Margaux Zaffran

PhD in statistics
(applied mathematics)

Palaiseau, France
27 years old
French nationality

Education

2020-2024	**INRIA and École polytechnique,** *PhD Student in statistics*.	Palaiseau, France

Post-hoc predictive uncertainty quantification: methods with applications to electricity price forecasting.
Supervised by Aymeric Dieuleveut (École polytechnique) and Julie Josse (INRIA).
Committee: E. Candès (Stanford University), F. Forbes (INRIA), É. Moulines (École polytechnique), P. Pinson (Imperial College London, referee), A. Ramdas (Carnegie Mellon University), É. Roquain (Sorbonne Université, referee)

2019-2020	**École 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 learning

Average 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 methods

GPA: 4.04/4. Ranked 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

2020-2023	**Research engineer (PhD contract),** *Electricité De France (EDF) R&D*.	Palaiseau, France

Short-term probabilistic forecasting of electricity market prices.
Supervised by Olivier Féron and Yannig Goude.

Teaching and supervision

2022	**MSc Student Supervision,** *EDF R&D,* 5 months, Grégoire Dutot MSc thesis (MVA).	Palaiseau, France
2022, 2023	**Teaching Assistant,** *Université Paris Dauphine - PSL,* 2nd year of the MSc Digital Economics.	Paris, France
2021, 2022 & 2023	**Teaching Assistant,** *ENSTA Paris,* 3rd year of BSc and 1st year of MSc.	Palaiseau, France

- Linear time series, 1st year of MSc (15h/year)
- Introduction to probability, 3rd year of BSc (15h/year)
- Introduction to statistics, 3rd year of BSc (15h/year)

Visiting stays and internships

Aug. 2023	**Visiting research student,** *Stanford University*.	Stanford, US

Hosted by Madeleine Udell.

August to Oct. 2022	**Visiting research student,** *Technion, Israel Institute of Technology*.	Haifa, Israel

Collaboration with Yaniv Romano.

April to Oct. 2020	**Research student,** *Laboratoire des Sciences du Climat et de l'Environnement*.	Gif-sur-Yvette, France

Clustering of extreme rainfall by coupling machine learning algorithms and Kullback-Leibler divergence.
Supervised by Philippe Naveau.

March to Aug. 2019	**Research engineer intern,** *General Electric Healthcare*.	Buc, France

Predicting user *(i.e. medical doctor)* preferences of an image review software by machine learning.

Sep. 2018 to Mar. 2019	**Research engineer intern,** *Data Innovation Lab, EDF R&D.* Developed machine learning methods to drive a nuclear unit.	Palaiseau, France

May to Aug. 2018	**Visiting research student,** *School of Mathematics Research, University of Bristol.* 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.	Bristol, United Kingdom

Grants and awards

2024   **City medal,** *Palaiseau*.

2023   **One of the Young Talents for France, For Women in Science,** *Fondation L'Oréal-UNESCO,* 15k€.
Jury composed of members of the French Academy of Sciences.
35 PhD and post-doctorate women awarded among more than 600 applicants from various scientific fields.

2022   **Laureate for France of the Séphora Berrebi Scholarship for Women in Advanced Mathematics,** *Association Séphora Berrebi,* 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,** *FMJH and LMH,* 2.3k€.
Funding the research stay at the Technion - Israel Institute of Technology.

2022   **Best MSc thesis project,** *ENSTA Paris,* 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,** *Université Paris-Saclay,* 1.8k€.
Funding the research internship at the University of Bristol.

2014   **First prize,** *National Physics Olympiad*.
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 jurys.
One-day presentation at the Palais de la Découverte (Paris) in front of their public visitors (children, neophytes, etc).

Scientific activities

Research papers

2024   **Predictive Uncertainty Quantification with Missing Covariates**   preprint on arXiv
M. Zaffran, J. Josse, Y. Romano, A. Dieuleveut   submitted to *Journal of Machine Learning Research*

2024   **Adaptive probabilistic forecasting of French electricity spot prices**   preprint on arXiv
G. Dutot, **M. Zaffran**, O. Féron, Y. Goude   submitted to *Applied Energy*

2023   **Conformal Prediction with Missing Values**   *40th International Conference on Machine Learning*
M. Zaffran, A. Dieuleveut, J. Josse, Y. Romano

2022   **Adaptive Conformal Predictions for Time Series**   *39th International Conference on Machine Learning*
M. Zaffran, O. Féron, Y. Goude, J. Josse, A. Dieuleveut

2021   **qgam: Bayesian non-parametric quantile regression modelling in R**   *Journal of Statistical Software*
M. Fasiolo, S. N. Wood, **M. Zaffran**, R. Nedellec, Y. Goude

2020   **Fast calibrated additive quantile regression**   *Journal of the American Statistical Association*
M. Fasiolo, S. N. Wood, **M. Zaffran**, R. Nedellec, Y. Goude

2020   **On the Wiener optical method to study molecular diffusion in liquids**   *American Journal of Physics*
J.M. Roussel, M. Gailhanou, A. Larrivé, L. Montero, **M. Zaffran**, C. Torregrosa

Research tutorials

July 2024	**41st International Conference on Machine Learning (ICML)**, Wien, Austria	
July 2024	**40th Uncertainty in Artificial Intelligence (UAI)**, Barcelona, Spain	
Sep. 2023	**ENBIS Annual European Conference**, Valencia, Spain	*Invited to give a half-day course*
April 2023	**MASPIN days**, Besançon, France	*Half-day course*

↪ Conformal prediction tutorial made available online and open source.

Research talks

Conferences

Jan. 2024	**Mathematical Statistics Day**, Paris, France	*Invited*
Sep. 2023	**StatMathAppli**, Fréjus, France	
July 2023	**54th French Statistical Days**, Brussels, Belgium	*Invited*
July 2022	**DFUQ ICML Worskhop**, Baltimore, US	*Spotlight*
July 2022	**39th International Conference on Machine Learning**, Baltimore, US (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 2024	**LJK – DATA seminar**, Grenoble, France	*Invited*
June 2024	**INRIA Grenoble – THOTH seminar**, Grenoble, France	
Dec. 2023	**PhD days PreMeDICaL and METHODS INRIA teams**, Paris, France	*Invited*
Oct. 2023	**IMT – Statistics and Optimization seminar**, Toulouse, France	*Invited*
Oct. 2023	**FAST-BIG – Stats workshop**, Paris, France	*Invited*
Aug. 2023	**Emmanuel Candès' group meeting**, Stanford, US	
Aug. 2023	**Madeleine Udell's group meeting**, Stanford, US	
June 2023	**INRIA Saclay – MIND seminar**, Palaiseau, France	*Invited*
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	*Invited*
Feb. 2023	**AgroParisTech/INRAE – MIA seminar**, Palaiseau, France	*Invited*
Mar. 2022	**International Seminar on Distribution-Free Statistics**, online (recording link)	*Invited*
Nov. 2021	**INRIA Causality and Missing Data Seminar**, Online	
April 2021	**Machine Learning Journal Club**, Online	

15+ talks with an internal audience:

- 3 Causality and Missing Data Seminars, *INRIA*
- 4 SIMPAS Group Meetings, *CMAP, École Polytechnique*
- 3 Group Meetings, *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

July 2023	**40th International Conference on Machine Learning**, Honolulu, US
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, US
July 2022	**39th International Conference on Machine Learning**, Baltimore, US
Sep. 2021	**FiME days**, Palaiseau, France

Reviewing

- *Journal of Business and Economic Statistics* (JBES)
- *International Journal of Forecasting* (IJF)
- *Machine Learning*
- *AISTATS* 2023 (among the 10% top reviewers)
- *NeurIPS* 2023

Involvement

2023-now	**Co-founder and co-organizer,** *Aymeric Dieuleveut's group meetings*.
2023-now	**Volunteer,** *For Girls in Science*.
	Participation to a full day of outreach at the Cité des Sciences.
2023-now	**President,** *The Young Statisticians, SFdS (French Statistical Society)*.
	Organizing the 12th Young Statisticians and Probabilists day.
	Organizing the Youth Activities at the 2024 French Statistical Days (JdS2024).
2022-2023	**Vice-president,** *The Young Statisticians, SFdS (French Statistical Society)*.
	Organizing the 11th Young Statisticians and Probabilists day.
	Organizing the Youth Activities at the 2023 French Statistical Days (JdS2023).
2022	**Volunteer,** *The Young Statisticians, SFdS (French Statistical Society)*.
	Helping for the organization of the Youth Activities at the 2022 French Statistical Days (JdS2022).
2022-now	**Volunteer,** *Séphora Berrebi Association*.
	Participation to various masterclasses for high school girls.
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
- Conference speaker during a *Rendez-vous des Jeunes Mathématiciennes et Informaticiennes*, a full weekend of mathematics and computer science outreach for high school girls.

2021-2024	**Elected member,** *parity and diversity committee, CMAP, École polytechnique*.
2020-2021	**Member,** *Machine Learning Journal Club, CMAP, École polytechnique*.
2016-2018	**Project leader (2018) & member (2017),** *RISE[2] (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)*.
2015-now	**Volunteer,** *Lycée Marseilleveyre*.
	Interventions in high school classes.