Alex Pierron

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Alex Pierron | alex-pierron

Summary

Student in Master II "Mathematics and Artificial Intelligence" at Paris-Saclay University, I'm developing fundamental and practical skills in statistics, probability, optimization, machine learning and deep learning. I am particularly interested in the field of Reinforcement Learning (single and multi agents) and Online Learning more generally.
I would like to go on to do a PhD in Reinforcement Learning to build on and develop my scientific knowledges.

Core Competencies

- Statistics, Optimization, Probability.
- Machine Learning, Deep Learning, Reinforcement Learning.
- Understanding, modeling and solving mathematical problems.
- Understand, use and clearly explain mathematical theory and results from scientific articles.
- Use and develop numerical tools to illustrate the concepts with pratical applications.
- Collaborate in a research environment.
- Rigor, scientific curiosity, agility of mind, interdisciplinarity.

Education

MS **Paris-Saclay University**, Mathematics and Artificial Intelligence (Master website): Sept. 2022 to Sept. 2024

- **Organization:** Master directed by the **University Mathematical Department** and shared with **CentraleSupélec.** Courses shared with the StatML master's program at Ecole Polytechnique and the MVA master's program at **ENS Paris-Saclay**.
- **2nd year coursework:** Applied and Fundamental Statistics and Probabilities, Bayesian Inference, Computer Vision, Deep Learning, Graphical Models, Machine Learning Fundamentals, Natural Language Processing, Online Learning, Reinforcement Learning.
- **1rst year coursework:** Statistics & Decision Theory, Optimization, Advanced Probabilities, Distributed Systems and Calculation, Data Analysis, Machine Learning Methods, Statistical Learning, Sequential Learning

BS **Paris-Saclay University**, Double Bachelor in Mathematics and fundamental Physics: Sept. 2019 to Aug. 2022

- **Organization:** Selective and intensive double bachelor's degree in mathematics and physics. **Final year of physics shared with ENS Paris-Saclay** and the fundamental physics "magistère" program at Université Paris-Saclay.
- **last year physics coursework:** Electromagnetism, Analytical Mechanics, Quantum Mechanics, Fluid Mechanics, Linear and Non-Linear Optics, Statistical Physics, Numerical Methods
- **last year mathematics coursework:** Probability, Integration, Differential Calculus, Partial Differential Equations, Ordinary Differential Equations, Algebra, Signal Processing, Numerical Methods.

Experience

Dassault Aviation: AI Researcher in Reinforcement Learning, Intern

Saint-Cloud, France
Apr 2024 to Oct. 2024
6 months

- **Intership topic**: AI for collaborative air combat: multi-agent reinforcement learning.
- **Keywords**: Applied and Fundamental Mathematics, Deep Learning, Multi-Agent Reinforcement Learning, Research.
- **Main tasks**: Work upon non-stationnary environnements and different set-ups affiliated. Working also on the topic of importance sampling and theoretical guarantees obtainable for a single agent.
- **Working conditions**: Comprehensive scientific approach in an industrial research environment.

CNRS, Signals and Systems Laboratory: AI Researcher in Computer Vision, Intern

Gif-Sur-Yvette, France
Mar. 2023 to Jul. 2023
5 months

- **Intership topic**: How to classify small databases using the knowledge of larger ones by Few shot learning.
- **Keywords**: Mathematics (Statistics, Probability, Optimization), Artificial Intelligence (Deep Learning), Image Processing, Research.
- **Main tasks**: Bibliography on few shot learning methods.Implementation of the selected approaches in Python with pytorch.Tests and validation with texture databases. Comparison with other methods. Interpretation and analysis of the results and proposals for future relevant areas of research.
- **Working conditions**: Comprehensive scientific approach in a research environment.

Paris Saclay University: Mathematics tutor

Orsay, France
Jan. 2023 to Mar 2023
3 months

- Mathematics tutoring for final-year double degree students.

CNRS, IJCLab: Research Assistant, Intern

Orsay, France
October 2020 to Jan. 2021
3 months

- **Description**: part-time internship at the ThomX particle accelerator demonstrator. understanding of the methodology and constraints of the project. Camera calibration via image recognition and processing to allow optimal operating of the measurement instruments.

Practical skills & Technologies

Languages:

- **English: fluent** *Cambridge English Certificate : L&R General English - C1+, ID: KZW58-VFJCS*
- **French: mother tongue**

Informatic Capacities:

- development and data analysis with **Python: Numpy, Scikit-Learn, Pytorch, Jax.**
- development and data analysis with R and notions about C++.
- Using Git to organize collaborative work and **Slurm for using supercalculators.**
- LaTeX for redaction of scientific papers and technical documentation.

Software: Windows and Linux, Visual Studio, R Studio, Anaconda, Github, Zotero