CLÉMENT ROMAC

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Age : 25 ⋄ https://clementromac.github.io/

CARRIER OBJECTIVE

I am interested in autonomous and open-ended Deep Reinforcement Learning.

EDUCATION

University of Bordeaux, Bordeaux *2022 - Current*
PhD 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 & Inria (FLOWERS team), Bordeaux & Paris *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)
· Work environment :
— Angular 1.6
— PostgreSQL, MongoDB
— Python : Flask, PyTorch
— Docker

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'*
· Work environment :

— Python : Tensorflow

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
· Work environment :
— Azure ML Services
— Docker
— Python : Pandas, Scikit-Learn, Keras, Jupyter
— C#

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
· Work environment :
— Python : Pandas, Scikit-Learn, Flask, Tensorflow, Jupyter
— C++ : Qt Creator

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)

Weenove, Bordeaux *Summer 2015*

Intern Developer

· C# development of a Business Intelligence Software (Biwee)
· Microsoft environment : Azure, Visual Studio, WCF, TFS
· Analysis of Open Data

PROJECTS

Deep Recurrent Q-Learning vs Deep Q Learning on a simple Partially Observable Markov Decision Process with Minecraft (2019)

With Vincent Béraud, we compared a Deep Recurrent Q-Network and a Deep Q-Network on simple missions in a Partially Observable Markov Decision Process in Minecraft. We wrote a paper that can be found **here** and our code can be found **in this repository**.

Gym TicTacToe (2018)

Gym TicTacToe is a light Tic-Tac-Toe environment for OpenAI Gym. The code can be found **here**.

Deep Learning Playground (2018)

Projects to put in practice what I have learned from the Deep Learning Book (Goodfellow, Bengio, Courville). In the last project, I tried to make a simplified version of the Google Neural Machine Translation with a Seq2Seq based on LSTM cells to translate from French to English.

Deep Q-Learning TicTacToe (2017)
During my third year at Ynov Informatique Ingésup, I used Deep Q-Learning to play Tic-Tac-Toe. The agent was first trained against an agent playing randomly, then against itself. The code can be found on **this repository**.

PUBLICATIONS

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.

SKILLS

Data Science	Machine Learning, Deep Learning, Reinforcement Learning
Development	Python (Tensorflow, Keras, Scikit-Learn), C#, C++, JavaScript
Others	DataBases (SQL, NoSQL), Linux, Docker

LANGUAGES

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

TALKS

"Fête de la science 2021", Bordeaux *July 2021*
Generalization limits of Deep RL through an interactive demo
Hands on at "La fête de la science", a general audience event to disseminate science. We discussed generalization limits of Deep RL using this interactive website built during the internship of Paul Germon (which I co-supervised).

TeachMyAgent *July 2021*
TeachMyAgent : a Benchmark for Automatic Curriculum Learning in Deep RL
This is a presentation of our 2021 ICML paper. The video of the talk can be found here.

"Réseau Régional de Recherche en Intelligence Artificielle", Bordeaux *July 2021*
Automatic Curriculum Learning to foster generalization in Deep RL
General audience talk given for the "IA en Nouvelle Aquitaine" event part of the "Réseau Régional de Recherche en Intelligence Artificielle" (R3IA) network. I introduce the works done in the FLOWERS team (Inria) on Automatic Curriculum Learning for Deep RL. The video of the talk (in french) can be found here

Dataquitaine 2020, Bordeaux *February 2020*
Automated Machine Learning with Biwee Prediction
A feedback on the results we obtained using our Automated Machine Learning product on real world

cases with our clients. The video can be found here.

Machine Learning meetup, Bordeaux *December 2019*
Automated Machine Learning
An overview of the field of Automated Machine Learning and then explained our work at Weenove and gave feedback from the results we obtained applying AutoML on the cases of our clients.

Seminar at Pôle Emploi (Job Centre) Aquitaine *April 2019*
An introduction to AI and its impacts
An introduction to AI and particularly Machine Learning and Deep Learning, an overview of its applications and its impacts on jobs.

Les nuits des réseaux de neurones *June 2018*
AI agent playing Minecraft
Applying Deep Recurrent Q-Learning to a Minecraft environment.

Les nuits des réseaux de neurones *March 2018*
AlphaGo Zero, Starting from scratch
A Deep Reinforcement Learning introduction and an intuition of AlphaGo Zero's conception.

TEACHING

Ynov Informatique Ingésup Bordeaux *November 2018 - December 2018*
Machine Learning Major
Third year students course for the Data Science Specialization
Taught 90 hours with Pierre Leroy to third year students. Everything can be found on the **Major's Website**.

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.