

## EDUCATION

---

- 2023-now **École polytechnique, Applied Maths Department, PhD Student.** Palaiseau, France  
Decentralized first order optimization robust to adversarial agents.  
Supervised by [Aymeric Dieuleveut](#) (École polytechnique) and [Hadrien Hendrikx](#) (Inria).
- 2022-2023 **Paris-Saclay University, MSc in probability, statistics and machine learning.** Orsay, France  
➢ Statistical learning, high-dimensional statistics, concentration inequalities, stochastic calculus.  
➢ First order optimization, random matrices, optimal transport, fairness.  
[Highest honors](#) received.
- 2019-2023 **École polytechnique, MSc & BSc in applied maths.** Palaiseau, France  
4-Year program in the [n°1 ranked French Grande École](#) providing a thorough multidisciplinary scientific education.  
➢ 3rd Year : Specialization in applied mathematics (statistics, machine learning, probability).  
➢ 2nd Year : Multidisciplinary teaching (applied mathematics, fundamental mathematics, fundamental physics, computer science).  
➢ 1st Year : Common core curriculum (applied mathematics, fundamental mathematics, quantum physics, computer science, economics).
- 2017-2019 **Lycée Hoche, MPSI-MP\*.** Versailles, France  
Followed a two-year intensive program in Maths, Physics and Computer Science to prepare for highly competitive nationwide exams.

## EXPERIENCE

---

- April to Sep. 2023 **Research intern , École polytechnique.** Palaiseau, France  
Decentralized first order optimization robust to adversarial agents.  
Supervised by [Aymeric Dieuleveut](#) (École polytechnique) and [Hadrien Hendrikx](#) (Inria).
- April to July 2022 **Research intern, Technical University of Munich.** Munich, Germany  
Computer vision approaches for thyroid registration with anatomical prior.  
Supervised by [Benjamin Busan](#) and [Lennart Bastian](#).  
[Congratulations](#) of the École polytechnique's Applied Maths Department.
- July to Aug. 2021 **Study Engineer, Consulting Department, ONHYS.** Sophia-Antipolis, France  
Definition of inputs and outputs in a crowd simulation software and market research of business partner
- Nov. to March 2020 **French Military Coordinator, French Embassy in Accra.** Accra, Ghana  
Managed 5 French learning centers with the Ghanaian Army in a French and English-speaking environment.

## PUBLICATIONS

---

- 2024 **R. Gaucher**, A. Dieuleveut and H. Hendrikx, [Achieving Optimal Breakdown for Byzantine Robust Gossip](#), *arXiv 2410.10418*.
- 2024 **R. Gaucher**, A. Dieuleveut and H. Hendrikx, [Byzantine-Robust Gossip : Insights from a Dual Approach](#), *arXiv 2405.03449*.

## TEACHING

---

2023-now	<b>Teaching assistant in applied maths</b> , <i>École polytechnique</i> . Courses (64 hours each year) : <ul style="list-style-type: none"><li>› Statistics (MSc 1st year),</li><li>› Monte Carlo methods (MSc 1st year),</li><li>› Optimization and Deep Learning (MSc 2nd year),</li><li>› Randomness (BSc 3rd year).</li></ul>	Palaiseau, France
----------	--	-------------------

## COMMUNITY SERVICES

---

2023-now	<b>Organizer and co-founder</b> , <i>Aymeric Dieuleveut's weekly group meetings</i> .
2023-now	<b>Member</b> , <i>Sustainable Development committee, Center for Applied Mathematics - École polytechnique</i> .

## TALKS IN SEMINARS AND WORKSHOPS

---

Oct. 2024	Toth Inria team seminar.
Sep. 2024	REDEEM project seminar.
March. 2024	SIMPAS team seminar.
March. 2024	REDEEM project workshop.
Sep. 2023	REDEEM project workshop.

## PRE-PHD SCIENTIFIC PROJECTS

---

2021-2022	<b>Modeling random phenomena in biology</b> Study of cancer mutation dynamics via two-population branching models. Supervised by <a href="#">Vincent Bansaye</a> .
2020-2021	<b>Asymptotic behaviors in the Racetrack game</b> Study of optimal trajectories in the case of a car circuit with discrete positions. Supervised by <a href="#">Lucas Gerin</a> .
2018-2019	<b>Crowd movement modeling</b> Study of crowd movements with a model based on Uzawa algorithm. Supervised by <a href="#">Bertrand Maury</a> and <a href="#">Sylvain Faure</a> .

## MISCELLANEOUS

---

<b>Computer science</b>	<ul style="list-style-type: none"><li>› Python,</li><li>› Knowledge in Java, C++ and Ocaml.</li></ul>
<b>Languages</b>	<ul style="list-style-type: none"><li>› French (native),</li><li>› English (fluent),</li><li>› German (proficient).</li></ul>
<b>Sport</b>	Climbing, Running, Hiking, Sailing.