

# Antoine Moulin

PhD student in Reinforcement Learning



[antoine\\_mln](#)



[antoine-moulin](#)



[antoine.moulin@upf.edu](mailto:antoine.moulin@upf.edu)

## Education

---

**PhD in Machine Learning**, Universitat Pompeu Fabra. Barcelona, Spain. **12/21 – present**

*The PhD project aims to identify and exploit structural properties of Markov decision processes that make large-scale reinforcement learning (RL) statistically and computationally feasible.*

*Research interests include online RL, offline RL, function approximation, representation learning.*

*Part of the ELLIS PhD program. Co-supervised by [Gergely Neu](#) (University Pompeu Fabra) and [Arthur Gretton](#) (University College London).*

**Master of Science in Machine Learning**, ENS Paris-Saclay. Paris, France. **09/19 – 09/20**

*Name of the degree: [Mathematics](#), [Vision](#), [Learning](#) (MVA). Grade: 17.34/20.00.*

*Coursework: RL, Computer Vision, Graphs in Machine Learning, Graphical Models, Optimization, Deep Learning (DL), Neurosciences, Kernel Methods, Sequential Learning, Multi-scale models, Biostatistics.*

**Engineering Degree**, Telecom Paris. Paris, France. **09/17 – 09/20**

*Equivalent to a Masters. Top 5% cohort. First student to pass 3 tracks (instead of 2). GPA: 4.00/4.00.*

*2<sup>nd</sup> year tracks: Applied Mathematics, Data Science & Image Processing.*

**Preparatory Classes**, Lycée Janson-de-Sailly. Paris, France. **09/15 – 07/17**

*Post-secondary two-year program in Advanced Mathematics and Physics. GPA: 3.96/4.00.*

## Experience

---

**Research Engineer**, INRIA. Lille, France. **02/21 – 04/21**

*Kept working on the internship project, with more focus on TRPO and mirror descent algorithms.*

**Research Intern**, INRIA. Lille, France. **05/20 – 10/20**

*Research intern (6 months): implemented extensions of actor-critic methods (PPO, TRPO) to improve exploration, worked on reproducibility issues in RL.*

**Research Intern**, Aalto University. Helsinki, Finland. **Summer 2019**

*Reviewed the literature on canonical correlation analysis (CCA) methods and implemented an efficient extension of a sparse kernel CCA method.*

**Analyst Intern**, Crédit Agricole. Caen, France. **Summer 2018**

**Communication Manager**, Junior-Entreprise. Paris, France. **2018 – 2019**

*Organized workshops, study cases, visits and a gala for students & partner companies (budget: €27k). Managed missions in Machine Learning for several companies.*

## Publications

---

**Moulin, Antoine** and Neu, Gergely. *Optimistic Planning by Regularized Dynamic Programming*. In *International Conference on Machine Learning*, 2023.

# Academic Activities

---

## Talks

- **Optimistic Planning by Regularized Dynamic Programming.**
  - Stanford University. Stanford, CA (07/23).
  - Princeton University. Princeton, NJ (08/23).
- **Infinite horizon RL with linear function approximation**, Universitat Pompeu Fabra. Barcelona, Spain (03/23).
- **Primal-dual methods for RL**, Gatsby Unit, University College London. London, UK (09/22).
- **Introduction to JAX**, ELLIS Doctoral Symposium. Tübingen, Germany (09/21).
- **Virtual Sculpture**, 'Journée de l'Innovation' (finalist). Paris, France (06/18).

## Teaching

- **Introduction to Machine Learning** (Universitat Pompeu Fabra, 2022 – present).
- **Algorithm Design** (Universitat Pompeu Fabra, 2022 – present).
- **Computer Science** (IPESUP, bootcamp for high-school students, 2023).
- **Probabilities** (Universitat Pompeu Fabra, 2022).
- **Mathematics Examiner** (Janson-de-Sailly, preparatory classes, 2018 – 2019).

## Other

- Co-organizer of the RL summer school 2023 ([RLSS 2023](#)).
- Co-chair of the ELLIS RL reading group (2021 – 2022).
- Volunteer at AISTATS 2021.
- Reviewer at EWRL 2023.

## Skills

---

**Programming** Python (PyTorch, JAX, TensorFlow), MATLAB, C++, Java, SQL.  
**Languages** French (native), English (fluent), Spanish, Italian (intermediate).

## Other Activities

---

**Co-organizer of the beach volley tournament at DTIC, Universitat Pompeu Fabra (2022 – present).** Every edition gathers about 100 participants.

**Hobbies.** Climbing, (beach) volleyball, ski, tennis table.