

Quentin Gallouédec

École Centrale de Lyon
LIRIS, CNRS UMR 5205
France

quentin.gallouedec@ec-lyon.fr
+33 6 34 50 03 57
gallouedec.com
github.com/qgallouedec

EDUCATION

- 2020– **Ph.D. student in Computer Science/Deep Reinforcement Learning**
Dissertation: Efficient exploration for reinforcement learning in the context of highly sparse reward environments.
Supervisor: Associate Prof. Emmanuel Dellandréa
Expected graduation: December 2023
- 2016-20 **Diplôme d'Ingénieur (M.S. and B.S. in Engineering Sciences),**
École Centrale de Lyon, France
Majoring in Computer Science
- 2019-20 **M.S. in Electronics, Energy, Electricity and Automation**
Dissertation: Mixed-Precision in Graphics Processing Units
Supervisor: Prof. Ian O'Connor
- 2014-16 **Classe Préparatoire (equivalent to first two years of B.S.)**
Lycée Clemenceau, Nantes, France

RESEARCH INTEREST

My research focuses on the design of robust reinforcement learning algorithms, especially for hard-exploration environments with highly sparse rewards. I am currently I'm currently exploring the use of transformer architectures to design a generalist, multi-tasking, multi-modal agent.

PUBLICATIONS

Conference Papers

- 2023 **Gallouédec, Q.**, and Dellandréa, E. "Cell-Free Latent Go-Explore." *Proceedings of the 40th International Conference on Machine Learning (ICML 2023), Proceedings of Machine Learning Research*

Workshop Publications

- 2021 **Gallouédec, Q.**, Cazin, N., Dellandréa, E., and Chen, L. "panda-gym: Open-Source Goal-Conditioned Environments For Robotic Learning." *4th Robot Learning Workshop: Self-Supervised and Lifelong Learning Workshop @ NeurIPS 2021*.

Reports and blog posts

- 2021– **Gallouédec, Q.** "Reinforcement Learning Review Series", Toward Data Science, Medium [Web blog posts]. Retrieved from qgallouedec.medium.com/

- 2020 **Gallouédec, Q.** “Mixed-Precision in Graphics Processing Units.” *arXiv preprint*, arXiv:2110.12794
- 2020 **Gallouédec, Q.** “Deep Reinforcement Learning for soft objects grasping” Research internship report. qgallouedec.github.io/files/TFErapport.pdf

INVITED TALKS

- 2022 **Gallouédec, Q.** Pujolle G., Al Agha, K., , Perspectives of new telecommunication technologies., *2nd Symposium on applied science for firefighters, Paris*

OPEN-SOURCE CONTRIBUTIONS

- 2022– Huang, S., **Gallouédec, Q.**, Felten, F., Raffin, A., Dossa, R. F. J., Zhao, Y., Sullivan, R., Makoviychuk, V., Makoviichuk, D., Roumégous, C., Weng, J., Chen, C., Rahman, M., M. Araújo, J. G., Quan, G., Tan, D., Klein, T., Charakorn, R., Towers, M., Berthelot, Y., Mehta, K., Chakraborty, D., KG, A., Charraut, V., Ye, C., Liu, Z., Alegre, L. N., Choi, J., & Yi, B. (2023). *Open RL Benchmark: Comprehensive Tracked Experiments for Reinforcement Learning*.
- 2022– Maintainer of Stable-Baselines3 (GitHub: 4.5k ☆ 1k 📄), RL-Baselines3-zoo (953 ☆ 317 📄) and SB3-Contrib (182 ☆ 88 📄)
- 2022– Author and maintainer of panda-gym (233 ☆ 49 📄)
- 2021– Contributed to OpenAi/Gym CleanRL, reliable

TEACHING

- 2022-2023 Algorithms and Data Structures; Object-Oriented Design and Programming (Final year of the B.S. program)
- 2022-2023 Deep Learning & Artificial Intelligence : an Introduction (Final year of the M.S. program)
- 2022-2023 Machine Learning (Last year of the M.S. program)

SUPERVISED STUDENT PROJECTS

- 2022 Automatic Curriculum Reinforcement Learning for simulated robotic applications (5 M.S. students)
- 2021 Investigation of an adversarial approach for reinforcement learning with a robotic arm (2 M.S. students)
- 2021 Analysis and development of an evaluation environment for reinforcement learning methods for robotics (2 M.S. students)
- 2021 Ignition for High performance simulation of soft object grasping (M.S. intern)
- 2021 Simulation and characterisation of a tactile sensor for learning robotic tasks. (4 M.S. students)
- 2020 Soft-information for indoor positioning of firefighters (14 M.S. students)

PROFESSIONAL EMPLOYMENT

- 2019-20 **Mathematics Interrogator, *Lycée Aux Lazaristes*, Lyon**
For students in *classe préparatoire* (equivalent to the first two years of B.S.), preparing for the entrance exams to the most prestigious French universities.
- 2018-19 **Research and Development Officer, Paris Fire Brigade**
Machine learning for the prediction of rescue presentation time and optimization of operational coverage.
Realization of a prototype of indoor communication and localization system, based on LoRa/UWB technologies designed for the use of firefighters in constrained environments.
- 04-08/2018 **Research intern, Polytechnique Montréal, Canada**
Supervisor: Prof. Maxime Raison
Description: development of a custom-made 3D printed robotic arm for the assistance of child amputees. Implementation of the acquisition chain (stereovision), the control chain and the learning of movements.

SUMMER SCHOOL ATTENDANCE

- 2021 Eastern European Machine Learning Summer School (EEML2021), Virtual Budapest, Hungary

MISCELLANEOUS

- 2021– Official author in Toward Data Science (603k followers).
- 2019 National Defence Medalist for my commitment as a firefighter.
- 2019 Letter of congratulations from the Chief of Staff of the Paris Fire Brigade.
- 2019 Finisher of my first marathon (42.195 km; 3h19min) in Paris.
- 2012 Winner of *Science et vie junior magazine's Innovez* national contest.
- 2011 Judo black belt, former national level athlete.

Updated June 2023