# Ulysse Marteau-Ferey

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## Education

### Higher education

- **Inria Paris - École Normale Supérieure de Paris – Ph.D.**  2019–present
  Workings towards a Ph.D. in mathematics in the SIERRA project-team under the supervision of Francis Bach and Alessandro Rudi on learning theory and optimization in Reproducing Kernel Hilbert spaces.
- **École Normale Supérieure de Paris-Saclay – MSc2: M. V. A. ("Mathematiques, Vision, Apprentissage")**  2017–2018
  Highly selective Master of Science program in mathematics, vision and machine learning
  Studied different aspects machine learning, such as object recognition, optimization, stochastic methods and Kernel methods, with a rigorous mathematical approach. Obtained the degree with highest honours ("félicitations du jury").
- **École Normale Supérieure de Paris – BSc, MS1 : Department of mathematics and applications**  2015 – present
  The leading French institution for scientific research
  "Élève normalien" studying theoretical and applied mathematics, including stochastic processes, partial differential equations, and optimal transport. Bachelor and Master 1 degree with highest honors ("mention très bien").
- **Lycée Sainte-Geneviève – MPSI,MP***  2013–2015
  "Classe préparatoire" : a two year intensive maths, physics and computer science program preparing the entry exams to the top engineering and science schools. Ranked 13th at the ENS and 3rd at the Ecole Polytechnique entry exams.

### Diplomas and awards

- **Travel Award, COLT 2019/ Travel Award, NeurIPS 2019**  2019
- **"Baccalaureat mention très bien"** (French high-school diploma. Obtained the maximal grade of $20/20$)  2013
- **"Olympiades de mathématiques belges"** Third prize in the Belgian Mathematical Olympiads  2013

## Experience

### Scientific publications/pre-publications

- **Sampling from Arbitrary Functions via PSD Models**  2021
  Accepted for AISTATS 2022 (oral). Joint work with Francis Bach and Alessandro Rudi. This paper proposes a method for sampling from any probability distribution, given its density function (up to a constant).
- **Finding Global Minima via Kernel Approximations**  2020
  Arxiv preprint. Joint work with Francis Bach and Alessandro Rudi. This paper proposes a novel method for global optimization using kernels, leveraging the smoothness of the function to optimize while relying solely on function evaluations.
- **Non-parametric Models for Non-negative Functions**  2020
  Proceedings of NeurIPS 2020 (spotlight talk); joint work with Francis Bach and Alessandro Rudi. This paper develops an interesting linear model which guarantees non-negativity.
- **Globally Convergent Newton Methods for Ill-conditioned Generalized Self-concordant Losses**  2019
  Proceedings of NeurIPS 2019; joint work with Francis Bach and Alessandro Rudi. This paper develops a fast second order method to minimize regularized functions, and introduces a statistically optimal and fast algorithm for Kernel logistic regression.
- **Beyond Least-Squares: Fast Rates for Regularized Empirical Risk Minimization through Self-Concordance**  2019
  Proceedings of COLT 2019; joint work with Dmitrii Ostrovskii, Francis Bach and Alessandro Rudi. This paper analyses in a fine way the statistical trade-offs for regularized empirical risk minimization for non-parametric methods.

### Teaching experience

- **Teaching assistant in Statistical Learning**  2022
  École Normale Supérieure (E.N.S.) Paris
- **Lycée privé Sainte-Geneviève – France**  2015–2017
  Selected to conduct "colles", weekly oral testing in mathematics for students of "classes préparatoires"

### Conferences

- **Neural Information Processing Systems (NeurIPS 2020)** (Gave a spotlight talk; presented a poster)  Dec 2020
- **Neural Information Processing Systems (NeurIPS 2019) – Vancouver** (Presented a poster)  Dec 2019
- **Conference On Learning Theory (COLT 2019) – Phoenix** (Gave a talk)  Jun 2019
- **International Conference in Machine Learning (Stockholm)** (Was a volunteer for the conference)  Jul 2018

### Work experience

- **Capital Fund Management (CFM)– Paris,France**  Sep 2020– Jan 2021
  Under the direction of Sylvain Champonnois and Charles-Albert Lehalle. Worked as a contractor to explore and implements new indicators using Natural Language Processing tools (NLP).

### Internships

- **INRIA – Paris**  Mar 2018 – Aug 2019
  Part of the SIERRA project-team under the direction of Francis Bach and Alessandro Rudi. Conducting research on the statistical rates of certain estimators and the development of associated effective algorithms for Kernel Methods.
- **Cambridge University – UK**  Mar 2017 – Jul 2017
  Part of the research team of Nathanaël Berestricky in the field of random walks. Conducted research on a specific conjecture and its consequences. Concluded by a lecture at the E.N.S. on the loop exponents in the infinite critical-$FK$ model for random maps.
- **EY Luxembourg – Luxembourg**  Jul 2013
  2-week internship in the audit and press relations department.

## Voluntary work

- **TFJM (French Tournament for Young Mathematicians) – France** 2015–2016
  Coaching of a team of high-school students for the annual tournament
- **Scouts – Belgium** 2009–2013
  Managing a group of eight boy scouts during the last two years

## Languages and computer skills

- **Languages** : French (mother tongue), English (fluent, C2 certification and TOEFL iBT score of 115), German (B1)
- **Computer** : Microsoft, Python

## Interests

- **Sports**: I have been captain of my school's basketball team since secondary school. I also enjoy outdoor sports such as climbing, hiking and cycling.
- **Culture**: I am fond of cinema, classical music (I have played the violin for ten years and have a subscription to the Paris Opera), modern ballet and literature.
- **Travels**: I have lived in Ivory Coast and in the US. I enjoy traveling and have been across Africa (Ivory Coast, Rwanda, Tanzania, Kenya), Asia (Japan, Vietnam, Cambodia) and Europe.