Corentin Léger - AI Research Engineer
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Research Engineer with a strong foundation in Machine Learning and Software development, interested in Reinforcement Learning, Evolutionary Strategies and LLMs. I am currently looking for an engineering position related to one of these fields.

Skills

- **Programming**: Python, Git, Bash, Web Development, SQL, Cloud Computing, CI/CD
- **Frameworks**: Jax, Numpy, PyTorch, TensorFlow, Scikit Learn, Optuna, Hydra, Pandas, Flask, Gym, pytest

Experience

- **Inria** — Bordeaux, France
  AI Research Engineer, Flowers Team — *Dec 2023 - Present*
  - Co-developed the Open-Source LLM-Culture software to simulate and analyze text evolution in LLM-based multi-agent systems [2]. The system models agent interactions based on neighbors outputs, task, and personality across generations. Built NLP (SpaCy, NLTK) and data visualization tools to evaluate text properties, as well as a web interface.
  - Co-authored a paper (ICLR 2025) to explore biases and attractors in multi-turn LLM interactions [1]. Used several models (Llama3-70B, GPT-4o, Mixtral-8x7B) across 50 generations with various tasks and initial texts.
  - Developed a Vivarium, a multi-agent simulator built in Jax for AI research and teaching, achieving real-time interaction with Web or Jupyter notebook clients via gRPC. Created a CI/CD pipeline (pytest), and supervised a Master's intern to enhance clients features and create educational sessions. Used the simulator in a Master's course at UPF Barcelona.
- **Inria** — Bordeaux, France
  AI Research Intern, Flowers and Mnemosyne Teams — *May 2023 - Nov 2023*
  - Developed ER-MRL, a Meta-RL method to optimize RNNs with Evolutionary Strategies, in order to improve Deep RL agents' adaptability in new environments [3] (Sb3, Gym, Optuna). Implemented a parallelized pipeline with Bash and Slurm scripts to launch large scale experiments on remote clusters .
  - Created a tutorial for parallelized hyper parameter search in ReservoirPy (400+ stars), enabling researchers to increase their experiments speed by a factor of 300 on the University Cluster.
- **Connectiv-IT** — Bordeaux, France
  Data Scientist Intern — *May 2022 - Aug 2022*
  - Applied Pandas and Scikit-Learn to preprocess helicopter maintenance data, performing cleaning, outlier detection (filtered out 25% of unusable data), and used supervised learning to replace 12% of missing values.
  - Used statistical analysis (SciPy) and clustering (Scikit-Learn) to identify key trends in maintenance data, and created visualizations and technical reports to support maintenance strategies.

Publications

- [1] When LLMs Play the Telephone Game: Perez, J., Léger, C., Kovač, G., Colas, C., Molinaro, G., Derex, M., Oudeyer, P. Y., Moulin-Frier, C. (2024). In International Conference on Learning Representations (ICLR 2025)
- [2] Cultural evolution in populations of Large Language Models: Perez, J., Léger, C., Ovando-Tellez, M., Foulon, C., Dussauld, J., Oudeyer, P. Y., Moulin-Frier, C. (2024). Arxiv preprint
- [3] Evolving Reservoirs for Meta Reinforcement Learning: *Léger, C., *Hamon, G., Nisioti, E., Hinaut, X., Moulin-Frier, C. (2024). In International Conference on the Applications of Evolutionary Computation (part of EvoStar 2024)
- [4] Early Empirical Results on Reinforcement Symbolic Learning: Radji, W., Léger, C., Bardisbanian, L. (2023). Research report published in HAL Inria

Selected Projects

Complete list of projects

- Open Source Contributions: Contributed to the Stable-Baselines3 RL library (9k+ stars). Helped creating an app to interpret RL policies, and benchmarked PPO and Policy Gradient algorithms with KANs.
- Built a tool to optimize multi-LLM agent systems on math tasks using evolutionary strategies (blog post) during a 2-day hackathon. Matched GPT-4 performance with a system of GPT-3.5 agents.
- LeRobot hackathon: Assembled robotic arms and created a real world Reinforcement Learning environment. Recorded an expert dataset and trained an arm to manipulate objects with both online and offline RL.

Education

- **Ecole Nationale Supérieure de Cognitique** — Bordeaux, France
  Master of Science in Computer and Cognitive Sciences; GPA: 4.00 — *Sept. 2020 – Sept. 2023*
  Activities: Bronze medal at French University Volley-Ball Championship 2023
- **Cycle Préparatoire de Bordeaux (CPBx)** — Bordeaux, France
  Bachelor of Science in Mathematics and Physics, Sport-Study contract with ASI Volley-ball — *Sept. 2018 – Jun. 2020*