

Peter Massih

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EDUCATION

EPFL, Switzerland. Master's in Computer Science, Specialization in Data Analytics & Machine Learning. GPA 5.5/6.0. 2023 – 2026
ETH Zurich, Switzerland. Exchange Year, Computer Science and Electrical Engineering. 2022 – 2023
EPFL, Switzerland. Bachelor's in Communication Systems (Electrical Engineering + Computer Science). 2020 – 2023

EXPERIENCE

Machine Learning Researcher Intern, NEC Laboratories America, Princeton, NJ Feb – Oct 2025, May – Aug 2026

- Developed [QVLM](#), a code-generation vision–language model for quantitative geospatial reasoning on satellite imagery, achieving +13.9% over GPT-5. First author, under review at NeurIPS 2026 Datasets and Benchmarks Track.
- Co-authored GeOLENS, a vision-language framework distilling segmentation priors from a ConvNeXt teacher into latent tokens that augment LLM decoding without inference-time overhead. Under review at NeurIPS 2026 main track.
- Designing QT-VRM, an end-to-end vision–language model where the LLM emits learned object tokens decoded into segmentation masks via a Mask2Former head, curriculum-trained on synthetic then remote-sensing imagery.
- Created the SQuID benchmark of 2,000 human-validated Q&A pairs over NAIP and Sentinel-2 imagery. Built the tiling pipeline using Google Earth Engine, Shapely, and pyproj.

Software Engineer AI / ML Intern, Lombard Odier & Cie SA, Geneva Oct 2025 – May 2026

Received full-time return offer.

- Re-architected the production RAG system (LlamaIndex, Elasticsearch) with page-aware chunking for financial document retrieval, cutting indexation time by 95.6% (16 min to 44s) with 95% page-citation accuracy. Integrated via Java, Spring Boot, and Kafka.
- Designed ALBA, an on-premise LLM advisory pipeline (Llama.cpp, Qwen3-30B-A3B) fusing CIO views, equity research, and portfolio analytics into buy/sell recommendations. Achieved 96% advisory quality versus 47% for GPT-5.1 with web search.
- Deployed an unsupervised anomaly detection system (ElasticNet with polynomial interaction features) on tax statements, reducing false positive rate from 90% to 5% and achieving 80% precision on escalated cases across 21,679 client statements.

Trader Career Kickstarter, Optiver, Amsterdam Apr 2025

- Selected for Optiver's Career Kickstarter trader program in Amsterdam (0.5% acceptance). Built a Python market-making strategy in the Optibook simulation; trained in options pricing theory and electronic market-making by senior Optiver traders.

Full-Stack AI Engineer, Ageospatial, Lausanne Jul – Oct 2024

- Built an LLM-powered interactive map (FastAPI, LangChain, LangGraph) using GPT-4, Claude Sonnet, and Llama 3.1 70B for natural-language geospatial queries. Deployed on Azure and adopted by Swiss federal agencies.

Teaching Assistant, EPFL 2023 – 2024

- Java Programming (Fall 2023, Fall 2024), Computer Systems in C (Spring 2024).

PROJECTS

[LLM as a Teaching Assistant](#). Fine-tuned Llama-3-8B with Supervised Fine-Tuning and Direct Preference Optimization on EPFL curriculum data. Applied 4-bit, 8-bit, GPTQ, and AWQ quantization. RAG over 5 GB of coursebooks.

[Diffusion Models for Brick-Compatible 3D Object Generation](#). Two-stage diffusion pipeline (transformer-based UNet3D, CLIP text conditioning) with a greedy LegoLization algorithm for buildable bricks. Open-sourced.

[Reinforcement Learning on Mountain Car](#). Benchmarked DQN, RND, and Dyna agents. A direction-aware throttle reward reduced training from 300 to 200 episodes.

SKILLS

Languages: Python, C++, Java, C, Scala, R.

ML: PyTorch, Hugging Face, transformers, LLMs, RLHF, DPO, LoRA, GPTQ/AWQ quantization, FSDP/DDP distributed training, vLLM.

Tools: Spark, Pandas, NumPy, SQL, Docker, Kubernetes, Linux, Git, Azure, FastAPI, Spring Boot, Kafka.

Coursework: Stochastic Calculus, Probability & Statistics, Optimization, Statistical Learning, Advanced Algorithms, Deep Learning.

Spoken: English (Native), French (Native), Arabic (Native), German (Working).

EXTRACURRICULAR

Lebanese Swimming Federation. National silver (butterfly) and bronze (freestyle). 2016 – 2021

Model UN (NHSMUN, New York, Lebanon). Research & Position Paper prize. 2018 – 2020

Lebanese Red Cross Youth Section. Led first-aid and humanitarian awareness campaigns. 2018 – 2020