

# DAMIEN FERBACH

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[Website](#), [Linkedin](#), [Google Scholar](#), [Twitter](#)

## EDUCATION

PhD student, Mila, Université de Montréal

2024 – ongoing

📅 Supervised by Gauthier Gidel

I work on optimization theory in high dimensions. I am also broadly interested in loss landscape analysis and generative models.

Diplome de l'Ecole Normale Supérieure

Ecole Normale Supérieure of Paris, Ulm

📅 2020 – 2024

Normalien with a Major in Mathematics, Minor in Physics

Master of Science, Mathematics, specialized in Probability Theory, Statistics and Machine Learning

M2 Mathématiques de l'aléatoires, Orsay

📅 2021 – 2023

📍 First class honours

Study in parallel Quantum Field Theory and General Relativity at the International Center for Fundamental Physics

Bachelor of Science, Physics

Ecole Normale Supérieure of Paris, Ulm

📅 2020 – 2021

📍 First class honours

Preparatory Classes

Lycée Hoche, Versailles

📅 2018 – 2020

Two-year undergraduate intensive courses in fundamental mathematics and physics  
Ranked 1st at Ecole Polytechnique (No. 1 French Engineer School), 9th at ENS Ulm

## INDUSTRY EXPERIENCE

Quantitative Researcher, Summer Intern

G-Research, London, UK

📅 10 weeks program in June to September 2022

- Worked in the **High-Frequency** team to predict whether orders will be accepted by the market
- Coding experience in Python, especially learning from tabular data

## RESEARCH PAPERS

Self-Consuming Generative Models with Curated Data Provably Optimize Human Preferences

Damien Ferbach, Quentin Bertrand, Joey Bose, Gauthier Gidel

**NeurIPS 2024 Spotlight (~ to 3% of submitted papers)**

Proving Linear Mode Connectivity of Neural Networks via Optimal Transport

Damien Ferbach, Baptiste Goujaud, Gauthier Gidle, Aymeric Dieuleveut

**AISTATS 2024**

📅 5 months internship at Ecole Polytechnique in spring 2023

A general framework for proving the equivariant strong lottery ticket hypothesis

Damien Ferbach\*, Christos Tsirigotis\*, Gauthier Gidel, Joey Bose

**ICLR 2023**

📅 5 months internship at Mila in spring 2022

## 🏆 AWARDS

2020 **Ranked 1st national at entrance exam of Ecole Polytechnique**  
Specialty in Mathematics

2018 **Concours Général, Physics : 5th**  
France's most prestigious competition for graduating students

2018 **Concours Général, Mathematics : 14th**

2017 **Selected for the Mathematics Olympic French preparation**  
1-year training for graduating students preparing international mathematics competition

## CODING EXPERIENCE

**Proficient in Python**

Experience in training learning models (pytorch, jax, scipy), tabular data (panda)... I have especially experience in training diffusion and flow matching models

## OTHER EXPERIENCE

**Conference reviewer**

I served as a reviewer for the conferences ICLR 2024, AISTATS 2024