Ibrahim Kaddouri

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Born on the 15th of september 1998

Education

2022–2025 **Université Paris-Saclay, Laboratoire de Mathématiques d'Orsay**, Orsay, France.
Doctoral studies, Under the supervision of Elisabeth Gassiat and Zacharie Naulet
Thesis subject: Inference on dependent data with a specific focus on Hidden Markov Models and preferential attachment random graphs.

2021–2022 **Université Paris-Saclay**, Orsay, France.
Master of science, Mathematics of randomness: Probability, Statistics and Machine learning
Relevant courses: Brownian Motion and Stochastic Calculus, Statistical learning theory, Reinforcement learning, Sequential learning and optimization, Random matrix theory.

2018–2022 **CentraleSupélec**, Gif-Sur-Yvette, France.
Diplôme d'ingénieur, equivalent of a master's degree, Université Paris-Saclay.
Relevant courses: Advanced Statistics, Machine Learning, Advanced Probability, Game Theory, Discrete Optimization, Distributions and Partial Derivative Equations, Mathematical Modeling of Financial Markets and Risk Management.

Research and Work experience

2023-2025 **Organizer of the students' seminar, Laboratoire de Mathématiques d'Orsay**, *In charge of organizing the masters' students seminar.*

2022-2025 **Teaching assistant, Polytech Paris-Saclay**, *Teaching of general mathematics for first year and second year student at Polytech Paris-Sacaly.* ~ 64 *hours each year.*

July-Sep 2022 **Research internship, Laboratoire de mathématiques d'Orsay, Université Paris Sacaly**, *Studying the problem of clustering of Hidden Markov dependent data. Supervised by Elisabeth Gassiat and Zacharie Naulet.*

July-Sep 2021 **Research internship, Numerical Vision Center, CentraleSupélec**, *Penalization through ratio of norms for sparse regression. Theoretical analysis and implementation of different penalization techniques to induce sparsity. Supervised by Emilie Chouzenoux & Laurant Duval.*

Jan-July 2021 **Data scientist internship, BNP Paribas Cardif**, *Pricing insurance contracts using tree-based machine learning algorithms.*

Sep-Dec 2020 **Quantitative analyst internship, Société Générale Corporate and investment banking**, *Using machine learning to predict the evolution of future prices, developing statistical analyses of data to validate investment strategies.*

2018-2020 **Research project in probability**, *Studying the Hölder regularity of Lévy processes by using the geometric properties (mainly Hausdorff dimension) of the associated random trees. Supervised by Erick Herbin & Pauline Lafitte.*

Talks and Conferences

Sep-2022 **Poster at JDSE Conference, Ecole Polytechnique**, Palaiseau, France. *Clustering of parametric Hidden Markov Models.*

Feb-2023 **Talk at ASCAI workshop, Technical University of Munich**, Munich, Germany. *Clustering of nonparametric Hidden Markov Models.*

June-2023 **Talk at PMSMA Conference, IMAG lab**, Montpelier, France. *Model-based clustering for nonparametric Hidden Markov Models.*

Sep-2023 **Poster at StatMathAppli Summer School**, Fréjus, France.

Feb-2024 **Talk at Pizzama Seminar**, Orsay, France. *Late change-point detection in preferential attachment random graphs*.

Mai-2024 **Talk at 55èmes Journées de Statistique**, Bordeaux, France. *Clustering of nonparametric Hidden Markov Models*.

Publications & preprints

Sep-2023 **Model-based clustering using Nonparametric Hidden Markov Models**, With Elisabeth Gassiat and Zacharie Naulet. *arXiv:2309.12238.*.

2024 **On the impossibility of detecting a late change-point in the preferential attachment random graph model**, With Elisabeth Gassiat and Zacharie Naulet. *arXiv:2407.18685*.

Skills

Programming PYTHON(advanced), R(medium), MATLAB(medium), C++(beginner), SQL, Matlab, Github

Languages

Arabic (*native*), French (*fluent*), English (*proficient*), Spanish (*beginner*)