
Experience

- 2026 – **Postdoctoral researcher**, *ENSAE/CREST, Institut Polytechnique de Paris*, Palaiseau, France.
Working in Anna Korba's group on sampling algorithms with interacting particle systems, funded by PEPR PDE-AI.
- 2022 **Research engineer**, *CNRS, CRISAL*, Lille, France.
Worked on Monte Carlo methods with repulsive point processes for the ERC project BLACKJACK (6 months).
- 2021 **Intern**, *Center for research in Economics and Statistics (CREST)*, Palaiseau, France.
Implemented Sequential Monte Carlo methods to compute the Bayesian Lasso estimator. Supervised by Nicolas Chopin (3 months).
- 2020 **Intern**, *Safran Tech*, Magny-les-Hameaux, France.
Implemented sampling methods such as random Fourier features for nonlinear regressions with Gaussian processes. Supervised by Sébastien Da Veiga (1,5 month).

Education

- 2023 – 2026 **Ph.D (Doctorat)**, *Université de Lille*, Lille, France.
Mathematics and machine learning, *Monte Carlo methods with Gibbs distributions*, under the supervision of Rémi Bardenet and Mylène Maïda.
- 2021 – 2022 **Master's degree in mathematics and applications**, *Institut Polytechnique de Paris*, Orsay, France.
Mathematics of randomness master, Statistics and Machine Learning path.
- 2019 – 2022 **Master's degree**, *ENSAE Paris, Institut Polytechnique de Paris*, Palaiseau, France.
French engineering school in applied mathematics and economics. *Data science, Statistics and Learning* specialization.
- 2017 – 2019 **Preparatory years for the competitive examination to the French “Grandes Ecoles”**, *Lycée Descartes*, Tours, France.
Mathematics and physics major, computer sciences minor.

Research articles

I am working at the crossroads between different communities, mainly probability and machine learning.

Preprints

- Rouault, M., Bardenet, R., & Maïda, M. (2025). Quenched large deviations for Monte Carlo integration with Coulomb gases. *arXiv preprint arXiv:2508.01392*. Accepted for publication in *Bernoulli*.
- Rouault, M., Bardenet, R., & Maïda, M. (2024). Monte Carlo with kernel-based Gibbs measures: Guarantees for probabilistic herding. *arXiv preprint arXiv:2402.11736*. Accepted for publication in *SIAM journal on Mathematics of Data Science*.

Conference papers

- Rouault, M., Bardenet, R., & Maïda, M. (2025). Intégrer plusieurs fonctions simultanément avec des mesures de Gibbs. In *XXXe Colloque Francophone de Traitement du Signal et des Images, GRETSI 2025*.

Talks

I frequently give presentations in reading groups or informal team/Ph.D meetings. Here is a list of more formal scientific presentations I gave.

- August 2025 Oral session at the 30th GRETSI Colloquium, Strasbourg, France.
- July 2025 Workshop *Recent advances in stochastic algorithms* of ANR SuSa, Université Clermont Auvergne, Clermont-Ferrand, France.
- June 2025 Short talk at *Journées de Probabilités 2025*, Institut de Mathématiques de Marseille, Marseille, France.
- May 2025 *Probability and Statistics* seminar, Laboratoire Paul Painlevé, Lille, France.
- October 2024 *Point processes and applications* seminar, Laboratoire Paul Painlevé, Lille, France.
- March 2024 GDR MEGA *Spring School 2024*, Fréjus, France (co-organized).

Teaching

I have been a teaching assistant for the following courses.

2025 – 2026

- Analyse pour l'ingénieur, Ecole Centrale de Lille, 20h.
- Statistiques, M1 NSA, Université de Lille, 10h. Practical sessions of statistics in R for master level biology students.

2024 – 2025

- Analyse pour l'ingénieur, Ecole Centrale de Lille, 30h.
- Probabilités et statistiques, L2 Informatique, Université de Lille, 36h. Introduction to probabilities and statistics for second year computer science students.

2023 – 2024

- Analyse pour l'ingénieur, Ecole Centrale de Lille, 20h. General introduction to measure theory, integration, distributions and Fourier series for first year engineering students ($\approx$ third year in university).
- Probabilités, L2 PEIP, Université de Lille, 36h. Introduction to entire series and discrete probabilities for second year students preparing for an engineering school.

Other activities

- Reviewing I have currently reviewed one journal article for *Electric Communications in Probability* (ECP).
- Organization Together with Charlie Dworaczek-Guera, we organized the 2024 Spring school of the GDR *Matrices et graphes aléatoires* (MEGA). The school welcomed 15 Ph.D. students or post-doctoral researchers for one week in Fréjus. Here is the website: mega-spring-2024.sciencesconf.org.

Skills

Languages	French (Native), English (Fluent), Spanish (Fluent).
Programming	Python, R.
Others	LaTeX, Git.