

Alexandre Dréan

+33 7 67 53 02 97 | alexandred56700@gmail.com
linkedin.com/in/alexandre-drean | github.com/Alexndrs

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, C++, C
Frameworks & Libraries: React, Node.js, Express, PyTorch, Tailwind
Databases: MongoDB, SQLite
Concepts: Algorithms, Probability, Statistics, Linear Algebra, Machine learning
Familiar with: Docker, AWS EC2, Azure Web Apps, GitHub Actions
Spoken Languages: French (native), English (C1 - linguaskill certified)

PROFESSIONAL EXPERIENCE

Machine Learning Research Intern May 2024- September 2024
LIRIS Lab *Lyon*

- Reproduced and benchmarked state-of-the-art anomaly detection models (Graph-Regularized Autoencoders, ICLR 2024 Diffusion-based methods) using PyTorch.
- Designed an iterative training scheme that recursively excludes likely anomalies to improve model purity, achieving almost 10% F1 score improvement.
- Explored post-hoc model explainability using Shapley values; work submitted to ICML 2025 (not accepted).

SELECTED PROJECTS

Multi-Model AI Chat Platform - [chatbothub.org] May 2025- August 2025
Node.js, React, SQLite, Tailwind, AWS

- Designed and deployed a fullstack LLM chat platform with real-time token streaming from multiple providers (OpenAI, Mistral, Groq, Gemini), supporting dynamic model switching and API key management.
- Engineered secure auth with email verification and encrypted API key storage; implemented backend token-budgeting with sliding window context trimming for optimized prompt construction.
- Deployed on AWS EC2 using Nginx and PM2; configured GitHub Webhooks for CI/CD to enable seamless fullstack updates in production.

Diffusion-Based Pokémon Generator - [github link] Feb 2025- August 2025
PyTorch, NumPy

- Re-implemented a full denoising diffusion probabilistic model (DDPM) from scratch to generate 64×64 Pokémon-style sprites using a custom dataset (2.5k images).
- Built custom training and sampling pipelines with noise schedule, U-Net architecture, and DDPM loss; trained model over 150 compute hours on local hardware (GTX 1650)

EDUCATION

Polytechnique Montreal Sep 2024 – Aug 2026
M.Eng. in Computer Science (Machine Learning Track) *Montréal, QC, Canada*

- GPA: 4.00 / 4.00
- Graduate coursework: AI Probabilistic and Learning Techniques, NLP, Stochastic Optimization, Data Visualisation, web developpement, software architecture, datastructure and algorithms

ENSTA Paris Sep 2022 – Sep 2024
M.Sc. in Computer Science and Applied Mathematics *Institut Polytechnique de Paris, France*

- GPA: 4.00 / 4.00 (converted)
- One of France's top engineering schools (top 5% admission)
- Focus: Maths, Algorithms, Optimization, Systems, AI

CLasse préparatoire aux Grandes Ecoles Sep 2020 – Sep 2022
Preparatory Classes (MPSI / MP)* *Lycée Clemenceau Nantes*

- Intensive 2-year program in Mathematics, Physics and CS for competitive engineering entrance exams
- National top-tier preparation track (equivalent to US undergrad in Math/CS rigor)