

# Adeline Fermanian

*PhD student in statistics*

47 rue Hallé  
75014 Paris  
France

✉ [adeline.fermanian@sorbonne-universite.fr](mailto:adeline.fermanian@sorbonne-universite.fr)  
[afermanian.github.io](https://github.com/afermanian)  
in [adelinefermanian](#)  
globe [afermanian](#)

## Education

- November 2018-Present **PhD in statistics, LPSM - Sorbonne Université, Paris, France.**  
Funded by DIM MathInnov. Research topic: Signature, rough paths and machine learning.  
Supervisors: Gérard Biau and Benoît Cadre.
- 2017-2018 **Master of science in statistics, ETH, Zürich, Switzerland.**  
Key subjects: mathematical statistics, computational statistics, stochastic calculus.
- 2014-2016 **Bachelor in engineering, CentraleSupélec, Châtenay-Malabry, France.**
- 2012-2014 **Intensive 2-year university level preparation in maths and physics, Lycée Henri IV, Paris, France.**

## Experience

### Vocational

- June 2018 - **Master thesis, LPSM - Sorbonne Université, Paris, France.**  
October 2018 Topic: the signature method in machine learning. Supervisors: Gérard Biau, Benoît Cadre, and Peter Bühlmann
- February 2017 - **Graduate researcher, Inria - Wolfgang Pauli Institute, Vienna, Austria.**  
July 2017 Topic: deterministic and stochastic models of division of bacteria. Supervisor: Marie Doumic.
- August 2016 - **Data Scientist, Multiposting group - SAP, Paris, France.**  
January 2017 Topic: development of machine learning algorithms for salary prediction using a database of millions of job ads.

### Miscellaneous

- July-August 2015 **Assistant head of a food distribution center, Aôût Secours Alimentaire, Paris, France.**  
Supervised a food distribution center for people living in precarious conditions. Managed a team of 20 volunteers, including disabled workers.
- 2015 **President, Artistic student association at Centrale Paris, Châtenay-Malabry, France.**  
Organized an artistic festival with a budget of 15000 €. Managed a 30-persons team. Initiated the development of an innovative and electronic ticketing for cultural events in Paris.

## Publications

### Preprints

- 2020 **Linear functional regression with truncated signatures, Fermanian, A., Arxiv.**

- 2020 **A Generalised Signature Method for Time Series**, *Morrill, J., Fermanian, A., Kidger, P., Lyons, T.*, Arxiv.

#### Journal articles

- 2021 **Embedding and learning with signatures**, *Fermanian, A.*, Computational Statistics & Data Analysis, Vol. 157, 107148.

#### Conference proceedings and miscellaneous

- 2020 **Learning with signatures**, *Biau, G. and Fermanian, A.*, Functional and High-Dimensional Statistics and Related Fields, pp. 19-26, Springer, Cham..

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## Teaching

- 2020-2021
- Linear models (M1 ISUP, exercise classes).
  - Return to graduate studies diploma for exiles.
- 2019-2020
- Linear models (M1 ISUP, exercise classes).
  - Mathematical Statistics (M1, computer labs).
  - Inferential Statistics (L3 ISUP, exercise classes).
  - Return to graduate studies diploma for exiles.
- 2018-2019
- Mathematical Statistics (M1, computer labs).
  - Inferential Statistics (L3 ISUP, exercise classes).
  - Return to graduate studies diploma for exiles.

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## Students

- June-July 2020 **Co-supervision of Linus Bleistein's master thesis with Gérard Biau and Claire Boyer**, *Sorbonne Université*, Paris, France.  
Topic: "SiGANtures: Generating Times Series Using Wasserstein-Generative Adversarial Nets and the Signature Transform"

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## Communications

#### Invited talks

- January 2021 **Rough Path Interest Group**, *Alan Turing Institute*, London, United Kingdom (virtual).
- January 2021 **Séminaire de Probabilités et Statistique**, *Laboratoire J.A. Dieudonné*, Université Côte d'Azur, Nice, France.
- December 2020 **Workshop New Directions in Rough Path Theory**, *Mathematical Research Institute of Oberwolfach*, Oberwolfach, Germany (virtual).
- October 2020 **Algebraic and combinatorial perspectives in the mathematical sciences (ACPMS)**, *virtual*.
- September 2020 **Second Symposium on Machine Learning and Dynamical Systems**, *The Fields Institute for Research in Mathematical Sciences*, Toronto, Canada (virtual).
- August 2020 **Geometry of curves in time series and shape analysis**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany (virtual).

- June 2020 **Séminaire online du LPSM**, *Sorbonne Université*, Paris, France (virtual).
- April 2020 **DataSig Seminar Series**, *Alan Turing Institute*, London, United Kingdom (virtual).
- February 2020 **Seminar of the Institut Denis Poisson**, *Université d'Orléans*, Orléans, France.
- January 2020 **Post Graduate seminar of the Chair for Mathematics of Information Processing**, *RWTH Aachen University*, Aachen, Germany.
- October 2019 **Conférence du GDR TRAG 2019**, Nancy, France.
- Other**
- December 2019 **12th Oxford-Berlin Young Researchers Meeting on Applied Stochastic Analysis**, *University of Oxford*, Oxford, United Kingdom.
- June 2019 **51es Journées de Statistique**, Nancy, France.
- May 2019 **Groupe de travail des thésards du LPSM**, Paris, France.
- April 2019 **Rencontre des Jeunes Statisticiens**, Porquerolles, France.

## Organization

- Novembre 2020 - **Co-organizer of a *Statistics and machine learning reading group***, *Sorbonne Université*, Paris, France.
- Present
- April 2019 - **Co-organizer of *InfoMaths*, a seminar about informatic tools for mathematicians.**, *Sorbonne Université*, Paris, France.
- Present
- September 2019 - **Co-organizer of the PhD students seminar**, *LPSM, Sorbonne Université*, Paris, France.
- September 2020

## Computer skills

Languages Python (PyTorch, scikit-learn, pandas, django), R.

## Language skills

French	Mother tongue	English	Fluent (C1, TOEFL IBT : 106/120)
German	Intermediate (B1-B2)	Spanish	Elementary (A2)

## Personal interests

Music Municipal Conservatory of Music in Paris from 2002 to 2012 : studied piano, solfeggio, musical writing and choral singing. Performed many concerts.