

Sacha Khosrowshahi

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Master's student in Machine Learning, Deep Learning & Computer Vision graduating in September 2026.
Currently research intern at the Mathis Group for Computational Neuroscience and AI.

ACADEMIC EDUCATION

MSc IASD (Artificial Intelligence, Systems, Data) *Sept. 2024 – June 2026*
PSL University

- Research oriented Master degree that includes courses such as: Reinforcement learning, Mathematics of Deep Learning, LLM for code and proof, NN architectures (Transformers, VAE, GAN ...)
- Common courses with Master MVA @ ENS Paris-Saclay: Optimal Transport, LLM for code and proof, Machine Learning with kernel methods, Point Clouds and 3D modeling

Master of Science in Engineering (Diplôme d'ingénieur) *Sept. 2024 – June 2026*
Télécom Paris - Institut Polytechnique de Paris

- Applied Mathematics: Time Series Analysis, Advanced Statistics, Linear Models
- Computer Vision: GANs, Diffusion Models, Video tracking, Object detection, Segmentation.
- Artificial Intelligence and Machine Learning: Optimization for Machine Learning, Deep Learning, NLP

Bachelor of Science *Sept. 2023 – June 2024*
Télécom Paris - Institut Polytechnique de Paris

- Fundamental curriculum in Computer Science and Applied Mathematics preparing for the Master of Science in Engineering.

EXPERIENCE & NOTABLE PROJECTS

Mathis Group (EPFL) | Research Intern *May 2026 – Nov. 2026*
Computational Neuroscience and AI *Geneva, Switzerland*

- Investigating latent representation dynamics in generative models.
- Developing unsupervised learning frameworks to map high-dimensional neural signals to motor control manifolds.
- Collaborating on large-scale neuro-AI benchmarks using PyTorch and advanced computer vision pipelines.

Semantic StyleGAN | Computer Vision Research Project

- Developed a PyTorch framework for semantic editing of StyleGAN latent space (pose, expression, lighting) using PCA, classifier guidance, and feature map analysis.

Finalist @ Google "Solve for Healthcare & Life Sciences" Hackathon | Machine Learning Hackathon, GCP

- Accelerate drug discovery by fine-tuning MedGemma to generate interpretable captions of cell-painting microscopy images
- Fine-tuned MedGemma (Google multimodal LLM) with LoRA adapters on the BBBC021 cell-painting dataset using Google Cloud Platform (GCP) for scalable training infrastructure.

Improving GAN Precision & Recall | Deep Generative Models – GMM & Gradient Flow

- Implemented and compared two complementary methods to improve GAN quality–diversity trade-off on MNIST: Gaussian Mixture Models to structure the latent space, and Discriminator Gradient Flow to refine latent vectors via energy-based optimization.
- Developed latent-space gradient refinement using f-divergence and entropy regularization, allowing continuous navigation along the precision–recall frontier via hyperparameters η , γ , and t .
- Evaluated models using FID, kNN-based Precision/Recall, and ablation on hyperparameters

SKILLS

Programming: Python (TensorFlow, PyTorch, Scikit-learn, Pandas), C, TypeScript, SQL, $\text{\LaTeX}$, CUDA

Languages: French (Native), English (Bilingual), German (Intermediate proficiency), Italian (Intermediate proficiency)