

Paul Daoudi | PhD Student

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Education

First semester of Master MVA (Mathématiques, Vision, Apprentissage) <i>Ecole Normale Supérieure Paris Saclay</i> Convex Optimization, Computer Vision, Sequential Learning (Reinforcement Learning and Bandits), Deep Learning	Paris, France 2020–2021
Engineering school <i>Ecole Centrale de Lille</i> Machine Learning, Statistics, Convex Optimization, Financial Markets, Project Management	Lille, France 2016–2020
Master of Science - Applied Mathematics <i>Université Lille 1</i> Master 2 done simultaneously with my engineering studies on Functional Analysis, Topology, Stochastic Processes and Measure Theory	Lille, France 2019–2020
Classe préparatoire aux Grandes Ecoles <i>Lycée Saliege - PCSI/PC*</i> Mathematics, Physics, Chemistry, French and English	Toulouse, France 2014–2016

Experience

Huawei Research - Noah's Ark Team <i>PhD Student</i> Explore novel approaches to enhance the sample efficiency of Deep Reinforcement Learning agents by introducing external information. It led me to four projects: Offline, Policy-Guided, Sim-to-Real and Multi-Task Reinforcement Learning.	Paris, France 2021–Now
Huawei Research - Noah's Ark Team <i>AI Research Engineer</i> Implementation of a Python library for state-of-the-art Reinforcement Learning algorithms Study of Safe Reinforcement Learning	Paris, France 4 months 2020–2021
IBM Research - Watson Health Imaging <i>Data Scientist Intern</i> Elaboration of a Multi-Task Neural Network to detect breast cancer from mammograms, which outperformed the team's current model Creation of python modules to explain the different models of our team (Grad-CAM, Saliency Maps, ...)	Tel Aviv, Israel 6 months 2018–2019
Airbus - Central Research and Technologies (CRT) <i>Data Scientist Intern</i> Implementation of a multi-threaded DQN, a Reinforcement Learning algorithm using Tensorflow in Python, and assist the team in implementing other methods such as AlphaGo and A3C Creation of a web demonstrator using VueJS and Python Flask to present state-of-the-art methods on Explainable Machine Learning models	Bristol, England 6 months 2018–2019
Metigate (Start up) <i>Data Scientist Intern</i> Data gathering and preprocessing of market sales and weather data Building of a one-week forecasting model for market sales using Python based on multiple drivers: market historical sales, market trend, seasonality, weather reports Input it to production every week	Paris, France 4 months 2017–2018
Ecole Centrale de Lille <i>Researcher Assistant</i> Studying, understanding and testing the Differentiable Neural Computer	Lille, France 6 months 2017–2018
Buddiz.io <i>School project</i> Building a part of the Front-End side of the mobile application with Angular JS	Lille, France 10 months 2016–2017

Publications

A Trust Region Approach for Few-Shot Sim-to-Real Reinforcement Learning: Submitted to the 12th International Conference on Learning Representations (ICLR 2024)

Improving a Proportional Integral Controller with Reinforcement Learning on a Throttle Valve Benchmark: Ready to be submitted to IEEE Conference on Decision and Control (CDC 2024)

Enhancing Reinforcement Learning Agents with Local Guides: Proc. of the 22nd International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023)

Density Estimation for Conservative Q-Learning: Generalizable Policy Learning in the Physical World Workshop (ICLR 2022)

Conservative Exploration for Policy Optimization via Off-Policy Evaluation: MVA Project¹

Beyond Optimistic Approaches on Reinforcement Learning: Master Thesis

Additional formations

Summer School - Eastern European Machine Learning 2023: Generative Models, Causality, NLP and LLMs, GNNs, Computer Vision

Seminar - Interpolation of Measures 2023: Optimal Transport: theory and applications

Summer School - Data and Learning for Control 2021: Direct and Indirect methods for Optimal Control, Gain Scheduling, Lyapunov stability, Statistics

Technical skills

Mathematical Skills: Convex Optimization, Statistics, Probabilistic Graphical Models, Game Theory

Research interests: Reinforcement Learning, Transfer Learning, Optimal Transport, Few Shot Learning

Library/Framework used: Python (Pytorch, Tensorflow, MindSpore, Pandas, Sklearn, Ray, Hydra, Mayavi), Java, JavaScript, VueJS, AngularJS, SQL

Soft skills

Curious, Autodidact: Dedicated part of my personal time to develop basic knowledge in mathematics, physics and more recently history

Proactive: Created a Journal Club at Huawei where one researcher presents a paper of his choice

Motivated, Perseverant, Independent: Main qualities developed during the PhD

Languages

French: Mother tongue

English: Advanced

Hebrew: Basic

Interests

- Tennis

- Chess

- Triathlon

- Charleston

¹ Got 5/5/5 on the NeurIPS 2021 Reviews, then dropped the project because of conflict between companies