GABRIEL DUPUIS

Paris, France

✉ gabriel.dupuis@ensta.fr   🔗 linkedin.com/in/gabriel-dupuis   ⬛ github.com/puushtab

🌐 gabrieldupuis.me

Education

Institut Polytechnique de Paris - ENSTA Paris   **Sep. 2023 – June 2026**
Combined B.Sc. & M.Sc. (Computer Science)   *Palaiseau, France*

- **GPA:** 4.13/4.30 (Top 5% of 220) at France's second-best engineering school (*L'Étudiant, QS, THE rankings*)
- **Projects:** UNet Retina Vessel Segmentation; Text Emotion Classifier (MLP, LoRA); SLAM Drone Tracking System
- **Coursework:** Advanced Machine Learning, Statistical Learning Theory (**R**), Parallel Computing, Advanced Computer Vision, Advanced Algorithms (**C++** & **Python**), Complex Analysis, Information Theory, Fluid Dynamics

Le Parc (*Lycée du Parc*)   **Sep. 2021 – June 2023**
B.Sc. (Engineering) — Preparatory Classes for Engineering Schools (MPI*)   *Lyon, France*

- **GPA:** 3.95/4.0 at a top-ranked program in STEM to prepare for nationwide entrance exams for France's Ivy League
- **Coursework:** Machine Learning, Algorithm Design (**OCaml** & **C**), Operating Systems, Computability, Algebra, Calculus & Analysis, Probability & Statistics, Digital Electronics, Optics, Thermodynamics, Electromagnetism

Edouard Branly High School (*Lycée Edouard Branly*)   **2018 – 2021**
High School Diploma with highest honors, GPA: 4.0/4.0 (17.86/20)   *Lyon, France*

Experience

Deezer   **Oct. 2025 – Apr. 2026**
Machine Learning Engineer - Music Search Intern   *Paris, France*

- Improving semantic search for **France's second-largest music streaming app** with 20M+ active users
- Built a full-stack **agentic POC** enabling complete app interaction and deployed on DevOps stack
- Designed an **extensive natural query benchmark** and an **automated evaluation framework**

Stanford University   **May 2025 – Sep. 2025**
Visiting Researcher under Prof. Greg Beroza   *Stanford, USA*

- Engineered a **physics-informed synthetic data generator** using Radial Basis Functions and Cholesky-based sampling to model correlated station noise and elliptical anisotropy, effectively bridging the synthetic-to-real domain gap
- Implemented a **Bayesian optimizer** to tune generator hyperparameters by comparing spatial metrics (Inertia, Morans I) against model-derived pseudo-labels, creating a **semisupervised loop** that boosted phase association accuracy by 15%
- G. Dupuis, I. McBrearty, G. C. Beroza, "Optimizing earthquake phase association through semi-supervised calibration" (under internal review)

ENSTA Paris Computer Science Association DaTA   **Jan. 2024 – Apr. 2025**
President   *Palaiseau, France*

- Led an 8-member team to launch 5 student platforms on a Node.js & Vue stack, deployed in Proxmox containers
- Delivered masterclasses to 1,000+ students on Git, Full-stack (HTML/JS), and Machine Learning (PyTorch)
- **Maintained a $20,000 cloud infrastructure** hosting 100+ services via Proxmox, Apache stack, and NGINX

Publications

Optimizing earthquake phase association through semi-supervised calibration   Under internal review
G. Dupuis, I. McBrearty, G. C. Beroza   *Presentation at AGU25*

Clairvoyance: Smart Multimodal Assistant for Visually Impaired People   Unpublished
G. Dupuis, A. Maazizi, et al.   *ENSTA*

Awards

1st Place – CentraleSupélec ML Hackathon: Won €1000 (1st/40+ teams) for *Whistle Spotter* on a 24-hour highly technical bird-audio detection challenge using a post-trained Perch model, meta-optimization and worst results aggregation

2nd Place & Creativity Award – MIT Global AI Hackathon: Placed 2nd/1,500+ for *KettleMind*, an AI kettlebell coach (ElevenLabs, Google Mediapipe, React); previously won Creativity Award for *SkincAIre* (MedLLaMA-2, YOLOv11)

3rd Place – TRACS 2024: Placed third out of 500 participants in Centrale's national CTF cybersecurity competition

Relevant Projects

Time Granularity Benchmark on Relational GNN Architectures | *PyTorch Geometric*   **Nov. 2025 – present**
- Working with **C. Kanatsoulis and J. Leskovec** to evaluate the **impact of time granularity on relational temporal GNN architectures** using PyTorch Geometric on RelBench tasks

Clairvoyance | *Python, NLP, OpenCV, PyTorch, OCR, Kivy, LangChain, FastAPI*   **Oct. 2024 – May 2025**
- Led a 10-member Agile team to build an **AI conversational multimodal assistant** for the visually impaired
- Crafted a **multimodal AI pipeline with LangChain RAG improvisation** reaching 80% feature completeness using YOLOv11, MiDaS, PaddleOCR, and a **fine-tuned BART** trained on synthetic data for intent classification
- Engineered a full MLOps $100 prototype with Raspberry Pi, FastAPI backend, and Kivy frontend for best performance

Deep Neural Network from Scratch | *C++, SFML*   **Jan. 2025 – Feb. 2025**
- **Built a neural network from scratch** in C++20 using SFML and Eigen, achieving real-time 2D point classification
- Designed a GUI with live visual feedback to customize layers, activations, and hyperparameters without code changes

Student Attendance Tracking Web Application | *TypeScript, Node.js, MongoDB, Vue*   **Jan. 2024 – Apr. 2024**
- Collaborated with a four-member team to design a real-time web-based student attendance management system using TypeScript, Node.js, MongoDB, and Vue.js
- Built an intuitive interface in Vue.js, seamlessly connected to a Node.js API that handled data flow to a MongoDB database, ensuring reliable and efficient attendance tracking

Community Service & Leadership

Trium Forum   **Jan. 2024 – May 2025**
Sustainable Development Manager and Logistics Officer   *Palaiseau, France*
- Spearheaded sustainability initiatives, **earning Ecofest certification** for France's top student-career fair, attended by 3,000+ participants and 200+ companies
- Coordinated logistics in a 7-member team, **managing a $400k budget** and **contributing to $1.5M in revenue**

Volunteering: *Oxfam* Charity Shop Volunteer (Jul 2024), *Telethon* Volunteer – raised €5,000 for medical research (Dec 2023), Edouard Branly High School STEM Fair Founder (2022), Anti-Harassment & Class Representative (2019–2021)

Associations: Program Lead for AI Security Committee *PIAF* (2024-2025), Program Lead for Ecological Conferences *Les Lundis d'ENSTA Paris* (2023-2024), ENSTA English Debating Member (2024), Finalist of Eloquence Contest (2024)

Skills

Programming Languages: Python, C, C++, OCaml, SQL, R, MATLAB, JavaScript, TypeScript, Prolog

Technologies: PyTorch, TensorFlow, GCP, Scikit-learn, LangChain, OpenCV, K8s, Docker, MongoDB, MCP, GraphQL

Concepts: Machine Learning, Computer Vision, NLP, Data Science, Software Engineering, Embedded Systems, HPC

Languages: English (TOEFL: 108/120), French (native), Spanish (intermediate), Japanese (beginner)