Learning Intern at Criteo , Paris In the context of online auctions, improved predictive bidding models accuracy in the presence of perturbative and periodical events such as sales.
JUL-DEC 2015	Software Engineer Intern at BAM Lab , Paris Worked as a full-stack developer, using leading technologies to develop mobile and website applications, and their associated backend services.
MAY-JUL 2014	Data Scientist Intern at IFSTTAR Research Institute , Paris Applied unsupervised probabilistic models such as LDA, to transportation's data in order to better understand commuters behaviour.

EDUCATION

OCT 2017 - SEPT 2021	PhD in Machine Learning with Prof. Yee Whye TEH at University of Oxford , Department of Statistics.
2016 - 2017	Master of Science (II) in Machine Learning & Computer Vision (MVA) at Ecole Normale Supérieure Paris-Saclay, Paris, passed with honours Gpa: 4/4
2014 - 2015	Master of Science (I) in Mathematics & Computer Science at École des Ponts ParisTech , Paris Gpa: 3.94/4
2011 - 2014	Bachelor's Degree in Science (Mathematics, Computer Science & Physics), at École des Ponts ParisTech , Paris Gpa: 3.86/4
JULY 2011	Baccalauréat (French secondary school diploma) Nantes, Science major, Mathematics major, passed with honours.

LANGUAGES

FRENCH: Mother tongue, ENGLISH: Fluent (TOEIC: 930, TOEFL: 103, GRE VR: 157), SPANISH: Moderate

COMPUTER SKILLS

Advanced Knowledge: Python, PyTorch, Lightning, Hydra, Bash, Slurm, \LaTeX
Intermediate Knowledge: Julia, TensorFlow, Matlab, C++, JavaScript

PUBLICATIONS

- [1] N. Miao, E. Mathieu, N. Siddharth, Y. W. Teh, and T. Rainforth. On incorporating inductive biases into vaes. 2021.
- [2] E. Mathieu, A. Foster, and Y. W. Teh. On contrastive representations of stochastic processes. In *Advances in Neural Information Processing Systems 33*. Curran Associates, Inc., 2021.
- [3] E. Mathieu and M. Nickel. Riemannian Continuous Normalizing Flows. In *Advances in Neural Information Processing Systems*, 2020.
- [4] E. Mathieu, T. Rainforth, N. Siddharth, and Y. W. Teh. Disentangling disentanglement in variational autoencoders. In K. Chaudhuri and R. Salakhutdinov, editors, *Proceedings of the 36th International Conference on Machine Learning*, volume 97 of *Proceedings of Machine Learning Research*, pages 4402–4412, Long Beach, California, USA, 09–15 Jun 2019. PMLR.
- [5] E. Mathieu, C. Le Lan, C. J. Maddison, R. Tomioka, and Y. W. Teh. Continuous Hierarchical Representations with Poincaré Variational Auto-Encoders. In *Advances in Neural Information Processing Systems*, 2019.
- [6] B. Bloem-Reddy, A. Foster, E. Mathieu, and Y. W. Teh. Sampling and inference for beta neutral-to-the-left models of sparse networks. In *Conference on Uncertainty in Artificial Intelligence*, August 2018.
- [7] B. Bloem-Reddy, E. Mathieu, A. Foster, T. Rainforth, H. Ge, M. Lomelí, Z. Ghahramani, and Y. Whye Teh. Sampling and inference for discrete random probability measures in probabilistic programs. In *Workshop on Advances in Approximate Bayesian Inference, NIPS*, 2017.

TEACHING

WINTER 2022 | Tutor, SC4 Advanced Topics in Statistical Machine Learning, Dpt of Statistics.

AUTUMN 2021 | Tutor, SB2.1 Foundations of Statistical Inference (3rd year), Dpt of Statistics.

WINTER 2020 | Tutor & Teaching Assistant, SC4 Advanced Topics in Statistical Machine Learning (4th year / MSc students), Dpt of Statistics.

WINTER 2019 | Teaching Assistant, Bayesian Inference, MPLS Doctoral Training Centre.

AUTUMN 2018 | Teaching Assistant, SB3.1 Applied Probability (3rd year students), Dpt of Statistics.

CONFERENCE PARTICIPATION

DEC 2020 | Co-organized the Differential Geometry meets Deep Learning workshop at Neurips.

REVIEWING | 2022: ICLR, 2021: NeurIPS, DGMs @ NeurIPS2020: Neurips, AABI 2019: ICML, Neurips 2018: AABI, BDL @ NeurIPS2018.