Killian Steunou

Machine Learning PhD Student

Paris, France
killian-steunou.com
killian-steunou
killian31

Summary

I am a machine learning PhD student at Institut Polytechnique de Paris and Moments Lab, working on efficient omni-modal learning for generalized video understanding.

Education

2025–2028 **Machine Learning PhD Student**, *Institut Polytechnique de Paris*, Palaiseau, France.
Efficient Omni-Modal Learning for Generalized Video Understanding

2024–2025 **M2 Mathématiques, Vision, Apprentissage**, *ENS Paris-Saclay*, Gif-sur-Yvette, France.
Optimal Transport, Computer Vision, Probabilistic Graphical Models, Representation Learning, Generative Models, 3D Modeling

2023–2024 **M1 Applied Mathematics & Statistics**, *Toulouse School of Economics*, Toulouse, France.
Econometrics, Probability, Optimization, Machine Learning, Game Theory, MDP

2019–2022 **Double Bachelor in Applied Mathematics & Economics**, *Toulouse School of Economics*, Toulouse, France.

2022 **Gap-semester**, *University of Copenhagen*, Copenhagen, Denmark.

Experience

Nov 2025–Present **Machine Learning PhD Student**, *Moments Lab*, Paris, France.
Working on efficient omni-modal learning for generalized video understanding.

Apr 2025–Oct 2025 **Deep-Learning Research Intern**, *IDEMIA*, Paris, France.
- Research on multi-object tracking and segmentation.
- Exploring various ways to use the SAM 2 foundation model for training end-to-end MOT models
  - Create video instance segmentation data from MOT data
  - Train an end-to-end tracker with an instance segmentation branch on such data
  - Use SAM 2 embeddings as instance representations during training

Apr 2024–Aug 2024 **AI Research Intern**, *C.L.S.*, Toulouse, France.
- Benchmarked foundation models for Earth observation, on the task of semantic segmentation.
- Surveyed state-of-the-art self-supervised methods for imagery and remote sensing.
- Developed a Python library for fine-tuning vision foundation models, that led to a poster presentation.

Feb 2023–Jul 2023 **Machine-Learning Engineer Intern**, *Jolibrain*, Toulouse, France.
- Contributed to the open-source image-generation tool joliGEN.
- Implemented edge-detection methods for image generation control.
- Trained experimental diffusion models for inpainting.

Projects

Feb 2024 **Video Background Removal**.
Automatic background removal behind subjects in video using AI models. GitHub

Dec 2024 **Test Time Training with Masked Autoencoders**.
Extension of the TTT-MAE method with an online version that shows better performance than the original method. GitHub | Report

January 2025 **Score-based Generative Neural Networks for Large-Scale Optimal Transport**.
Further experiments of the SCONES method: validated the method on low-dimensional data and explored the impact of several hyperparameters. GitHub | Report

Technical Skills

Python, R, Bash, Git, PyTorch, PyTorch-Lightning, Accelerate, NumPy, Pandas, Streamlit