

Corentin LEGER



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corentinlger.github.io



[corentin-l](#)



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AI Research Engineer

PROGRAMMING: Python, Bash, Git, SQL, Web Development, Cloud Computing (Slurm), Docker

LANGUAGES: English (advanced), French (fluent)

PYTHON FRAMEWORKS: Numpy, PyTorch, TensorFlow, Gymnasium, Scikit-Learn, SciPy, Optuna, Pandas, Flask

INTERESTS: Volley-ball (national level), Human and Social Sciences, History

Education

ENGINEERING SCHOOL : MASTERS IN COMPUTER & COGNITIVE SCIENCES

ENSC - Bordeaux INP (<https://ensc.bordeaux-inp.fr/fr>)

- Artificial Intelligence - Data Science - Cognitique Engineering - Cognitive Sciences

Bordeaux, France

(2020 - 2023)

UNIVERSITY MASTERS YEAR EXCHANGE

ENSEIRB MATMECA - Bordeaux INP (<https://enseirb-matmeca.bordeaux-inp.fr/fr>)

- Machine Learning - Deep learning - Reinforcement Learning - Research Algorithms

Bordeaux, France

(2022 - 2023)

UNIVERSITY BACHELORS SEMESTER EXCHANGE

Laval University (<https://www.ulaval.ca/en>)

- Data Science, Cognitive Sciences

Québec, Canada

(January 2022 - May 2022)

Experiences

INRIA - Flowers & Mnemosyne teams

AI Research Intern (6 months)

Bordeaux, France

(Mars 2023 - September 2023)

- Studied how neural structures, such as reservoirs, can adapt at an evolutionary-scale, to enhance the adaptability of Reinforcement Learning (RL) agents to their environments at a developmental scale.
- Implemented experiences to study the effects of our method on partially observable tasks, 3D locomotion tasks and tested the generalization capacities of agents with evolved reservoirs on unknown environments.
- Created a tutorial for parallelized hyper parameter search on an open source scientific library, enabling researchers to accelerate the speed of their experiences by up to 300.
- Currently writing a scientific article : “Evolving Reservoir for Meta-Reinforcement Learning”
Reinforcement Learning (RL) - Meta-RL - Evolutionary Algorithms - Reservoir Computing - Parallel Processing

CONNECTIV-IT

Bordeaux, France

Data Science Intern (4 months)

(May 2022 - August 2022)

- Conducted R&D to optimize maintenance schedules for a fleet of helicopters, in a company managing exchanges between industries and the French army (7M annual operations).
- Implemented an outlier detection model and missing values simulation model (Scikit-Learn), a RL environment to simulate the problem (Gym), and a theoretical linear programming optimization model.
Data processing and visualization - Unsupervised Learning - Linear Programming - Reinforcement Learning

Projects

[Link to other Projects](#)

Symbolic Reinforcement Learning

- Research project with Inria team Mnemosyne focused on leveraging Reinforcement Learning algorithms with Symbolic data to enhance learning and explainability. Developed an example ontology to test the model's integration with a Gym RL environment.
- Publication of this [Inria Research Report](#).

Rising Sun

- Developed a simplified version of the Rising Sun board game, and trained Reinforcement Learning agents on it to discover new strategies. Created scripts to evaluate their performance and to play against bots.
- Implemented a more user friendly Web application with Flask to compete with scripted or trained agents.

Evolutionary Sports Pools Optimizer

- From scratch implementation of a genetic algorithm to optimize the distribution of cities inside sport pools (using NumPy only). Creation of an easily usable Python class with optimization and visualization functions.