Yvon APEDO

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Paris, France | MSCA Fellow · PhD Candidate, Université Paris-Saclay

Research Interests

Efficient Vision-Language Models · Vision-Language Action · Edge AI Deployment · Frugality and compression of deep learning models

Education

Université Paris-Saclay – IBISC & CEA LIAE *Paris, France*
PhD in Image & Signal processing — MSCA Fellow Nov 2025 – Oct 2028
Thesis: *Efficient Multimodal Vision-Language Models for Embedded Systems*

Northwestern Polytechnical University *Xi'an, China*
M.Eng., Computer Science and Technology Sep 2022 – July 2025

Yunnan Technology & Business University *Kunming, China*
B.Eng., Computer Science and Technology Sep 2018 – Mar 2022

Research Experience

Université Paris-Saclay — IBISC & CEA LIAE *Paris, France*
Researcher · Efficient Multimodal Systems Nov 2025 – Present

- Developing training-free visual token pruning methods for VLM and VLA.
- Investigating VLM compression for embedded and edge deployment targets (NVIDIA Jetson Orin 64 GB).
- Extending token pruning to Vision-Language-Action models (OpenVLA, π_0, CogAct) for robotic environments (SIMPLER, LIBERO).

Northwestern Polytechnical University — Multimedia Information Processing Lab *Xi'an, China*
Researcher · Computer Vision & Deep Learning Sep 2022 – Oct 2025

- Designed transformer-based crack segmentation pipelines under weakly supervised and domain-adaptive settings.
- Applied adversarial learning and cross-domain feature alignment, improving model generalization across pavement datasets.
- Conducted ablation studies and benchmark evaluations; published two peer-reviewed papers.

Publications & Preprints

SVD-PRUNE: Training-Free Visual Token Pruning for Vision-Language Models
Yvon Apedo*, Martyna Poreba, Michal Szczepanski, Samia Bouchafa, *Preprint on ArXiv*

Unsupervised Domain Adaptation for Crack Segmentation via Cross-Domain Stylization and Dual Adversarial Feature Learning
Yvon Apedo*, Huanjie Tao, Wu Gao, Chao Xie, Shusen Zhao, *Journal of Computing in Civil Engineering [Published]*

A Weakly Supervised Pavement Crack Segmentation Based on Adversarial Learning and Transformers
Yvon Apedo*, Huanjie Tao, *Multimetia Systems [Published]*

Systematic literature review on forecasting and prediction of technical debt evolution
Adekunle Ajibode, **Yvon Apedo**, Temitope Ajibode, *Preprint on ArXiv*

Talks & Oral Presentations

Efficient Vision-Language Models Through Token Pruning: Design Dimensions, Methods, and Challenges
GDR IASIS Workshop on Frugality and compression of deep learning models — Paris, April 2026

Technical Skills

Deep Learning Frameworks:	PyTorch, Hugging Face, Transformers, LLaVA, Qwen-VL, OpenVLA
Research Methods:	SVD / Matrix Decomposition, Token Pruning, Efficient Inference, VLM/VLA
Programming:	Python, C++, Bash/SLURM (HPC cluster)
Infrastructure:	Linux, Docker, NVIDIA Jetson (JetPack 6.2), Git, VS Code, SSH
Benchmarks:	VQAv2, GQA, ScienceQA, TextVQA, MME, POPE, LIBERO

Certifications

Ethics & STICs: Scientific Integrity, Research Ethics & Information Ethics for ICTs
France Université Numérique (FUN), Issued Jan 2026 — *France Université Numérique*

Learning AI Through Visualization
Columbia University, Issued Jun 2025 — *COLUMBIA+ 147457012*

Google Advanced Data Analytics
Google, Issued Apr 2025 — *COURSERA 0WFEDQE43QXD*

Deep Learning Specialization
DeepLearning.AI , Issued Jul 2023 — *COURSERA V6ALXZLJM55B*

Machine Learning Specialization
DeepLearning.AI & Stanford University, Issued Aug 2023 — *COURSERA PYMB2GTUCVDX*

Professional Membership

GdR IASIS Information Apprentissage Signal Image viSion(CNRS Sciences Informatiques), Member
French research community in signal processing, image analysis, machine learning, and computer vision, fostering collaboration, knowledge exchange, and interdisciplinary research across academia and industry.

IndabaX Togo, Member
Indaba's mission is to empower Africans to become active participants and owners of the technological advances in AI.

Black in AI, Member
Platform dedicated to sharing ideas, fostering collaborations, and discussing initiatives aimed at increasing the representation of Black individuals in the field of Artificial Intelligence