

Antoine Barrier | PhD student

+33 6 49 64 89 40 • antoine.barrier@ens-lyon.fr

<https://perso.ens-lyon.fr/antoine.barrier> • PhD student in Sequential Learning

Current position

UMPA (ÉNS Lyon) & LMO (Université Paris-Saclay)

Lyon & Orsay, France

PhD – Sequential Learning for Optimization

09/2020–...

Under the supervision of Aurélien Garivier at Unité de Mathématiques Pures et Appliquées (École Normale Supérieure de Lyon) and Gilles Stoltz at Laboratoire de Mathématiques d'Orsay (Université Paris-Saclay)

Education

École Normale Supérieure Paris-Saclay

Cachan, France

MSc – Mathématiques, Vision et Apprentissage (MVA), with highest honors

09/2019–08/2020

17,30/20 – Courses: Deep Learning, Reinforcement Learning, Statistical Learning, Probabilistic Graphical Models, Convex Optimization, Numerical Images, Medical Images

MSc – Agrégation de Mathématiques

09/2018–06/2019

Ranked 18 – French teaching competitive examination – Probabilities and Statistics option

Master 1 – Applied Mathematics, with highest honors

09/2017–07/2018

Joint M.S. program with ÉNS Paris-Saclay, École Polytechnique and Université Paris-Sud

Ranked 5/38 – 17,05/20 – Main courses: probabilities, statistical learning, networks, optimization, analysis

BSc – Fundamental Mathematics, with highest honors

09/2016–06/2017

Ranked 4/30 – 16,98/20 – Main courses: measure theory, probabilities, differential calculus, FOURIER analysis, algebra

Lycée Champollion

Grenoble, France

Preparatory Program, "Classe Préparatoire aux Grandes Écoles, MPSI/MP"*

09/2014–06/2016

Intensive two-year program preparing for the competitive entrance exams to French top schools for scientific studies

Experience

Bull (Atos)

Échirolles, France

R&D Intern, HPC Ressource Management Using Reinforcement Learning

04/2020 – 08/2020

Cognitive DataCenter R&D team. Under the supervision of Pierre Seroul (senior data scientist)

- Main goal : develop a Reinforcement Learning agent for schedule jobs in a HPC cluster
- Fields: Machine Learning, Artificial Intelligence, Reinforcement Learning
- Modelization : RL formulation of the problem, agent design
- Programmation : project development using a cluster simulator. Experiments to validate the proposed modelization (private repository)

Laboratoire J.A. Dieudonné (LJAD)

Nice, France

Summer school, "Random walks and complex networks"

07/2019

Two weeks of lectures about random walks on MARKOV chains (hitting time, cover time bounds, spanning trees) and random graphs (ERDÖS-RENYI model, configuration model, preferential attachment, modularity)

Laboratoire J.A. Dieudonné (LJAD)

Nice, France

Intern, Research work: "Random Hyperbolic Graphs"

04/2017 – 07/2018

Under the supervision of Dieter Mitsche

- Main goal: find some properties of random hyperbolic graphs (studies of propagation models)
- Fields: discret probabilities, graph theory
- Programming: generation of graphs, simulations of propagations (repository GitHub)

Centre de Mathématiques et de Leurs Applications (CMLA)

Cachan, France

Intern, Research work: "Bundle Adjustment with known positions"

01/2017 – 06/2017

Under the supervision of Jean-Michel Morel and Carlo de Franchis

- Main goal: develop a Bundle Adjustment method to improve the accuracy of 3D modelling algorithms in the satellite case
- Fields: constrained optimization, conditioning analysis, ill-posed problems
- Programming: numerical simulations on satellite images, comparison with current methods (repository Github)

Skills

Computer Skills.....

LaTeX: extensive knowledge **Python:** extensive knowledge **Office:** advanced knowledge

Other: Linux terminal, GitHub, docker, ...

Languages.....

French: mother tongue

English: advanced (**C1** – Cambridge Advanced Exam – 02/2020)

Spanish: basic knowledge

Associations

GICS: "Groupe pour l'Initiative et la Culture Scientifiques". Talks about mathematics for high school students

Mieux Voter: association promoting majority judgment. Founding Member