

# Etienne Gauthier

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## SUMMARY

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I am a second-year PhD student in the Sierra team at Inria and ENS Ulm, under the supervision of Francis Bach and Michael I. Jordan. My research focuses on decision-making in multi-agent environments, an area that lies at the intersection of machine learning, statistics, and game theory.

## EDUCATION

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2024 - 2027 PhD (Computer Science) at **Inria & ENS Ulm**  
2023 - 2024 Master's Degree (Mathematics, Vision, Learning) at **ENS Paris-Saclay**  
2020 - 2024 Cycle Ingénieur at **École polytechnique**  
2018 - 2020 Classes Préparatoires aux Grandes Écoles at **Lycée privé Sainte-Geneviève**

## WORK EXPERIENCE

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**Research Intern, Kyoto University Institute for Advanced Study** Mar 2023 – Aug 2023  
**Kyoto, Japan**

- Conducted research under the supervision of Prof. Yasuaki Hiraoka.
- Designed a new kernel for commutative ladders in multidimensional topological data analysis.
- Conducted research in theory of representations of associative algebras.

**Quantitative Research Intern, Fintica** Jun 2022 – Sep 2022  
**Tel Aviv, Israel**

- Developed a Monte Carlo algorithm to identify optimal rolling window sizes, balancing model accuracy and z-score/return similarity.
- Designed a machine learning-based equity investment strategy that outperformed the original approach on key performance indicators.
- Integrated insights from statistical analysis to locate and address suboptimal model performance areas.

**Officer Cadet, French Navy** Nov 2020 – Apr 2021  
**Charles de Gaulle Aircraft Carrier**

- Completed first-year military training as part of the École polytechnique curriculum.
- Served in an NH90 helicopter unit aboard the *Charles de Gaulle* aircraft carrier.
- Deployed in the Mediterranean Sea, Red Sea, Indian Ocean, and Persian Gulf during the *Clemenceau 21* mission.

## TEACHING EXPERIENCE

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**Teaching Assistant, Université Paris 1 Panthéon-Sorbonne** Sep 2022 – Jan 2023  
*Statistics: Probabilities* for 2<sup>nd</sup> year undergraduate students.

## OTHER

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**Annotator, META FAIR Paris** Aug 2022 – Mar 2023  
Annotation of mathematical statements in Lean language, used as a dataset for neural theorem proving.

## PUBLICATIONS

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Etienne Gauthier, Francis Bach, and Michael I. Jordan. “Adaptive Coverage Policies in Conformal Prediction”. In: *arXiv preprint arXiv:2510.04318* (2025).

Etienne Gauthier, Francis Bach, and Michael I. Jordan. “Backward Conformal Prediction”. In: *Advances in Neural Information Processing Systems* (2025).

Etienne Gauthier, Francis Bach, and Michael I. Jordan. “E-Values Expand the Scope of Conformal Prediction”. In: *arXiv preprint arXiv:2503.13050* (2025).

Etienne Gauthier, Francis Bach, and Michael I. Jordan. “Statistical Collusion by Collectives on Learning Platforms”. In: *International Conference on Machine Learning* (2025). **Accepted for Talk (top 1%)**.

Hideto Asashiba, Etienne Gauthier, and Enhao Liu. “Interval Replacements of Persistence Modules”. In: *arXiv preprint arXiv:2403.08308* (2024).

## TALKS & PRESENTATIONS

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- Talk: **Recent Advances in Conformal Prediction with E-Values**, *Joint Meetings of 2025 Taipei International Statistical Symposium and the 13th ICSA International Conference*, Taipei, Taiwan, Dec 2025.
- Poster: **Backward Conformal Prediction**, *Advances in Neural Information Processing Systems*, San Diego, USA, Dec 2025.
- Talk: **Recent Advances in Conformal Prediction with E-Values**, *Séminaire Parisien de Statistique de l’Institut Henri Poincaré*, Paris, France, Oct 2025.
- Talk: **Recent Advances in Conformal Prediction with E-Values**, *OCEAN Retreat*, Paris, France, Jul 2025.
- Talk & Poster: **Statistical Collusion by Collectives on Learning Platforms**, *International Conference on Machine Learning*, Vancouver, Canada, Jul 2025.
- Talk: **E-Values Expand the Scope of Conformal Prediction**, *3rd Annual Workshop on Game-Theoretic Statistical Inference*, Chennai, India, Jul 2025.
- Talk: **Statistical Collusion by Collectives on Learning Platforms**, *From Matching to Market: A Tale of Mathematics, Economics and Computer Science*, Cargèse, France, Apr 2025.
- Talk: **Statistical Collusion by Collectives on Learning Platforms**, *Chaire Marchés et Apprentissage*, Paris, France, Mar 2025.