Martin Rouault

✉ martin.rouault@univ-lille.fr
mrouault.github.io

Education

2023 – **Doctorat (Ph.D)**, *Université de Lille*, Lille, France.
Signal processing, *Monte Carlo methods with Coulomb processes*, 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.

Experience

2022 **Research engineer**, *CNRS, CRIStAL*, Lille, France.
Working 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.
Implementing Sequential Monte Carlo methods to compute the Bayesian Lasso estimator. Supervised by Nicolas Chopin (3 months).

2020 **Intern**, *Safran Tech*, Magny-les-Hameaux, France.
Implementing sampling methods such as random Fourier features for nonlinear regressions with Gaussian processes. Supervised by Sébastien Da Veiga (1,5 month).

Research articles

I am working at the crossroads between different communities, mainly probability and machine learning. While it is common to set the main contributor as first author of the paper in the machine learning community, it is more usual to rank the authors by alphabetic order in the probability community. The ranking of the authors in the following contributions reflects the audience of the journal or conference we submitted it to.

Preprints

- Bardenet, R., Maïda, M., & Rouault, M. (2025). Quenched large deviations for Monte Carlo integration with Coulomb gases. *arXiv preprint arXiv:2508.01392*.

- Rouault, M., Bardenet, R., & Maïda, M. (2024). Monte Carlo with kernel-based Gibbs measures: Guarantees for probabilistic herding. *arXiv preprint arXiv:2402.11736*.

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, L2 PEIP, Université de Lille, 36h. Introduction to entire series and discrete probabilities for second year students preparing for an engineering school.

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 et statistiques, L2 Informatique, Université de Lille, 36h. Introduction to probabilities and statistics for second year computer science students.

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.