THIBAULT RANDRIANARISOA

GENERAL INFORMATION

Nationality French

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POSITIONS

Postdoctoral research fellow, *Bocconi University, Milan, Italy* Oct 2022–

- Affiliated to the Bocconi Institute for Data Science and Analytics (BIDSA)
- Working with Pr. Botond Szabó
- Asymptotic analysis of variational inference methods for Gaussian process-based algorithms

EDUCATION

PhD. in Statistics, *Sorbonne Université, LPSM, Paris (France)* 2019 - 2022

- Under the supervision of Pr. Ismaël Castillo
- Title: Contributions to the theoretical analysis of statistical learning and uncertainty quantification methods (available here)
- Keywords: Bayesian nonparametrics, Tree-based methods, Uncertainty Quantification, Wasserstein distance, Gaussian processes

MSc. in Statistics and Machine Learning, *Université Paris-Saclay, Paris (France)* 2018 - 2019

- Relevant Coursework: Bayesian nonparametrics, Statistical Learning, High-dimensional Statistics, Compressed Sensing, Machine learning and Forecasting Project (GPA 4/4)

Engineering Degree,
major in Statistics and Economics, *ENSAE Paris, Paris (France)* 2015 - 2019

- Relevant Coursework: Machine learning and datamining, Simulation and Monte Carlo Methods, Linear Time Series, Bayesian Statistics, High-dimensional statistics, Stochastic Processes, Geometric methods in Machine Learning, Legal Issues in Big Data. (GPA 4/4)

RESEARCH INTERESTS

My research is focused on the development of theoretical guarantees for various methods in statistical inference and uncertainty quantification.

Broadly: Bayesian nonparametrics, (Deep) Gaussian processes, Uncertainty quantification, Variational Bayes, Inverse problems.

More specifically:

- contraction rates for posteriors and their variational approximations in nonparametric estimation;
- adaptive confidence sets for infinite-dimensional parameters;
- use of Bayesian methods in inverse problems

PUBLICATIONS

1. Variational Gaussian Processes For Linear Inverse Problems. With Botond Szabo. *NeurIPS 2023*.
2. Deep Gaussian Processes: scaling for adaptation to smoothness and structure. With Ismaël Castillo. *to be submitted*.
3. On Adaptive Confidence Sets for the Wasserstein Distances. With Neil Deo. To appear in *Bernoulli*, 2023.
4. Optional Pólya trees: posterior rates and uncertainty quantification. With Ismaël Castillo. *Electronic Journal of Statistics*, 2022.
5. Smoothing and adaptation of shifted Pólya Tree ensembles. *Bernoulli*, 2022.

SCIENTIFIC PRESENTATIONS

European Meeting of Statisticians, Warsaw, Poland July 2023
Deep Horseshoe Gaussian processes

BNP 2022 networking workshop, Marseille, France June 2023
Variational Gaussian Processes For Linear Inverse Problems

Workshop on Theory for Scalable, Modern Statistical Methods, Milano, Italy April 2023
Deep Horseshoe Gaussian processes

BNP 2022 networking workshop, Nicosia, Cyprus April 2022
Pólya tree ensembles: smoothing and adaptation

rjs2022: 9ème Rencontre des Jeunes Statisticien-ne·s, Porquerolles, France April 2022
On Adaptive Confidence Sets for the Wasserstein Distances

CREST-ENSAE Statistics, Econometrics and Machine Learning seminar, Paris, France December 2021
On Adaptive Confidence Sets for the Wasserstein Distances

Journées MAS 2020, online August 2021
Optional Pólya trees: vitesses de contraction de la loi a posteriori et quantification de l'erreur

2021 World Meeting of the International Society for Bayesian Analysis, online June 2021
Smoothing and adaptation of shifted Pólya Tree ensembles

Conference on Mathematical and Statistical Challenges in Uncertainty Quantification, Cambridge University July 2020
A toy model of Polya tree ensemble: smoothing and adaptation

AWARDS

Travel Grant - 400 **USD** April 2022
BNP 2022 networking workshop, Nicosia, Cyprus

TEACHING

- **2023-2024 academic year**: Co-instructor, with Pr. Botond Szabo, of an undergraduate Mathematical Statistics course.
- **2020-2021 academic year**: Teaching assistant for courses on Statistical Modelling, Computational Statistics and Numerical Probabilities.
- **2019-2020 academic year**: Teaching assistant for courses on Probability Theory, Introductory Statistics, Computational Statistics and Numerical Probabilities.

RESPONSIBILITIES

Organization of seminars

I co-organized the regular seminar Groupe de travail des thésards du LPSM which took place in Paris during the Academic year 2020/2021.

Reviewing

I have been a reviewer for the following journals: *Journal of multivariate analysis*, *Information and Inference: A Journal of the IMA*, and *Stochastic Processes and their applications*.

SKILLS

Languages	French (native), English (professional working proficiency, TOEIC: 955/990, TOEFL iBT: 103/120), German (intermediary)
Software skills	Python, R, SQL (MySQL), NoSQL (MongoDB), Latex, Git, Shell scripting, Linux, MacOS