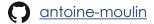
Antoine Moulin





PhD student in Reinforcement Learning

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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 <u>Gergely Neu</u> (University Pompeu Fabra) and <u>Arthur Gretton</u> (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. 2nd 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.