Adam MOUNIR

Research Student majoring in Data & Artificial Intelligence

adam.mounir@efrei.net | LinkedIn

EDUCATION

ENS Paris-Saclay (MVA) | Guest Auditor — **Paris, FR**

Advanced Deep Learning (taught by Dr. G. Charpiat) | Course Link — *2026*

- **Key Topics:** Optimization Landscapes, Symmetry & Invariance, Generative Diffusion Models, Implicit Bias

EFREI - Paris Panthéon-Assas — **Paris, FR**

Research Student, MEng. in Data & Artificial Intelligence — *2021 - 2026*

- **Courses :** Graph Theory - Convex Optimization - Machine / Deep Learning - Reinforcement Learning - Natural Language Processing - Statistics/Probability - Data Visualization - Chatbots & Generative AI - Big Data Ecosystems - MLOps - Cloud Computing - Functional Programming Scala
- **Distinction :** 17/20

University of California, Irvine — **California, USA**

Exchange Student, MEng. in Computer Science — *2023 - 2024*

- **Courses :** Mathematics for Cryptography - Java Programming - Advanced Web Programming - Computer Architecture - Network Protocols
- **Distinction :** 4.0 / 4.0 GPA

PROFESSIONAL EXPERIENCE

THALES — **Paris, FR**

AI Research - Intern — *Nov 2024 - Apr 2025*

Researching global-scale Root Cause Analysis by distilling multi-step reasoning capabilities from LLMs into specialized architectures

- Designing a supervised alignment pipeline to map expert causal trajectories from logs into internalized reasoning schemas
- Distilled causal traces via GPT-4o to fine-tune a SFT pipeline using Llama3.1 (QLoRA) targeting latent reasoning convergence
- Achieved a 0.64 F1-score in RCA prediction and established a validation protocol for Out-of-Distribution scenarios

SOCIETE GENERALE — **Paris, FR**

AI Engineer - Apprentice — *Oct 2025 - Aug 2026*

Detecting semantic discrepancies between unstructured documents disclosures and structured multi-provider data

- Automating cross-source data alignment and causal influence tracing within hierarchical scoring models
- Engineering a Zero-shot NER pipeline using Claude 3.5 Sonnet (RAG) and a Directed Graphs for topological impact analysis
- Optimizing semantic consistency and automating change reporting across multiple metrics

RESEARCH PROJECTS

Neuro-AI for Complementary Learning Systems

Research Project

Tackling catastrophic forgetting in Deep Neural Networks during non-stationary sequential data streams

- Designing bio-inspired architectures optimizing the stability-plasticity trade-off via CLS Theory & Null-Space Projection
- Built a Wake-Sleep/Flow Matching framework in PyTorch for NREM/REM latent generative replay (~2.1M parameters)
- Outperformed 8 CL baselines by +18.8pp via 6-step ODE latent replay; submitted to ReLearn Workshop @ CVPR 2026

Double Descent & Loss Landscapes

MVA Research Project | Advanced Deep Learning

Investigating the generalization paradox of over-parameterized Deep Neural Networks

- Analyzing the relationship between SGD implicit bias, minima flatness, and the Double Descent phenomenon.
- Engineering a PyTorch framework using Sharpness-Aware Minimization and 2D loss surface visualization.
- Aiming to demonstrate that flat minima optimize the stability-plasticity trade-off, promoting robust and frugal AI models

EXPLAiN - XAI for Patent Classification

Academic Project

- Built explainable AI models (Transformers/Shallow) for patent classification, fine-tuning BERT and FastText
- Integrated Shapley Values for model interpretability and deployed a web interface to visualize feature contributions
- Result: Achieved 75% F1-score with a user-friendly and interpretable solution via Shapley values

SKILLS

Languages: French (native), English (C1), Spanish (B2)

Programming Languages: Python, C/Assembly 68000, Java/C#/Scala, MATLAB, HTML/CSS/JavaScript, Oracle, SQL

PERSONAL INTERESTS

Hobbies : Running, Swimming, Reading, Piano

Volunteering: Food distribution in Cambodia (France Volontaire), Association Treasurer