

Erwan DAVID - Machine Learning Engineer | CentraleSupélec

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Summary

Looking for a full-time position in Machine Learning starting November 2025.

Currently completing a research internship in ML fairness in ILLS (Mila · McGill · CentraleSupélec) with hands-on experience in ML.

Education

CentraleSupélec | UPS | Paris, France (2023 - 2025)

Master's in Artificial Intelligence - Paris-Saclay University - Programme Grande Ecole

- GPA: 3.9
- Relevant Courses: Machine Learning (Supervised, Unsupervised), Deep Learning (DNN, CNN, GAN, LLM), Reinforcement Learning (DQN, PPO, A2C), Computer Vision, AI Explainability, Statistics, Finance, Strategic Consulting

Arts et Métiers | ENSAM | Lille, France (2021 - 2023)

Master's in Engineering Science - Programme Grande Ecole

- GPA: 4 – Ranked 9th/1175 – Top 0.7% of the promotion

Lycée Sainte-Geneviève – Versailles, France (2019 - 2021)

Bachelor's in Mathematics and Physics (Intensive program for competitive entrance exams to top engineering school)

- GPA: 3.8
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Experience

AI Researcher: Fairness & Embedding Bias in ML

ILLs lab (Mila · McGill · ETS · CentraleSupélec · CNRS · Université Paris-Saclay) – Montréal | Python | May 2025 – October 2025

I'm currently working with Machine Learning Researchers Pablo Piantanida ([Google Scholar](#)) and Ulrich Aïvodji ([Google Scholar](#))

- I design and implement novel methods to evaluate fairness and bias in embedding models
- I conduct in-depth literature reviews, formalize theoretical approaches, translate them into experimental Python code and build metrics and evaluation pipelines to analyze bias behaviors in embedding spaces under different conditions.

AI Researcher: Natural multi-agent Evolution Simulation

Aalto University Research lab | Computer and Neuroscience Department – Finland | Python | June 2024 – August 2024

I worked with Machine Learning and Neurosciences Researcher Stéphane Deny ([Google Scholar](#))

- I simulated the evolution of intelligent agents controlled by neural networks and physical dynamics, allowing them to evolve through genetic mutations. I've created my own variant of genetic algorithms and the NEAT algorithm.

AI Developer Intern

Ministry of the Interior, France | Python | June 2022 – July 2022

- I developed a density algorithm (KDE) and clustering algorithm (DBSCAN) to visualize and store road accident data.
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Skills

Technical

- **Programming languages:** Python, C#, C/C++, HTML/CSS
- **Machine Learning:** DNN, CNN, RNN, GAN, VAE, AE, Transformers, LLM, Embedders, NLP, PPO, A2C, XGBoost, SVM, GMM
- **Tools:** PyTorch, Keras, Sklearn, Git, Unity, Docker, HPC clusters (Compute Canada, CentraleSupélec, Aalto) with Slurm

Languages

- French: Native
 - English: Advanced (C1+) | Linguaskill: 180/180 | TOEIC: 950/990 | Duolingo English Test (DET): 135/160
 - German: B1
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Projects

LLM Specialization - GraphRAG & RAG Implementation

- I developed and benchmarked GraphRAG and RAG on scraped political article datasets using GPT-4o, Llama7B, and TinyLlama, combining evaluations with humans and with LLM as judges and graph analysis for knowledge extraction.

Reinforcement Learning for Highway Driving – DQN, PPO & Stable-Baselines

- I developed RL agents using Deep RL algorithms with custom reward shaping to solve various highway environments.

Circularizing a plasmid 3DNA - Genetic Algorithm

- I designed simulated annealing and genetic algorithms in Python to circularize a plasmid DNA molecule.

Other AI Projects

- **CNN & GradCam for cancer detection, GAN for image generation, XAI methods, 3D procedural environment map**
Visit [GitHub Portfolio](#) for some additional projects in ML, game development, and data science.
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Interests

- Scuba Diving (Level 1), Half Marathon Running, Hiking, Strategic Board Games, Competitive Video Games, Volunteering