

# Margaux Zaffran

Third year PhD Student  
in statistics (applied mathematics)

Palaiseau, France  
26 years old  
French nationality



## Education

- Nov. 2020 **INRIA, PhD Student in statistics.** Palaiseau, France  
- current Distribution-free uncertainty quantification for machine learning algorithms.  
Application to forecasting short-term electricity market prices.  
Supervised by [Aymeric Dieuleveut](#) (Ecole Polytechnique) and [Julie Josse](#) (INRIA).
- 2019-2020 **Ecole Polytechnique, MSc Data Sciences, double degree.** Palaiseau, France  
  - Statistical learning theory, generalization properties, bootstrap and resampling methods
  - Online learning and aggregation, reinforcement learning, deep learning
  - Optimal transport, probabilistic graphical models, extreme values, Bayesian learningAverage grade: 17.7/20.
- 2016-2020 **ENSTA Paris, Institut Polytechnique de Paris, engineering track.** Palaiseau, France  
Simulation and Mathematical Engineering track, Optimization and Data Sciences specialization.  
  - Statistics: statistical modeling, linear and non-linear time series
  - Optimization: Markov decision process, large systems, proximal methodsRanked in the top 5% of the first year class (common core, 150 students).
- 2014-2016 **Lycée Louis-Le-Grand, Mathematics and Physics, classes préparatoires aux grandes écoles.** Paris, France
- 2014 **Lycée Marseilleveyre, French scientific Baccalauréat and Spanish Bachillerato.** Marseille, France  
Spanish international section, 11 weekly hours of literature and history of the Spanish-speaking world.

## Professional activities

- Nov. 2020 **Research engineer (PhD contract), Electricité De France (EDF) R&D.** Palaiseau, France  
- current Forecasting short-term electricity market prices with uncertainty quantification.  
Supervised by [Olivier Féron](#) and [Yannig Goude](#).

## Teaching and supervision

- 2022 **MSc Student Supervision, EDF R&D, 5 months.** Palaiseau, France  
Grégoire Dutot (MVA) MSc thesis: probabilistic electricity price forecasting, towards extreme events.
- 2022 **Teaching Assistant, Université Paris Dauphine - PSL, 2nd year of the MSc Digital Economics.** Paris, France  
- current Practical session on Electricity Price Forecasting for the Business Cases class.
- 2021 **Teaching Assistant, ENSTA Paris, 3rd year of BSc and 1st year of MSc.** Palaiseau, France  
- current
  - Linear time series, 1st year of MSc (15h/year)
  - Introduction to probability, 3rd year of BSc (15h/year)
  - Introduction to statistics (estimators, confidence intervals, tests), 3rd year of BSc (15h/year)

## Internships and visiting stays

- August to **Visiting research student, Technion, Israel Institute of Technology.** Haifa, Israel  
Oct. 2022 Collaboration with [Yaniv Romano](#).
- April to **Research intern, Laboratoire des Sciences du Climat et de l'Environnement.** Gif-sur-Yvette, France  
Oct. 2020 Clustering of extreme rainfall by coupling machine learning algorithms and Kullback-Leibler divergence.  
Supervised by [Philippe Naveau](#).
- March to **Research engineer intern, General Electric Healthcare.** Buc, France  
Aug. 2019 Predicting user (*i.e. medical doctor*) preferences of an image review software by machine learning.
- Sep. 2018 **Research engineer intern, Data Innovation Lab, EDF R&D.** Palaiseau, France  
to Mar. 2019 Developed machine learning methods to drive a nuclear unit.
- May to **Research intern, School of Mathematics Research, University of Bristol.** Bristol, United Kingdom  
Aug. 2018 Worked on quantile regression: optimal bandwidth for smoothing the pinball loss w.r.t. coefficients mean squared error.  
Supervised by [Matteo Fasiolo](#) and [Simon N. Wood](#).

## Grants and awards

2022	<b>Laureate for France of the Séphora Berrebi Scholarship for Women in Advanced Mathematics</b> , <i>Association Séphora Berrebi</i> , 2k€. Jury members: Maria J. Esteban (president), Bo'az Klartag, Laurent Lafforgue, Erwan Le Pennec, Mathieu Rosenbaum, Sylvia Serfaty, Mikhail Sodin, Ofer Zeitouni.
2022	<b>Junior scientific visibility</b> , <i>FMJH and LMH</i> , 2.3k€. Funding the research stay at the Technion - Israel Institute of Technology.
2022	<b>Best MSc thesis project</b> , <i>ENSTA Paris</i> , 2k€. Awarding the research internship at the Laboratoire des Sciences du Climat et de l'Environnement (MSc thesis). Popularized pitch in front of more than 1000 people at Folies Bergères (Paris).
2018	<b>Excellence research scholarship</b> , <i>Université Paris-Saclay</i> , 1.8k€. Funding the research internship at the University of Bristol.
2014	<b>First prize</b> , <i>National Physics Olympiad</i> . Research project in a team of 3, supervised by our physics teacher Claude Torregrosa, on a topic we have chosen. Written report and oral presentations in front of two scientific juries. One-day presentation at the Palais de la Découverte (Paris) in front of their public visitors (children, neophytes, etc).

## Scientific activities

### Research papers

In progress	<b>Adaptive probabilistic forecasting of French electricity spot prices in 2021</b> G. Dutot, <b>M. Zaffran</b> , O. Féron, Y. Goude	<i>Working paper</i>
In progress	<b>A new dissimilarity for extreme rainfall clustering</b> <b>M. Zaffran</b> , P. Naveau	<i>Working paper</i>
2023	<b>Conformal Prediction with Missing Values</b> <b>M. Zaffran</b> , A. Dieuleveut, J. Josse, Y. Romano	<i>40th International Conference on Machine Learning</i>
2022	<b>Adaptive Conformal Predictions for Time Series</b> <b>M. Zaffran</b> , O. Féron, Y. Goude, J. Josse, A. Dieuleveut	<i>39th International Conference on Machine Learning</i>
2021	<b>qgam: Bayesian non-parametric quantile regression modelling in R</b> M. Fasiolo, S. N. Wood, <b>M. Zaffran</b> , R. Nedellec, Y. Goude	<i>Journal of Statistical Software</i>
2020	<b>Fast calibrated additive quantile regression</b> M. Fasiolo, S. N. Wood, <b>M. Zaffran</b> , R. Nedellec, Y. Goude	<i>Journal of the American Statistical Association</i>
2020	<b>On the Wiener optical method to study molecular diffusion in liquids</b> J.M. Roussel, M. Gailhanou, A. Larrivé, L. Montero, <b>M. Zaffran</b> , C. Torregrosa	<i>American Journal of Physics</i>

### Research tutorials

Sep. 2023	<b>ENBIS Annual European Conference</b> , Valencia, Spain	<i>Invited to give a half-day course</i>
April 2023	<b>MASPIN days</b> , Besançon, France	<i>Half-day course</i>

### Research talks

July 2023	<b>54th French Statistical Days</b> , Brussels, Belgium	<i>Invited</i>
Feb. 2023	<b>Sorbonne Université - LPSM PhD Students seminar</b> , Paris, France	<i>Invited</i>
Feb. 2023	<b>AgroParisTech/INRAE - MIA seminar</b> , Palaiseau, France	<i>Invited</i>
July 2022	<b>DFUQ ICML Worskhop</b> , Baltimore, USA	<i>Spotlight</i>
July 2022	<b>39th International Conference on Machine Learning</b> , Baltimore, USA (recording link)	
June 2022	<b>Mathematical Methods for Modern Statistics 3</b> , Marseille, France	
June 2022	<b>53th French Statistical Days</b> , Lyon, France	
Mar. 2022	<b>International Seminar on Distribution-Free Statistics</b> , online (recording link)	<i>Invited</i>
Nov. 2021	<b>INRIA Causality and Missing Data Seminar</b> , Online	
June 2021	<b>52nd French Statistical Days</b> , Online	

April 2021 **Machine Learning Journal Club**, Online

10+ talks with an internal audience:

- 2 Causality and Missing Data Seminars, *INRIA*
- 3 SIMPAS Group Meeting, *CMAP, École Polytechnique*
- 1 PhD Student Seminar, *CMAP, École Polytechnique*
- 5 Group Meetings, *EDF R&D*
- 2 Group Meetings, *Technion - Israel Institute of Technology*

## Research posters

June 2023 **Foundations of Computational Mathematics**, Paris, France

April 2023 **StatLearn workshop**, Montpellier, France

Dec. 2022 **International Conference on Statistics and Data Science**, Florence, Italy

July 2022 **DFUQ ICML Workshop**, Baltimore, USA

July 2022 **39th International Conference on Machine Learning**, Baltimore, USA

Sep. 2021 **FIME days**, Palaiseau, France

## Reviewing

Reviewer for the *Journal of Business and Economic Statistics* (JBES), *AISTATS* 2023 (among the 10% top reviewers).

## Associative commitment

2022-now **Vice-president**, *The Young Statisticians, SFdS (French Statistical Society)*.

Organizing the 11th Young Statisticians and Probabilists day.

Organizing the Youth Activities at the French Statistical Days (JdS).

2022 **Volunteer**, *The Young Statisticians, SFdS (French Statistical Society)*.

Helping for the organization of the Youth Activities at the French Statistical Days (JdS).

2022-now **Volunteer**, *Femmes et mathématiques, Animath*, <https://filles-et-maths.fr/>.

- Speaker during various speed-meetings with high-school girls
- Interviewee for a video for high school science teachers and young girls

2021-now **Elected member**, *parity and diversity committee, CMAP, Ecole Polytechnique*.

2020-2021 **Member**, *Machine Learning Journal Club, CMAP, Ecole Polytechnique*.

2016-2018 **Project leader (2018) and member (2017)**, *RISE<sup>2</sup> (Rencontres Innovation et Sciences des Étudiants de l'ENSTA Paris)*.

Event bringing together companies, researchers and start-ups.

Keynote speakers: Cédric Villani (2017), Étienne Klein (2018).

2016-2017 **Treasurer**, *GraviTation (ENSTA Paris science association)*.

## Technical skills

<b>Computer</b>	• R, Python, $\LaTeX$ , Matlab, C, C++	• MacOS, Linux, Windows	• iWork, Office, LibreOffice
<b>Languages</b>	• English: fluent [ <i>TOEIC 945/990</i> ]	• Spanish: bilingual [ <i>DELE level C1</i> ]	• Russian: beginner

## Miscellaneous

<b>Sport</b>	• Rhythmic gymnastics in competition	• Weekly leisure swimming since 2004	• Alpine skiing in leisure since 2000
<b>Hobbies</b>	• Board and card games • Debating (former delegate at the European Youth Parliament)		