

Damien Robert

Deep Learning for Remote Sensing & Environment

Summary I am a postdoctoral researcher in the EcoVision lab at University of Zurich, collaborating with Jan D. Wegner. I am broadly interested in deep learning for real-world data and impactful applications, with a taste for approaches making deep learning research socially and environmentally beneficial, accessible and reproducible. My recent work focuses on efficient and scalable deep learning, forest structure analysis, and species distribution modeling.



Positions

2024 – Now : *Postdoctoral Researcher, EcoVision lab, University of Zurich*

Deep learning for remote sensing and environment

PI: Jan D. Wegner

2020 – 2024 : *PhD student, ENGIE Lab CRIGEN - LASTIG, IGN/ENSG*

3y 4m

Efficient learning on large-scale 3D point clouds

Advisors: Loïc Landrieu and Bruno Vallet

2017 - 2020 : *R&D Engineer, SIRADEL, ENGIE*

2y 8m

Deep Learning on large-scale, terrestrial/aerial, indoor/outdoor 3D/2D data

2017 : *Co-Founder, Inspirama*

1y

Website gathering book recommendations from inspiring people

2015 : *R&D Intern, Dassault Systemes*

6m

Dimensionality reduction and dynamic system modeling

2014 : *R&D Intern, Dassault Systemes*

6m

UX design

Education

2022 : *International Computer Vision Summer School*

Sicily, Italy

CV courses by world-renowned experts in academia and industry

2011 - 2015 : *Ecole Centrale Lyon, MSc*

Lyon, France

Mathematics, Computer Science, Mechanics, Signal Processing, Automation

2017 : *CNRS AI Fall School*

Lyon, France

Multi-disciplinary course for AI students and researchers

2017 : *Udacity, Machine Learning Engineer Nanodegree*

MOOC

Machine learning, mathematics, computer science

2015 : *Coursera*

MOOC

Introduction to Machine Learning

2009 - 2011 : *Chateaubriand High School*

Rennes, France

Preparation course for exams to enter French engineering schools

2006 - 2009 : *Victor & Helene Basch High School*

Rennes, France

High School Diploma with honours, specialized in Sciences and English

Research Experience

Publications

2026

arxiv: Martin Schwartz, Fajwel Fogel, Nikola Besic, [Damien Robert](#), Louis Geist, Jean-Pierre Renaud, Jean-Matthieu Monnet, Clemens Mosig, Cédric Vega, Alexandre d'Aspremont, Loic Landrieu, Philippe Ciais, *FORMSpOT: A Decade of Tree-Level, Country-Scale Forest Monitoring*

CVPR Highlight: Yuanwen Yue, [Damien Robert](#), Jianyuan Wang, Sunghwan Hong, Jan Dirk Wegner, Christian Rupprecht, Konrad Schindler *LitePT: Lighter Yet Stronger Point Transformer*

ICRA: Louis Geist, Loic Landrieu, [Damien Robert](#), *EZ-SP: Fast and Lightweight Superpoint-Based 3D Segmentation*

2025

PFG–Journal of Photogrammetry, Remote Sensing and Geoinformation Science: Kaan Karaman, Vivien Sainte Fare Garnot, [Damien Robert](#), Maria João Santos, Jan Dirk Wegner, *MT-GSR4B: Multi-Temporally Guided Super-Resolution for Above-Ground Biomass Estimation*

CVPR workshop EarthVision: Elena Plekhanova, [Damien Robert](#), Johannes Dollinger, Emilia Arens, Philipp Brun, Jan Dirk Wegner, Niklaus Zimmermann, *SSL4Eco: A Global Seasonal Dataset for Geospatial Foundation Models in Ecology*

ISPRS Geospatial Week Oral: Kaan Karaman, Yuchang Jiang, [Damien Robert](#), Vivien Sainte Fare Garnot, Maria João Santos, Jan Dirk Wegner, *GSR4B: Biomass Map Super-Resolution with Sentinel-1/2 Guidance*

ICLR workshop Tackling Climate Change with Machine Learning: Johannes Dollinger, [Damien Robert](#), Elena Plekhanova, Lukas Drees, Jan Dirk Wegner, *Climplicit: Climatic Implicit Embeddings for Global Ecological Tasks*

IEEE Geoscience and Remote Sensing Magazine: Carlos Gomes, Isabelle Wittmann, [Damien Robert](#), et al., *Lossy neural compression for geospatial analytics: A review*

2024

PhD Thesis: [Damien Robert](#), *Efficient Learning on Large-Scale 3D Point Clouds*. **Jury:** Sébastien Lefèvre, Cédric Demonceaux, Patrick Pérez, Siyu Tang, Duygu Ceylan, Loic Landrieu, Bruno Vallet

3DV Oral (top 5.3% submissions): [Damien Robert](#), Hugo Raguét, Loic Landrieu, *Scalable 3D Panoptic Segmentation as Superpoint Graph Clustering*

2023

ICCV (top 26.8% submissions): [Damien Robert](#), Hugo Raguét, Loic Landrieu, *Efficient 3D Semantic Segmentation with Superpoint Transformer*

2022

CVPR Best paper finalist (top 0.4% submissions): [Damien Robert](#), Bruno Vallet, Loic Landrieu, *Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation*

Awards

2025

AFRIF PhD award accessit

2024

ECCV outstanding reviewer

2022

CVPR best paper shortlist

Collaboration & Supervision

PhD Students

Emilia Arens with Jan D. Wegner (UZH)
Johannes Dollinger with Jan D. Wegner (UZH)
Kaan Karaman with Jan D. Wegner (UZH)
Louis Geist with Loic Landrieu (ENPC)
Yuanwen Yue with Konrad Schindler (ETH) and Christian Rupprecht (Oxford)

Master Students

Valerio Schelbert (ETH)
Jackson Sunny (Polytechnique) with SAMP

Researchers

Konrad Schindler (ETH)
Christian Rupprecht (Oxford)
Jan D. Wegner (UZH)
Loic Landrieu (ENPC)
Vivien Sainte Fare Garnot (UZH)
Lukas Drees (UZH)
Martin Schwartz (LSCE)
Elena Plekhanova (WSL)

Scientific Advising

UpCircle AI (Switzerland)
Ecole des Sciences Criminelles de Lausanne (Switzerland)
SAMP AI (France)
GEODIGITAL (US)

Reviewing & Chairing

- 2026**
CVPR, ECCV Area Chair
- 2025**
CVPR, CVPR workshop EarthVision
- 2024**
ISPRS Journal of Photogrammetry and Remote Sensing, ICLR workshop ML4RS, ECCV (outstanding reviewer), CVPR workshop EarthVision
- 2023**
CVPR, CVPR workshop EarthVision
- 2022**
ISPRS Journal of Photogrammetry and Remote Sensing, CVPR workshop EarthVision

Teaching

- 2026 : UZH** *(M2)*
Lecture on Attention
- 2025 : UZH** *(M2)*
Lecture on Attention & AI4Good group projects
- 2024 : UZH** *(M2)*
Lecture and labs on Attention, NeRFs, and Diffusion
- 2023 : ENSG-IGN** *(M2)*
Lecture and labs on Deep Learning for Remote Sensing
- 2022 : XXIV ISPRS Congress** *(Researchers)*
Tutorial on Deep Learning for Remote Sensing

2022 : ENGIE CRIGEN lab

(Researchers)

Tutorial on 3D Deep Learning, Torch-Points3D & DeepViewAgg

2022 : ENSG-IGN

(M2)






Lecture and labs on Deep Learning for Remote Sensing

2020 : Ecole Polytechnique

(M1)

Lecture on Deep Learning for Computer Vision

Open-Source Repositories

 drprojects/superpoint_transformer	945 ★	123 📄
 drprojects/deepviewagg	234 ★	24 📄
 drprojects/point_geometric_features	71 ★	7 📄
 drprojects/nora	50 ★	2 📄
 drprojects/torch-graph-components	20 ★	

Conferences and Invited Talks

 Conference oral  Poster  Invited talk  Interview


2025

 **Max Planck Institute of Animal Behavior** Zurich, Switzerland

Research at EcoVision lab

 **Global Forest Watch** Virtual

Geospatial foundation models for forest disturbance monitoring

 **ETH Zurich, Plant Ecology** Zurich, Switzerland

Research at EcoVision lab

 **AI4EO** Rennes, France


SSL4Eco: A Global Seasonal Dataset for Geospatial Foundation Models in Ecology

 **CVPR EarthVision** Nashville, US

SSL4Eco: A Global Seasonal Dataset for Geospatial Foundation Models in Ecology

 **NatureFinance** Virtual

Research at EcoVision lab

 **Unil., Institute for Forensic Science** Virtual

Superpoint Transformer

 **COMET TSI (CNES)** Virtual

Remote Sensing for Species Distribution Modeling

 **WSL Dynamic Ecology** Zurich, Switzerland

Research at EcoVision lab

2024

 **Samp R&D lab** Paris, France

SuperCluster

 **3D Data Academy** YouTube

Interview by Florent Poux and tutorial for Superpoint Transformer

 **Una Europa** Zurich, Switzerland

Research at EcoVision lab

 **Google DeepMind** Zurich, Switzerland

Research at EcoVision lab

 **GeoDigital** Virtual

Superpoint Transformer


 **3DV** Davos, Switzerland

Scalable 3D Panoptic Segmentation as Superpoint Graph Clustering

 **IGN**
PhD defense

Paris, France

2023

 **National Land Survey of Finland (NLS)**
Presenting IGN's research on large-Scale 2D and 3D Learning

Paris, France

 **Ecole des Ponts, IMAGINE lab**
Efficient Learning on Large-Scale 3D Point Clouds

Paris, France

 **ICCV**
Efficient 3D Semantic Segmentation with Superpoint Transformer


Paris, France

 **ETH Zurich, Computer Vision and Geometry lab**
Efficient Learning on Large-Scale 3D Point Clouds

Zurich, Switzerland

 **ETH Zurich, Photogrammetry and Remote Sensing lab**
Efficient Learning on Large-Scale 3D Point Clouds

Zurich, Switzerland

 **ENGIE CRIGEN lab**
Efficient 3D Semantic Segmentation with Superpoint Transformer

Paris, France

 **Samp R&D lab**
Efficient 3D Semantic Segmentation with Superpoint Transformer

Paris, France


 **University of Zurich, EcoVision lab**
Efficient 3D Semantic Segmentation with Superpoint Transformer

Virtual

 **Valeo.ai**
Efficient 3D Semantic Segmentation with Superpoint Transformer

Paris, France

2022

 **IGN, LASTIG lab**
Self-Supervised Learning for Computer Vision

Paris, France

 **Bundesamt für Kartographie und Geodäsie (BKG)**
Presenting IGN's research on Large-Scale 2D and 3D Learning

Paris, France

 **International Computer Vision Summer School**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Sicily, Italy

 **CV News**
Interviewed by the CV News journal for its *Best of CVPR'22* issue

New Orleans, US

 **CVPR**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

New Orleans, US

 **Ecole des Ponts, IMAGINE lab**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Paris, France

 **XXIV ISPRS Congress**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Nice, France

 **Ecole Polytechnique, LIX lab**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Paris, France

 **AI4GEO project seminar**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Virtual


 **IGN-ENSG Research Days**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Paris, France

 **GDR ISIS seminar**
Learning Multi-View Aggregation In the Wild for Large-Scale 3D Semantic Segmentation

Virtual

2021

 **IGN-ENSG Research Days**
Multimodal learning on point clouds and images














Virtual

Skills, Interests, and Personal





Research Topics

- Computer vision
- Deep learning
- LiDAR data
- Large-scale 3D data
- Multimodal learning
- Efficient learning
- Superpoint-based learning
- Graph-based learning
- Graph partitioning
- Self-supervised learning
- Remote sensing
- Forest structure analysis
- Species distribution modeling
- Representation learning for macroecology
- EO data representation and compression



Tools

-  Python
-  PyTorch
-  PyTorch Lightning
-  PyTorch Geometric
-  Hydra
-  scikit-learn
-  Plotly
-  Weights & Biases
-  Blender
-  C++
-  Git
-  LaTeX
-  Linux

Languages

-  French Native
-  English Fluent
-  Spanish Intermediate
-  German Beginner

International Experience

- 2024-Now  Zurich
- 2015-2016  Backpacking
- 2014-2015  Providence, RI

Personal Interests

