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Ananthu Aniraj

Linkedin | Website

Summary

Computer Vision Scientist with top-tier publications (ECCV oral, ICCVW), patented innovations, and a proven record of deploying large-scale AI systems. Eager to apply expertise in deep learning to solve real-world challenging problems.

Experience

Research Scientist (PhD) **Inria** **Apr 2023–Present**

Montpellier, France

Led research on novel Transformer architectures for **robust and interpretable image understanding**, developing part-centric models to improve reliability in complex scenes. This work resulted in a first-author ECCV 2024 oral (top 2.3%) and an ICCVW 2023 paper.

Visiting Researcher **Università di Trento** **Feb 2025-Apr 2025**

Trento, Italy

Analyzed **zero-shot generalization** in novel interpretable **deep learning models**, with findings being prepared for submission to a top-tier conference.

Machine Learning R&D Engineer **Lely** **Sep 2020–Mar 2023**

Maassluis, Netherlands

- Developed and deployed production-level algorithms for **behavioral analysis and health monitoring** in livestock, using camera data to enable non-invasive monitoring; this work led to one granted European patent and another pending.
- Engineered 2 large-scale deep learning systems from concept to deployment on edge devices, managing the **full MLOps lifecycle** including data pipelines, model training, and inference optimization.
- Led the core algorithmic development for a real-time system to monitor interactions between livestock and autonomous robots, enabling automated health analysis and collision avoidance.
- Implemented a semi-automated data annotation pipeline using active learning techniques, which reduced labeling errors and **boosted mAP by 20%**.
- Mentored 4 master's students through their research internships and thesis projects, leading to successful project completion and knowledge transfer.

Computer Vision R&D Intern **Lely** **Jan 2020–Aug 2020**

Maassluis, Netherlands

Designed and implemented a novel model for instance-level part segmentation in cows, **doubling the mAP** over the existing baseline and validating its performance 24/7 in live farm environments.

R&D Intern **Corvus Drones** **Sep 2019–Dec 2019**

Wageningen, Netherlands

Optimized a core computational algorithm for parallel processing by re-architecting it for GPUs using **CUDA**, reducing execution time by 50% (2x speedup).

Education

PhD. in Computer Science, *Inria / University of Montpellier, France*. **Apr 2023–Present (Expected Apr 2026)**

- *Research Topic*: Towards Part-Centric Representations for Robust and Interpretable Image Understanding
- *Supervisors*: Dr. Diego Marcos, Dr. Cassio Fraga Dantas, Dr. Dino Ienco, Dr. Massimiliano Mancini (Trento)

M.Sc. in Embedded Systems, *University of Twente, Netherlands*. **Sep 2018–Aug 2020**

- *Master Thesis*: Instance Level Cow Body Part Parsing
- *Supervisors*: Dr. Yan Li, Dr. Nicola Strisciuglio, Dr. Luuk Spreeuwers

B.Tech. in Electrical and Electronics Engineering, *University of Kerala, India*. **May 2013–Apr 2017**

- *Honors*: First Class with Distinction

Skills

- **Machine Learning & AI**: Deep Learning (CNNs, Transformers), Computer Vision, NLP (LLMs), Model Interpretability (XAI), Multimodal AI
- **Tools & Frameworks**: PyTorch, TensorFlow, Keras, OpenCV, ONNX, NumPy, Pandas, Hugging Face, Git, Slurm, Docker, Linux
- **Programming Languages**: Python, MATLAB, C++, C, LaTeX
- **Data Science:** Data Analysis, Data Visualization, Model Evaluation, MLOps, Large-Scale AI Deployment
- **Languages**: English, Dutch (A2), Malayalam, French (A2)

Professional Services

- **Reviewer (Conferences)**: ICCV 2025, CVPRW 2025
- **Reviewer (Journals):** CVIU 2025

Publications

- Aniraj, A., Dantas, C. F., Ienco, D., & Marcos, D. (2024). PDiscoFormer: Relaxing Part Discovery Constraints with Vision Transformers. *Proceedings of the European Conference on Computer Vision (ECCV), 2024, 15143, 256–272.* (**Oral**)
- Aniraj, A., Dantas, C. F., Ienco, D., & Marcos, D. (2023). Masking Strategies for Background Bias Removal in Computer Vision Models. *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, 2023, 4397–4405.*

Patents

- **System for monitoring a calving mammal**, European Patent: EP4291133B1. Patent Active. [Link]
- **Animal husbandry system**, European Patent: EP4510823A1. Patent Pending. [Link]

Summer Schools

- *International Computer Vision Summer School (ICVSS)*, Sicily, Italy, July 2025.
- *Eastern European Machine Learning Summer School (EEML)*, Sarajevo, Bosnia and Herzegovina, July 2025.

Certifications

- **Deep Learning Specialization,** Online Course - Coursera (deeplearning.ai), January 2020. [Link]
- **Machine Learning,** Online Course - Coursera (Stanford University), August 2019 [Link]