Can POULIQUEN, PhD

PhD & Engineer in Machine Learning | +33 6 51 64 24 83 | can.pouliquen@gmail.com
[Website](#) | [GitHub](#) | [LinkedIn](#)
Interested in large-scale deep learning projects

EDUCATION

Ecole Normale Supérieure de Lyon   **Lyon, France**
PhD – Machine Learning   *Nov. 2022 – Dec. 2025*
- Doctoral researcher in both theoretical and practical aspects of machine learning, at the intersection of deep learning and optimization. Transitioned towards Transformer-based generative models.
- Published papers in top-level venues in machine learning. Contributed to state-of-the-art software projects with efficient Python implementations.
- Led the Transformers & Applied Deep Learning series of tutorials in our research team.
- Supervised by Mathurin Massias, Titouan Vayer, Paulo Gonçalves.

Technical University of Berlin   **Berlin, Germany**
MSc – Machine Learning   *Oct. 2021 – March 2022*
- Exhange program. Mathematical optimization, statistical machine learning, deep learning, AI ethics.

Ecole Polytechnique Universitaire de Montpellier   **Montpellier, France**
Engineering Diploma (MSc) – Electrical Engineering & Embedded Systems   *Sept. 2019 – Sept. 2022*
- Computer engineering, computer science, embedded systems, robotics, electrical engineering.
- Got selected to transition into machine learning at the Technical University of Berlin in my final year.

EXPERIENCE

Inria | *National research institute in informatics and applied mathematics*   **Lyon, France**
PhD candidate in AI   *Nov. 2022 – Dec. 2025*
- Conducted research in machine learning for structure learning with published papers in peer-reviewed venues, with both theoretical and practical contributions.
- Transitioned towards Transformer-based generative models.
- Led the Transformers & Applied Deep Learning working group in our research team.
- Designed ML algorithms with proven theoretical guarantees and coded efficient implementations in Python.
- Gave numerous technical presentations of my research in international events (Milan, Singapore, …).
- Designed the Transformers lab for Mathurin Massias's Generative AI course at the ENS de Lyon.

CNRS | *National scientific research center*   **Toulouse, France**
AI research intern   *April 2022 – Sept. 2022*
- Conducted research in biologically inspired deep learning. Analyzed the oscillatory dynamics of artificial neural networks with predictive coding feedbacks and designed experimental protocols in Python to evaluate the results. My results led to a project that was pursued after my departure.

Mithril Security | *Deep-tech startup, acquired by The H Company*   **Paris, France**
AI engineering intern   *June 2021 – August 2021*
- Contributed to the premises of the company's secure deep learning inference server leveraging confidential computing.
- Designed experimental protocols for proofs-of-concept in Python and Rust.

NinjaLab | *Offensive hardware security*   **Montpellier, France**
Cybersecurity engineering intern   *June 2020 – July 2020*
- Built a software to enable hardware attacks that was then leveraged by the company to perform side-channel exploits of microcontrollers.
- This project involved programming in C, knowledge in cryptography and the use of hardware accelerators.

SCIENTIFIC & SOFTWARE CONTRIBUTIONS

Software projects
- Self-contained LLaMA-like Transformer from scratch, trained for language modeling on the cluster of the ENS de Lyon : [Tiny-LlaMA](#)
- First neural network architecture for learning sparse and SPD matrices (e.g. precision matrices) : [SpodNet](#)
- Ongoing closed-source project around Transformer-based diffusion models
- BPE Tokenizer from scratch for end-to-end use (training+encoding/decoding) : [Tiny-Tokenizer](#)
- Integrated a solver into *skglm* (4,000+ downloads/month and a part of *scikit-learn*) and a modular benchmark using the *benchopt* ecosystem : [code](#)
- Awarded the "gold standard" label for reproducible research in Gretsi 2025

Selected published works
- *Schur's Positive Definite Network: Deep Learning in the SPD cone with structure.* **C. Pouliquen**, M. Massias, T. Vayer
  In ICLR, 2025.
- *Implicit differentiation for hyperparameter tuning the weighted Graphical Lasso.* **C. Pouliquen**, P. Gonçalves, M. Massias, T. Vayer
  In Gretsi, 2023.

Scientific service
- Peer-reviewer for international conferences in machine learning (*NeurIPS 2023, 2024; ICLR 2024; ICML 2024, 2025; Electronic Journal of Statistics 2025*).
- Volunteer in the organization of *COLT 2025 and Eusipco 2024*.

SKILLS

Programming:
- 5 years of continuous experience with **Python** in prototyping and development in both research and industry environments. Proficient in various frameworks (**PyTorch, NumPy, scikit-learn**, etc.) and version control (**Git, GitHub, Linux shell**). Experienced in **implementing various deep learning models from scratch.**
- 2 years of experience with **C** in low-level embedded systems development in academic and industry environments
- Prior practical experience with **C++, Rust, MATLAB, Assembly.**

Soft skills: Rapidly building exploitable knowledge in new domains. Problem solving & technical consulting. Collaborations, public speaking & communication.

Spoken languages: French (native), Turkish (native), English (complete fluency), German (B1), Spanish (B1)