

Mathilde André

PhD student in Probability applied to Biology

(+33)680732500

[LinkedIn](#)

mathilde.andre@college-de-france.fr

[Personal webpage](#)

A first year PhD student, I graduated from the *École Polytechnique* and pursued my curriculum with a master's degree in probability theory at *Université Paris-Saclay*. I am passionate about stochastic processes with special interest for applications in biology, to which I am willing to dedicate my research career. To this end, I am doing a PhD at *Collège de France*, *École Normale Supérieure* and *University of Vienna*.

EDUCATION

PhD thesis in Probability applied to Biology 2023 — 2026

Collège de France, ENS, University of Vienna

Paris, France and Vienna, Austria

- PhD entitled "*Scaling limits of random graphs arising in branching and interacting particle systems*"
- Collaboration with Emmanuel SCHERTZER (University of Vienna), Amaury LAMBERT (ENS, Collège de France) and Jean-Jil DUCHAMPS (University of Besançon – Franche-Comté)

Master of Science in Probability Theory 2022 — 2023

Université Paris-Saclay (M2 Mathématiques de l'Aléatoire)

Orsay, France

- Master's degree in probability theory, research-oriented
- Added some courses from the master "Mathematics for life sciences" from Université Paris-Saclay
- Coursework included Stochastic calculus, Limit theorems, Populations genetics, Random graphs, Branching processes
- Obtained a master's degree in Probability, with high honours

Final-year specialisation in Applied Mathematics 2021 — 2022

École Polytechnique

Palaiseau, France

- Coursework included Operation Research, Probability, Stochastic Processes, Mathematical Biology and Risk Analysis
- Obtained an engineer diploma (master's degree), GPA : 3.92/4, Ranked 78/557

Multidisciplinary engineering curriculum - Bachelor Of Science 2019 — 2021

École Polytechnique

Palaiseau, France

- Major in Applied Mathematics : Modelling, Randomness, Numerical Analysis, Machine Learning and Optimisation
- Minors in Computer Science and Mathematics, + some courses in Art, Philosophy and Management
- Obtained a Bachelor of Science with high honours

Classe préparatoire MPSI/MP* (CPGE) 2016 — 2019

Lycée J.B. Kléber

Strasbourg, France

- Joined CPGE after a high school diploma with high honours, option in Mathematics
- Attended a selective scientific program to join top leading French schools
- Coursework included Mathematics, Physics and French Literacy

TALKS AND POSTERS

Mathematical Models in Ecology and Evolution – MMEE24 July 15th - 18th, 2024

Faculty of Mathematics, University of Vienna, Austria

Poster

Junior Female Researchers in Probability Workshop – JFRP24 July 3rd – 5th 2024

WIAS, Berlin, Germany

Contributed talk

6th Workshop “Probability and Evolution” in CIRM May 20th – 24th 2024

Centre International de Recherche en Mathématiques, Luminy, France

Contributed talk and poster

Probability Seminar May 5th 2024

LMB, Université de Besançon, France

Seminar talk

Bio-Maths Seminar April 26th 2024

Faculty of Mathematics, University of Vienna, Austria

Seminar talk

TECHNICAL EXPERIENCE

Research Internship in Mathematical Biology, under the supervision of Amaury LAMBERT April 2023–August 2023
CIRB, SMILE research team, Collège de France Paris, France

- Modelling development through branching and interacting particle systems
- Keywords : Branching Brownian Motion, particle systems, large deviations theory, eco-evolutionary processes, somatic evolution, Turing patterns

Research Internship in probability theory, under the supervision of Emmanuel SCHERTZER March 2022–July 2022
Faculty of Mathematics, University of Vienna Vienna, Austria

- Developed a branching process toy model to study the Wright-Fisher model with recombination and transposition
- Studied long-time behavior and limits theorems for nearly critical branching processes conditioned to being nonzero

Internship in Graph Theory and Data Science June 2021–August 2021
Gens de Confiance Nantes, France

- Designed and implemented a link prediction algorithm on a large social graph to optimise and fasten members' friend suggestions
- Involved research in graph theory, random walks on graphs, knowledge graphs and graph neural networks

Tutoring in Mathematics and Physics October 2019– June 2020
LFB – French Highschool of Barcelona Barcelona, Spain

- Regularly helped and supervised ~ 10 highschool students with learning difficulties
- Continued to help them remotely during the pandemic until the end of the school year

Internship in Education and Mathematics October 2019–April 2020
UPC BarcelonaTech/LFB – French Highschool of Barcelona Barcelona, Spain

- Worked as a math teacher for highschool and undergraduate students and trained them for mathematics competitions
- Took charge of a class of 30 students for a month as a replacement for their Math teacher

Volunteering in a child's festival July 2011–2017
Festival Idéklic Moirans-en-Montagne, France

- Took care of children aged 2-13 full-time for a week and initiated them to Braille's writing system

SKILLS

Tools and Languages	Python, Jupyter Notebook, \LaTeX , Unix, Java, C++, Git, PHP, SQL
Hard Skills	Probability theory, Stochastic Calculus, Mathematical Biology, Numerical Analysis, Topology
Languages	<ul style="list-style-type: none">• French (Mother tongue)• English (Fluent, TOEFL 103/120)• Spanish (Profession level, lived in Spain)• German (Profession level, lived in Austria)• Italian (Basic level, from highschool)• Korean (Basic level)