MAXENCE NOBLE

PhD student in Applied Mathematics (Machine Learning)
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EDUCATION

PhD in Machine Learning – *CMAP, Ecole Polytechnique* — Sep. 2022-present
- Supervision: Prof. Alain Durmus (Ecole Polytechnique).
- Interests: generative modelling, optimal transport, score-based diffusion models, Schrödinger Bridge, Markov Chain Monte Carlo methods.

Master of Research in Mathématiques, Vision & Apprentissage (MVA) – *Ecole Normale Supérieure Paris-Saclay* — Sep. 2021-Sep. 2022
- Grade: Distinctions with jury's congratulations.
- Relevant coursework: Generative modelling, Bayesian Machine Learning, Computational statistics, Optimal Transport, Probabilistic Graphical models.

Master of Science in Applied Mathematics (Ingénieur Polytechnicien) – *Ecole Polytechnique* — Aug. 2018-Aug. 2021
- Grade: GPA 3.93/4, top 10% of all students.
- Relevant coursework: Statistics, Optimization, Advanced Machine learning, Statistical modelling, Monte Carlo simulations, Stochastic calculus.

Bachelor of Arts in Philosophy (Add. degree) – *University of Paris-Nanterre* — Oct. 2019-Jul. 2020
- Grade: Honours.
- Distance-learning on various philosophy subjects such as gender, art, science, sociology, literature and cinema.

French preparatory classes – *Sainte Geneviève college, Versailles* — Aug. 2016-Aug. 2018
- High-level undergraduate science program (GPA 3.97/4).
- Two-year intensive university-level preparation for highly competitive nationwide science exams (Mathematics, Physics and Computer science).

WORK EXPERIENCE

Research Scientist Intern – *Jasper AI (Image team), France* — Mar. 2025-present
Working on distillation of diffusion generative models applied to image restoration tasks (inpainting, deblurring, super-resolution…).

Visiting Research Student – *Department of Statistics, Oxford University* — Nov. 2022
Supervised by Prof. Arnaud Doucet, worked on an extension of diffusion-based models to compute Wasserstein barycenters [2].

Research Intern – *Center for Data Science, ENS Ulm, Paris* — Apr. 2022-Sep. 2022
Supervised by Valentin de Bortoli, worked on sampling algorithms for constrained spaces with self-concordant barriers [3].

Research Intern - *CMAP, Ecole Polytechnique & INRIA Lille* — Apr. 2021-Nov. 2021
Supervised by Aymeric Dieuleveut and Aurélien Bellet, worked on federated learning comprising concerns about privacy and data heterogeneity [5].

Data Scientist Intern – *Deepki, Paris* — Jun. 2020-Aug. 2020
Worked with the R&D team on improving data completeness in the collection and use of energy consumption invoices (scraping & parsing).

PUBLICATIONS

[7] Improving the evaluation of samplers on multi-modal targets — ICLR 2025 *(FPI workshop)*
Louis Grenioux*, MN*, M. Gabrié

[6] Learned Reference-based Diffusion sampling for multi-modal distributions, — ICLR 2025
MN*, Louis Grenioux*, M. Gabrié, A. Durmus

[5] Stochastic Localization via Iterative Posterior Sampling, — ICML 2024 (*spotlight*)
L. Grenioux*, MN*, M. Gabrié, A. Durmus

[4] Tree-based Diffusion Schrödinger Bridge with Applications to Wasserstein Barycenters, MN, V. de Bortoli, A. Doucet, A. Durmus — NeurIPS 2023 (*spotlight*)

[3] Unbiased constrained sampling with self-concordant Barrier Hamiltonian Monte Carlo, MN, V. De Bortoli, A. Durmus — NeurIPS 2023

[2] Non-asymptotic convergence bounds for Sinkhorn iterates and their gradients: a coupling approach, G. Greco, MN, A. Durmus, G. Conforti — COLT 2023

[1] Differentially Private Federated Learning on Heterogeneous data, — AISTATS 2022
MN, A. Bellet, A. Dieuleveut

TEACHING EXPERIENCE

Teaching Assistant — Sep. 2022- Sep. 2024

- MRe 'MVA' – Ecole Normale Supérieure Paris-Saclay
  - Computational Statistics
- MSc Data Science for Business - Ecole Polytechnique & HEC Paris
  - Machine Learning, Statistics, Optimization, and Linear Algebra
- BSc in Mathematics – Ecole Polytechnique

REVIEWING EXPERIENCE

ICLR, ICLR FPI workshop, NeurIPS	2025
ICML (*Top reviewer*), NeurIPS, TMLR	2024
AISTATS, UAI, ICML SPIGM workshop, NeurIPS (*Top reviewer*), TMLR	2023
NeurIPS	2022

TALKS

Center for Data Science SALT reading group, ENS Paris [6]	February 2025
Google DeepMind's workshop on diffusion models, Paris [6]	January 2025
Isaac Newton Institute for Mathematical Sciences Workshop, Alan Turing Institute [5]	July 2024
4-th Italian Meeting on Probability and Statistics, Rome [3]	June 2024
Google DeepMind's reading group on generative models, transport and sampling [5]	May 2024
Mostly Monte Carlo Seminar, Paris Santé Campus [5]	April 2024
ELLIS un-conference ICML, HEC Paris [3]	July 2023
Isaac Newton Institute for Mathematical Sciences Workshop, Cambridge University [4]	June 2023

AWARDS AND HONOURS

- 2022: Awarded a selective PhD scholarship by Ecole Polytechnique.
- 2021: Awarded the Ecole Polytechnique Research Centre Prize in Applied Mathematics for [1].
- 2021: Outstanding Investment Award for involvement in Polytechnique student community.
- 2019: National defence medal (bronze level).

SKILLS

Programming	Python, PyTorch, Git, Slurm
Languages	French (native) - English (fluent) - German (advanced)