

MAXENCE NOBLE

PhD student in Applied Mathematics (Machine Learning)

92 rue du chemin vert, 75011 Paris, France

(+33) 6 47 21 21 36 - maxence.noble@gmail.com - [GitHub](#) - [Google Scholar](#) - [Linkedin](#)

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

- 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

- [1] **Stochastic Localization via Iterative Posterior Sampling**, ICML 2024
L. Grenioux*, MN*, M. Gabrié, A. Durmus (*spotlight*)
- [2] **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
- [4] **Non-asymptotic convergence bounds for Sinkhorn iterates and their gradients: a coupling approach**, G. Greco, MN, A. Durmus, G. Conforti COLT 2023
- [5] **Differentially Private Federated Learning on Heterogeneous data**, MN, A. Bellet, A. Dieuleveut AISTATS 2022

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 2025
- ICML (*Top reviewer*), NeurIPS, TMLR 2024
- AISTATS, UAI, ICML Workshop, NeurIPS (*Top reviewer*), TMLR 2023
- NeurIPS 2022

TALKS

- Isaac Newton Institute for Mathematical Sciences Workshop, Alan Turing Institute [1] 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 [1] May 2024
- Mostly Monte Carlo Seminar, Paris Santé Campus [1] April 2024
- ELLIS un-conference ICML, HEC Paris [3] July 2023
- Isaac Newton Institute for Mathematical Sciences Workshop, Cambridge University [2] 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 [4].
- 2021: Outstanding Investment Award for involvement in Polytechnique student community.
- 2019: National defence medal (bronze level).

SKILLS

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