

Bertille FOLLAIN

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Education

Sep 2021–
Sep 2024 **Ph.D. in Applied Mathematics**, Ecole Normale Supérieure and INRIA, Paris 12^{ème}, France.

- **Ph.D. Thesis:** "*Study of the impact of heavy-tailed distributions on machine learning*," under the supervision of **Prof. Francis Bach** and **Prof. Umut Simsekli**

Sep 2020–
Jun 2021 **MASt in Mathematical Statistics**, Distinction, University of Cambridge, Cambridge, UK.

- **Essay** "*Statistical Properties of Stochastic Gradient Descent*," under the supervision of **Prof. Richard Samworth**

Sep 2017–
Aug 2021 **Diplôme d'ingénieur**, GPA: 3.96/4, Rank: 22/540, Ecole Polytechnique, Palaiseau, France.

- **Thesis:** "*Partitioning of Data Structured in Graphs*", under the supervision of **Prof. Sébastien Gadat**
- **Group Project:** "*Spotting Match-fixing in Tennis through Statistics and Machine Learning*", under the supervision of **Prof. Eric Moulines**
- **Project:** "*Image In-painting with Convolutional Neural Networks*"

Sep 2015–
Jun 2017 **Classe Préparatoire aux Grandes Ecoles MPSI-MP***, Lycée Louis-le-Grand, Paris 5^{ème}, France.

- **Thesis:** "*Spectral Clustering on non-convex 2D data. Theory and implementation*"

Publications

- Bertille Follain, Tengyao Wang and Richard J. Samworth, "High-dimensional changepoint estimation with heterogeneous missingness", 2021, *pre-print*, <https://arxiv.org/abs/2108.01525>

Research Experiences

Mar 2020–
Aug 2020 **Visiting Research Student**, Statistical Laboratory, University of Cambridge, under the supervision of Prof. Richard J. Samworth and Prof. Tengyao Wang.

- Developed a method and algorithm for the detection of multiple changepoints in high-dimensional data with heterogeneous missingness

- Jun 2019– **R&D Intern**, CortAIx, Thales Digital, Montreal.
Aug 2012–
2019 ○ Chose and implemented an Explainable AI method for Reinforcement Learning (based on DQN) for the LunarLander environment and the company’s simulator

Awards & Prizes

- Prix junior Maryam Mirzakhani in Applied Mathematics, 2021, given by Fondation Mathématique Jacques Hadamard (1000€)
- Senior Scholar, 2021, given by Trinity College (250£)
- Examination Prize, 2021, given by Trinity College, (240£)
- Research Internship Prize, 2020, given by Ecole Polytechnique
- Knox Studentship for French Students, 2020, given by Trinity College (20k£)

Teaching Experiences

- Sep 2017– **Support Professor**, Provided academic support to 95 undergraduates with
Mar 2018 issues in mathematics, Lycée d’Etat Jean Zay, Paris 16ème, France.
- Sep 2018– **Oral Examiner (Colleur)**, Mathematics for 1st year undergraduates, Lycée
Jun 2020 Fénelon, Paris 12ème, France.
- Sep 2021– **Teaching Assistant**, Statistics and Probabilities for Economic students in 3rd
Jan 2022 year, Sorbonne, Paris, France.

Skills

- **Programming**
Python (sklearn, numpy, pandas, seaborn, pytorch...), R
- **Other**
LaTeX, Git, Cytoscape

Languages

- **French:** Native
- **English:** Fluent (TOEFL: 118/120)
- **Spanish:** Intermediate

Interests

- Baking Pies, crèmes brulées and british cakes
Piano 14 years, mostly film scores, especially music by Ludovico Einaudi
Gospel Choir Just starting!