Vadim HEMZELLEC-DAVIDSON

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Objective: 4–6 month internship in AI Research   **Spring / Summer 2026**

PROJECTS

DragonLLM — LLM Toxicity & Guardrails (Upcoming, Jan 2026)
- Training a classifier designed to interrupt generation when a model begins producing toxic or harmful content for a company crafting AI models for finance.
- Inspired by Qwen3-Guardrails and circuit-breaker architectures for real-time safety enforcement.

Hi!ckathon (Hi!Paris) Finalist, 2025
- Finalist and ranked 2nd/68 (tied) in model performance within a team of 6 students.
- Engineered a gated model architecture aggregating a probabilistic router (XGBoost) and a regressor expert to handle zero-inflated target distributions.
- Designed a comprehensive business strategy and delivered a pitch to the final jury.

ALTEGRAD (MVA) Labs, 2025
- LLM Fine-tuning & Alignment: Fine-tuned Qwen models using parameter-efficient methods (PEFT/LoRA) and implemented preference optimization algorithms (GRPO, DRPO) for model alignment.
- Graph Machine Learning: Engineered graph kernels (Weisfeiler-Lehman, shortest path) and spectral clustering algorithms for graph classification tasks (MUTAG dataset).
- Model Compression: Implemented knowledge distillation strategies (compressing a large Qwen teacher into a smaller student variant) to optimize inference efficiency while preserving performance.

Cassiopee project (Télécom SudParis), 2025
- Assessed anonymized databases for privacy risks using OSINT methods.
- Authored a comprehensive report under supervision of Maryline Laurent (Director, Networks and Telecom Dept.) and Louis-Philippe Sondeck (CEO, Clever Identity).

WORK EXPERIENCE

Blockchain AkademIA, Metz - Internship   Jun 2025 - Aug 2025
Contributed to the regional democratization of blockchain and AI.

Aerow, Paris - Internship   Jun 2024 - Jul 2024
Conducted an inventory of potential Research Tax Credit (CIR) eligible topics across all areas of expertise at the company.

EDUCATION

Ecole Polytechnique   2025 - Present
Master of Science in Data Science
Relevant coursework: Advanced learning for text and graph data (ALTEGRAD - MVA), Deep Learning, Machine Learning, Optimization, Reinforcement Learning, Representation Learning (MVA), AI for Sound: audio processing (STFT, MFCC), speech production, DL for audio (WaveNet, diffusion).

Telecom SudParis   2023 - Present
Engineering degree in Applied Mathematics
Relevant coursework: Machine Learning, Stochastic Processes, Bayesian Inference (HMM, Particle Filtering), Applied Statistics.

Lycee Fabert   2021 - 2023
Intensive Preparatory Classes (MPSI–MP*), competitive entrance preparation for top engineering schools.

Somerset Virtual Academy   2021
Academica Dual Diploma.

SKILLS AND INTERESTS

Prog. Languages	Python, Java, SQL, C, Bash
Frameworks	Pandas, Scikit-learn, Transformers, vLLM, Matplotlib, Numpy, PyTorch
Soft skills	Leadership (Former VP, Sports Committee), Teamwork (student associations)
Languages	French (native), English (C1), Spanish (B2)
Interests	AI, Sports (Tennis), Music (Piano 10 yrs), Audio/Video production