

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	Laureate for France of the Séphora Berrebi Scholarship for Women in Advanced Mathematics , <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	Junior scientific visibility , <i>FMJH and LMH</i> , 2.3k€. Funding the research stay at the Technion - Israel Institute of Technology.
2022	Best MSc thesis project , <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	Excellence research scholarship , <i>Université Paris-Saclay</i> , 1.8k€. Funding the research internship at the University of Bristol.
2014	First prize , <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	Adaptive probabilistic forecasting of French electricity spot prices in 2021 G. Dutot, M. Zaffran , O. Féron, Y. Goude	<i>Working paper</i>
In progress	A new dissimilarity for extreme rainfall clustering M. Zaffran , P. Naveau	<i>Working paper</i>
2023	Conformal Prediction with Missing Values M. Zaffran , A. Dieuleveut, J. Josse, Y. Romano	<i>40th International Conference on Machine Learning</i>
2022	Adaptive Conformal Predictions for Time Series M. Zaffran , O. Féron, Y. Goude, J. Josse, A. Dieuleveut	<i>39th International Conference on Machine Learning</i>
2021	qgam: Bayesian non-parametric quantile regression modelling in R M. Fasiolo, S. N. Wood, M. Zaffran , R. Nedellec, Y. Goude	<i>Journal of Statistical Software</i>
2020	Fast calibrated additive quantile regression M. Fasiolo, S. N. Wood, M. Zaffran , R. Nedellec, Y. Goude	<i>Journal of the American Statistical Association</i>
2020	On the Wiener optical method to study molecular diffusion in liquids J.M. Roussel, M. Gailhanou, A. Larrivé, L. Montero, M. Zaffran , C. Torregrosa	<i>American Journal of Physics</i>

Research tutorials

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

Research talks

Conferences

July 2023	54th French Statistical Days , Brussels, Belgium	<i>Invited</i>
July 2022	DFUQ ICML Worskhop , Baltimore, USA	<i>Spotlight</i>
July 2022	39th International Conference on Machine Learning , Baltimore, USA (recording link)	
June 2022	Mathematical Methods for Modern Statistics 3 , Marseille, France	
June 2022	53th French Statistical Days , Lyon, France	
June 2021	52nd French Statistical Days , Online	

Seminars

June 2023	INRIA Saclay - MIND seminar , Palaiseau, France	<i>Invited</i>
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May 2023	EPFL - Swiss Data Science Center , Lausanne, Switzerland	
Mar. 2023	INRIA Causality and Missing Data Seminar , Online	
Feb. 2023	Sorbonne Université - LPSM PhD Students seminar , Paris, France	<i>Invited</i>
Feb. 2023	AgroParisTech/INRAE - MIA seminar , Palaiseau, France	<i>Invited</i>
Mar. 2022	International Seminar on Distribution-Free Statistics , online (recording link)	<i>Invited</i>
Nov. 2021	INRIA Causality and Missing Data Seminar , 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 , <i>The Young Statisticians, SFdS (French Statistical Society)</i> . Organizing the 11th Young Statisticians and Probabilists day. Organizing the Youth Activities at the French Statistical Days (JdS).
2022	Volunteer , <i>The Young Statisticians, SFdS (French Statistical Society)</i> . Helping for the organization of the Youth Activities at the French Statistical Days (JdS).
2022-now	Volunteer , <i>Femmes et mathématiques, Animath</i> , https://filles-et-maths.fr/ . <ul style="list-style-type: none"> • 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 , <i>parity and diversity committee, CMAP, Ecole Polytechnique</i> .
2020-2021	Member , <i>Machine Learning Journal Club, CMAP, Ecole Polytechnique</i> .
2016-2018	Project leader (2018) & member (2017) , <i>RISE² (Rencontres Innovation et Sciences des Étudiants de l'ENSTA Paris)</i> . Event bringing together companies, researchers and start-ups. Keynote speakers: Cédric Villani (2017), Étienne Klein (2018).
2016-2017	Treasurer , <i>GraviTation (ENSTA Paris science association)</i> .

Technical skills

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

Miscellaneous

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