

CLÉMENT ROMAC

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Age : 29 ◇ <https://clementromac.github.io/>

RESEARCH INTEREST

My research focuses on Reinforcement Learning (RL) and how it can shape artificial agents' knowledge. I notably study how Large Language Models (LLMs) can be grounded through online interactions with an environment using RL. I am interested in open-ended learning setups and my research often involves methods such as curiosity-driven RL or Automatic Curriculum Learning.

EDUCATION

University of Bordeaux, Bordeaux *2022 - Current*
Ph.D. in Computer Science
Pierre-Yves Oudeyer (Inria, FLOWERS) & Thomas Wolf (Hugging Face)

University of Bordeaux, Bordeaux *2019 - 2020*
MSc. in Computer Science
Algorithms and Models specialisation

Ynov Informatique Ingésup, Bordeaux *2014 - 2019*
Degree in Computer Science engineering
Data Science specialisation Rank : 1

High School Les Iris, Lormont *2011 - 2014*
High School Degree, with the highest honours Overall Notation : 17.75/20

WORK EXPERIENCE

Hugging Face *January 2022 - Current*
Research Scientist

- Studying how autonomous Deep RL agents can leverage large Language Models

Inria (FLOWERS team), Bordeaux *January 2022 - Current*
PhD student

- Studying how autonomous Deep RL agents can leverage large Language Models

Inria (FLOWERS team), Bordeaux *September 2020 - December 2021*
Research Engineer

- Working on an experimental platform to apply curiosity-driven algorithms to automatic discovery of Complex Systems (e.g. self-organizing)

Inria (FLOWERS team), Bordeaux *March 2020 - August 2020*
Research intern

- Worked on TeachMyAgent, a benchmark platform for Automatic Curriculum Learning applied to Deep Reinforcement Learning algorithms :
 - Created procedurally generated Box2D environments and embodiments
 - Implemented state-of-the-art Automatic Curriculum Learning methods
 - Built a benchmark setup and benchmarked the methods

— *Paper accepted at ICML 21'*

Weenove, Bordeaux

October 2017 - February 2020

Part time Data Scientist

- In charge of the Machine Learning R&D :
 - Implemented an Automated Machine Learning service
 - Made this service available (Beta) in a Business Intelligence Software (Biwee)
 - Lead the Machine Learning R&D projects
 - Data Science projects

Scalian, Bordeaux

Summer 2017

Intern Data Scientist

- Data Science projects :
 - Time Series Anomaly Detection
 - Barcode localization on drone pictures with Deep Learning
 - Data Exploration project

Weenove, Bordeaux

June 2016 - May 2017

Part time Intern Data Scientist

- Machine Learning R&D :
 - Implemented an Automated Machine Learning service
 - Made this service available (Beta) in a Business Intelligence Software (Biwee)

PROJECTS

ChatGPT expliqué en 5 minutes (2023)

A series of short videos explaining Large Language Models. The project can be found **here**.

Lamorel (2022)

Lamorel is a Python library designed for RL practitioners eager to use Large Language Models (LLMs)(**repository**)

Automated Discovery Tool (2021)

A software for assisted and automated discovery of patterns in the exploration of complex systems (**repository**).

Interactive Deep RL Demo (2021)

In-browser interactive demo of Deep Reinforcement Learning agents' adaptation to unknown 2D tasks. The project can be found **here**.

PUBLICATIONS

MAGELLAN : Metacognitive predictions of learning progress guide autotelic LLM agents in large goal spaces

Loris Gaven, Thomas Carta, Clément Romac, Sylvain Lamprier, Olivier Sigaud, Pierre-Yves Oudeyer. *Forty-Second International Conference on Machine Learning, ICML 2025*.

WorldLLM : Improving LLMs' world modeling using curiosity-driven theory-making

Guillaume Levy, Cedric Colas, Pierre-Yves Oudeyer, Thomas Carta, Clement Romac. *Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM) 2025*.

Reinforcement Learning for Aligning Large Language Models Agents with Interactive Environments : Quantifying and Mitigating Prompt Overfitting

Mohamed Salim Aissi, Clement Romac, Thomas Carta, Sylvain Lamprier, Pierre-Yves Oudeyer, Olivier

Sigaud, Laure Soulier, Nicolas Thome. *2025 Annual Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL) Findings*.

SAC-GLAM : Improving Online RL for LLM agents with Soft Actor-Critic and Hindsight Relabeling

Loris Gaven, Clément Romac, Thomas Carta, Sylvain Lamprier, Olivier Sigaud, Pierre-Yves Oudeyer. *Intrinsically Motivated Open-ended Learning Workshop, NeurIPS 2024*.

Grounding Large Language Models in Interactive Environments with Online Reinforcement Learning

Thomas Carta, Clément Romac, Thomas Wolf, Sylvain Lamprier, Olivier Sigaud, Pierre-Yves Oudeyer. *Fortieth International Conference on Machine Learning, ICML 2023*.

TeachMyAgent : a Benchmark for Automatic Curriculum Learning in Deep RL

Clément Romac and Rémy Portelas and Katja Hofmann and Pierre-Yves Oudeyer. *Thirty-eighth International Conference on Machine Learning, ICML 2021*.

Meta Automatic Curriculum Learning

Rémy Portelas and Clément Romac and Katja Hofmann and Pierre-Yves Oudeyer. 2020 (Preprint). abs/2011.08463.

Partially Observable Markov Decision Process with Minecraft

Romac et Béraud. 2019 (Preprint). abs/1903.04311.

LANGUAGES

French	Native speaker
English	Advanced (TOEIC : 980/990)

TEACHING

Ecole Nationale Supérieure de Cognitique Bordeaux	<i>October 2024</i>
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Last year engineering students from AI Specialisation

Transformers and LLMs - 14h

Reinforcement Learning - 7h

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Last year engineering students from AI Specialisation

Transformers and LLMs - 7h

Ynov Informatique Ingésup Bordeaux	<i>November 2018 - December 2018</i>
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Masters student, Data Science Specialisation

Machine Learning Major - 90h

SERVICE AND LEADERSHIP

Co-founded and directed (until 2019) the AI working group of Ynov Informatique Ingésup Bordeaux

— We gather every two weeks on Wednesday to share and work on AI projects.

— Projects area : Reinforcement Learning, Chatbots, Kaggle

Co-founded and animated (until 2019) the meetup “Les nuits des réseaux de neurones”

— Talk and workshops on Neural Networks all night long.

— Held every month or two months, open to everyone (270 members).

— <https://www.meetup.com/fr-FR/Les-nuits-des-reseaux-de-neurones/>

Co-organizer of the meetup “Bordeaux Machine Learning Meetup”

— Talk and workshops once a month (+1400 members)

— <https://www.meetup.com/fr-FR/Bordeaux-Machine-Learning-Meetup/>

HOBBIES

Sport : I have been playing football since I am 6 years old. I love sport more generally.

Music : I play bass guitar in a band.