

Experience

<b>PhD. Researcher</b>	<b>Inria</b> <i>Montpellier, France</i>	<b>Apr 2023–Present</b>
<ul style="list-style-type: none"><li>Researching interpretable-by-design computer vision methods to solve fine-grained species classification tasks with 2 accepted first author papers at top AI conferences.</li><li>Oral Presentation at a top computer vision conference, namely ECCV 2024 (top 2.3% of all submissions to the conference).</li></ul>		
<b>Computer Vision R&amp;D Engineer</b>	<b>Lely</b> <i>Maassluis, Netherlands</i>	<b>Sep 2020–Mar 2023</b>
<ul style="list-style-type: none"><li>Developed computer vision algorithms for monitoring cows and robots, leading to one granted European patent and another pending.</li><li>Built 2 large-scale deep learning projects, managing the entire life cycle from concept to model deployment.</li><li>Supervised 4 master's students through research internships and thesis projects.</li><li>Devised a novel multi-camera, multi-object tracking algorithm deployed 24/7 in multiple dairy farms, enabling automated cow health monitoring and improved robot collision avoidance. <a href="#">[Link]</a></li><li>Implemented a semi-automated data annotation pipeline, reducing labeling noise and boosting model performance by 20%.</li></ul>		
<b>Computer Vision R&amp;D Intern</b>	<b>Lely</b> <i>Maassluis, Netherlands</i>	<b>Jan 2020–Aug 2020</b>
<ul style="list-style-type: none"><li>Proposed an algorithm for instance-level analysis of cows in images, improving accuracy by 2x.</li><li>Created a new dataset and deep learning model achieving state-of-the-art results tested 24/7 on various farms.</li></ul>		
<b>Computer Vision R&amp;D Intern</b>	<b>Corvus Drones</b> <i>Wageningen, Netherlands</i>	<b>Sep 2019–Dec 2019</b>
<ul style="list-style-type: none"><li>Re-wrote the ArUco marker detection algorithm to enable GPU compatibility, doubling its processing speed.</li></ul>		

Education

<b>PhD. in Computer Science, Inria / University of Montpellier, France.</b>	<b>Apr 2023–Present (Expected Apr 2026)</b>
<ul style="list-style-type: none"><li><i>Research Topic:</i> Explainable image classification through supervised and unsupervised part detection</li><li><i>Supervisors:</i> Dr. Diego Marcos, Dr. Cassio Fraga Dantas, Dr. Dino Ienco</li></ul>	
<b>M.Sc. in Embedded Systems, University of Twente, Netherlands.</b>	<b>Sep 2018–Aug 2020</b>
<ul style="list-style-type: none"><li><i>Master Thesis:</i> Instance Level Cow Body Part Parsing</li><li><i>Supervisors:</i> Dr. Yan Li, Dr. Nicola Strisciuglio, Dr. Luuk Spreeuwiers</li></ul>	
<b>B.Tech. in Electrical and Electronics Engineering, University of Kerala, India.</b>	<b>May 2013–Apr 2017</b>
<ul style="list-style-type: none"><li><i>Honors:</i> First Class with Distinction</li></ul>	

Skills

- Programming Languages:** Python, MATLAB, C++, C, LaTeX
- Machine Learning & AI:** Deep Learning, Computer Vision, Image Processing, Neural Networks

- **Data Science:** Data Analysis, Data Visualization
- **Frameworks & Libraries:** PyTorch, TensorFlow, Keras, OpenCV, NumPy, Pandas, SciPy
- **Technologies:** Git
- **Languages:** English, Dutch (A2), Malayalam, French (A2)

## Publications

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- **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). [Link](#)
- **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

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- **System for monitoring a calving mammal**, European Patent Application: EP4291133B1. Patent Active. [Link](#)
- **Animal husbandry system**, International Patent Application PCT/IB2023/053903. Patent Pending. [Link](#)

## Certifications

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

## Projects

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<b>Multi-camera, multi-object tracking in dairy farms</b>	<b>Sep 2020–Aug 2022</b>
<ul style="list-style-type: none"> <li>• <i>Role:</i> Led the development of object detection, global mapping, and tracking algorithms, and mentored 4 interns working on various components.</li> <li>• <i>Achievements:</i> Prepared a dataset of 14000+ images, enhancing object detection accuracy to 98% mAP. Ran the tracking system live 24/7 in multiple farms in the Netherlands. <a href="#">Link</a></li> </ul>	
<b>Semantic Segmentation for self-driving vehicles</b>	<b>Jan 2021–Sep 2021</b>
<ul style="list-style-type: none"> <li>• <i>Role:</i> Led the development of deep learning models for semantic segmentation, specifically designed for custom farm environments to minimize manual control of self-driving farm vehicles.</li> <li>• <i>Achievements:</i> Improved model performance by 20% through the development of algorithms to reduce labeling noise, ensuring reliable deployment on self-driving robots.</li> </ul>	
<b>Instance Level Cow Body Part Parsing</b>	<b>Jan 2020–Aug 2020</b>
<ul style="list-style-type: none"> <li>• <i>Role:</i> Led the development of a novel deep learning method for this task and collaborated with a team working on calving detection in dairy farms resulting in a pending patent.</li> <li>• <i>Achievements:</i> Achieved state-of-the-art results, created a dataset with over 2000 manually annotated images, and deployed the model for continuous operation on dairy farms.</li> </ul>	