

# Margaux Zaffran

Third year PhD Student  
in statistics (applied mathematics)

Palaiseau, France  
27 years old  
French nationality



## Education

Nov. 2020 - current	<b>INRIA and École polytechnique</b> , <i>PhD Student in statistics</i> . Predictive intervals with light assumptions for machine learning algorithms. Supervised by <a href="#">Aymeric Dieuleveut</a> (École polytechnique) and <a href="#">Julie Josse</a> (INRIA).	Palaiseau, France
2019-2020	<b>École polytechnique</b> , <i>MSc Data Sciences</i> , double degree. <ul style="list-style-type: none"><li>• Statistical learning theory, generalization properties, bootstrap and resampling methods</li><li>• Online learning and aggregation, reinforcement learning, deep learning</li><li>• Optimal transport, probabilistic graphical models, extreme values, Bayesian learning</li></ul> Average grade: 17.7/20.	Palaiseau, France
2016-2020	<b>ENSTA Paris</b> , <i>Institut Polytechnique de Paris</i> , engineering track. Simulation and Mathematical Engineering track, Optimization and Data Sciences specialization. <ul style="list-style-type: none"><li>• Statistics: statistical modeling, linear and non-linear time series</li><li>• Optimization: Markov decision process, large systems, proximal methods</li></ul> GPA: 4.04/4. Ranked in the top 5% of the first year class (common core, 150 students).	Palaiseau, France
2014-2016	<b>Lycée Louis-Le-Grand</b> , <i>Mathematics and Physics</i> , classes préparatoires aux grandes écoles.	Paris, France
2014	<b>Lycée Marseilleveyre</b> , French scientific Baccalauréat and Spanish Bachillerato. Spanish international section, 11 weekly hours of literature and history of the Spanish-speaking world.	Marseille, France

## Professional activities

Nov. 2020 - current	<b>Research engineer (PhD contract)</b> , <i>Electricité De France (EDF) R&amp;D</i> . Short-term probabilistic forecasting of electricity market prices. Supervised by <a href="#">Olivier Féron</a> and <a href="#">Yannig Goude</a> .	Palaiseau, France
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## Teaching and supervision

2022	<b>MSc Student Supervision</b> , <i>EDF R&amp;D</i> , 5 months, Grégoire Dutot MSc thesis (MVA).	Palaiseau, France
2022, 2023	<b>Teaching Assistant</b> , <i>Université Paris Dauphine - PSL</i> , 2nd year of the MSc Digital Economics.	Paris, France
2021, 2022 & 2023	<b>Teaching Assistant</b> , <i>ENSTA Paris</i> , 3rd year of BSc and 1st year of MSc. <ul style="list-style-type: none"><li>• Linear time series, 1st year of MSc (15h/year)</li><li>• Introduction to probability, 3rd year of BSc (15h/year)</li><li>• Introduction to statistics, 3rd year of BSc (15h/year)</li></ul>	Palaiseau, France

## Visiting stays and internships

Aug. 2023	<b>Visiting research student</b> , <i>Stanford University</i> . Hosted by <a href="#">Madeleine Udell</a> .	Stanford, US
August to Oct. 2022	<b>Visiting research student</b> , <i>Technion, Israel Institute of Technology</i> . Collaboration with <a href="#">Yaniv Romano</a> .	Haifa, Israel
April to Oct. 2020	<b>Research student</b> , <i>Laboratoire des Sciences du Climat et de l'Environnement</i> . Clustering of extreme rainfall by coupling machine learning algorithms and Kullback-Leibler divergence. Supervised by <a href="#">Philippe Naveau</a> .	Gif-sur-Yvette, France
March to Aug. 2019	<b>Research engineer intern</b> , <i>General Electric Healthcare</i> . Predicting user ( <i>i.e. medical doctor</i> ) preferences of an image review software by machine learning.	Buc, France

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 **Visiting research student, 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

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 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 **Predictive Uncertainty Quantification with Missing Covariates** *Working paper*  
**M. Zaffran, A. Dieuleveut, J. Josse, Y. Romano** to be submitted to *Journal of Machine Learning Research*

In progress **Adaptive probabilistic forecasting of French electricity spot prices in 2021** *Working paper*  
**G. Dutot, M. Zaffran, O. Féron, Y. Goude** to be 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

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

### Seminars

June 2024	<b>LJK – DATA seminar</b> , Grenoble, France	<i>Invited</i>
Dec. 2023	<b>PhD days PreMeDICaL and METHODS INRIA teams</b> , Paris, France	<i>Invited</i>
Oct. 2023	<b>IMT – Statistics and Optimization seminar</b> , Toulouse, France	<i>Invited</i>
Oct. 2023	<b>FAST-BIG – Stats workshop</b> , Paris, France	<i>Invited</i>
Aug. 2023	<b>Emmanuel Candès’ group meeting</b> , Stanford, US	
Aug. 2023	<b>Madeleine Udell’s group meeting</b> , Stanford, US	
June 2023	<b>INRIA Saclay – MIND seminar</b> , Palaiseau, France	<i>Invited</i>
May 2023	<b>EPFL – Swiss Data Science Center</b> , Lausanne, Switzerland	
Mar. 2023	<b>INRIA Causality and Missing Data Seminar</b> , Online	
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>
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	
April 2021	<b>Machine Learning Journal Club</b> , Online	

### 10+ talks with an internal audience:

- 3 Causality and Missing Data Seminars, *INRIA*
- 3 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	<b>40th International Conference on Machine Learning</b> , Honolulu, US
June 2023	<b>Foundations of Computational Mathematics</b> , Paris, France
April 2023	<b>StatLearn workshop</b> , Montpellier, France
Dec. 2022	<b>International Conference on Statistics and Data Science</b> , Florence, Italy
July 2022	<b>DFUQ ICML Workshop</b> , Baltimore, US
July 2022	<b>39th International Conference on Machine Learning</b> , Baltimore, US
Sep. 2021	<b>FiME days</b> , Palaiseau, France

## Reviewing

- *Journal of Business and Economic Statistics* (JBES)
- *International Journal of Forecasting* (IJF)
- *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)*.
- 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 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**, *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-now **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<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)*.
- 2015-now **Volunteer**, *Lycée Marseilleveyre*.  
Interventions in high school classes.