# Yasser Benigmim

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## SUMMARY

PhD in Computer Vision from Telecom Paris with first-author publications at **CVPR** and **ICCV**. Research focused on **foundation models** for robust dense visual understanding, spanning **open-vocabulary segmentation, domain generalization**, **knowledge distillation**, and **synthetic data generation**. Experienced in **large-scale experimentation**, benchmark evaluation, and open-source research engineering. Seeking **Research Scientist** or **Applied Scientist** roles in **multimodal AI** and **vision-language models**.

## EXPERIENCE

**PhD Student** *09/2021 – 12/2025*
*Telecom Paris* *Paris*

- Led end-to-end research projects resulting in 2 first-author papers at top-tier venues (CVPR 2024, ICCV 2025), 1 workshop paper (CVPRW 2023), and 1 paper under review (**135+ citations total**).
- Developed efficient methods for robust dense prediction under distribution shift and limited supervision, resulting in three open-source codebases (DATUM, CLOUDS, FLOSS) with **185+ cumulative GitHub stars**.
- Designed and executed large-scale experiments across 8+ segmentation benchmarks on multi-GPU HPC clusters managed with SLURM.
- Received **Best Paper Award** and **NVIDIA DGX Spark Prize** at MenaML Winter School 2026.

**Visiting PhD Researcher** *10/2024 – 03/2025*
*INRIA Paris* *Paris*

- Developed a training-free and label-free method for open-vocabulary semantic segmentation by optimizing per-class CLIP text template selection; work resulted in FLOSS, accepted at ICCV 2025.

**Research Engineer** *02/2020 – 08/2021*
*Ecole Polytechnique - CMAP* *Paris*

- Developed deep learning models (LSTMs, Transformers) for time-series forecasting of patient arrival flows across Paris emergency departments.

**Machine Learning Intern** *07/2019 – 12/2019*
*AMADEUS* *Sophia Antipolis*

- Designed neural networks for payment configuration prediction with uncertainty quantification using MC Dropout.

## PUBLICATIONS

***"Distilling from Generalist Black-Box Models for Semantic Segmentation"*** *in-review*
**Y. Benigmim**, S. Roy, K. Oublal, I. E. Marouf, S. Essid, V. Kalogeiton, and S. Lathuilière

Introduced a **black-box distillation** setting enabling semantic segmentation models to specialize from **closed API outputs without access to weights or logits**; uses DINOv2 attention entropy to identify informative scales for pseudo-labeling unlabeled images.

***"FLOSS: Free Lunch in Open-vocabulary Semantic Segmentation"*** *ICCV 2025*
**Y. Benigmim**, M. Fahes, A. Bursuc, T. H. Vu, R. De Charette

Proposed a plug-and-play, **training-free** method that uses prediction entropy to identify **per-class CLIP text templates that outperform standard template averaging**; consistently improves open-vocabulary segmentation across 5+ benchmarks, with gains of up to +3.3 mIoU on Cityscapes.

***"Collaborating Foundation Models for Domain Generalized Semantic Segmentation"*** *CVPR 2024*
**Y. Benigmim**, S. Roy, S. Essid, V. Kalogeiton, and S. Lathuilière

Proposed a **collaborative framework (CLIP + SAM + Stable Diffusion + LLM)** for domain generalized segmentation; outperformed prior state-of-the-art by +5.6 mIoU (synthetic→real) and +6.7 mIoU (daylight→adverse weather).

***"One-Shot Unsupervised Domain Adaptation with Personalized Diffusion Models"*** *CVPR-W 2023*
**Y. Benigmim**, S. Roy, S. Essid, V. Kalogeiton, and S. Lathuilière

**Personalized a diffusion model to synthesize target-domain data** for one-shot domain adaptation; advanced state-of-the-art by +8.3 mIo (GTA5→Cityscapes) and +12.6 mIoU (SYNTHIA→Cityscapes).

## EDUCATION

**Telecom Paris** *09/2021 – 12/2025*
PhD in Computer Vision
Thesis: *"Domain Adaptation in the Era of Foundation Models"*
Supervision: Stéphane Lathuilière, Vicky Kalogeiton, Slim Essid

**EURECOM** *09/2018 – 06/2019*
Exchange Program in Data Science (GPA: 3.94/4.00)

**Ecole des Mines de Saint-Étienne** *09/2016 – 06/2018*
Master of Engineering, Computer Science and Microelectronics

**CPGE Claude Fauriel** *09/2014 – 06/2016*
Two-year intensive undergraduate program in mathematics and physics (MPSI-MP*).

## ACADEMIC SERVICES

- **Teaching Assistant:** Deep Learning and Computer Vision courses at Telecom Paris (Deep Learning (SD309), Linear Models (SD-TSIA204)) and Ecole Polytechnique (Computer Vision (INF649), Advanced Deep Learning (INF581A))
- **Reviewing:** CVPR'25 (Outstanding Reviewer), NeurIPS'25 (Top Reviewer), ICCV'25, CVPR'24, ECCV'24, ACCV'22, ICASSP'22 & '23, ICIP'22

## SKILLS

- **Research Areas:** Vision-Language Models (VLMs), Large Language Models (LLMs), Multimodal Learning, Open-Vocabulary Segmentation, Domain Adaptation / Generalization, Knowledge Distillation, Synthetic Data Generation, Self-supervised Learning, Zero-shot / Few-shot Transfer, Foundation Models
- **Models & Architectures:** CLIP, DINOv2, SAM (Segment Anything Model), Stable Diffusion, Vision Transformer (ViT), ResNet, LLMs
- **Frameworks:** Python, PyTorch, Hugging Face Diffusers/Transformers, MMSegmentation, MMEngine, Weights & Biases, NumPy, OpenCV
- **Tools:** Git, SLURM (HPC), Linux, LaTeX
- **Languages:** English (Fluent), French (Fluent), Arabic (Native)