



# Colin Decourt

PHD IN AI. COMPUTER VISION AND DEEP LEARNING RESEARCHER

Toulouse, France

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## Skills

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**LANGUAGES:** FRENCH (NATIVE), ENGLISH (FLUENT), GERMAN (BEGINNER)

**PROGRAMMING LANGUAGES:** PYTHON, C/C++, JAVA, SQL, ROS

**DEEP LEARNING FRAMEWORKS:** PYTORCH, PYTORCH LIGHTNING, TENSORFLOW, KERAS

**SOFTWARE DEVELOPMENT FRAMEWORKS:** LINUX, DOCKER, SINGULARITY, SLURM, BASH, GIT

## Experience

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### [ANITI - ISAE-SUPAERO - NXP Semiconductors](#)

Toulouse, France

#### PHD STUDENT IN DEEP LEARNING (COMPUTER VISION)

Oct 2020 - Dec 2023

- Creation of a deep neural network architecture for object classification using radar data.
- Development of a lightweight Faster R-CNN based architecture for range-doppler spectrum features extraction and object detection.
- Creation of a memory-efficient architecture based on convolutions and convolutional recurrent neural networks for single-view (range-doppler, range-angle) or multi-view (range-azimuth-doppler tensors) object detection and segmentation.
- Development of a self-supervised learning framework for radar object detection using contrastive learning and generative methods.
- Accepted article at IEEE IV 2022 conference, two others in review. See [publications](#) for further details.
- Assistant professor in computer vision (classification, detection, segmentation) and computer science (C and Python programming, algorithmic). Details are available [here](#).
- Supervision of two interns (2021, 2022) and one apprentice (2021-2023)

### [NXP Semiconductors](#)

Toulouse, France

#### RESEARCH ENGINEER

Feb 2020-Aug 2020

- Creation of simple algorithms for target detection and classification using FMCW radar data.
- Introduction to radar signal processing and bibliography on AI for automotive radar

### [Ecole de Technologie Supérieure](#)

Montréal, Quebec, Canada

#### COMPUTER VISION RESEARCHER

Jun 2019-Sep 2019

- Research project about left ventricle segmentation in pediatric MRI for inter-ventricular communication detections.
- Semi-supervised generative adversarial network for the segmentation of the left ventricle in pediatric MRI.
- Accepted article in Computers in Biology and Medicine journal. See publications for further details.

### [Sogetrel](#)

Bordeaux, France

#### ACTIVITY MANAGEMENT OPERATOR

Jun 2018-Sep 2018

- Establishment and monitoring of technicians' reports following interventions on the Orange network.
- Links between customers, technicians and operators.

## Publications

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### PUBLISHED

**C. Decourt**, R. VanRullen, D. Salle, T. Oberlin. [DAROD: A Deep Automotive Radar Object Detector on Range-Doppler maps](#). IEEE Intelligent Vehicles Symposium (IV), Aachen, Germany, 2022

**C. Decourt**, L. Duong. [Semi-supervised generative adversarial networks for the segmentation of the left ventricle in pediatric MRI](#), Computers in Biology and Medicine, Volume 123, 103884, ISSN 0010-4825, 2020

### IN REVIEW

**C. Decourt**, R. VanRullen, D. Salle, T. Oberlin. [A recurrent CNN for online object detection on raw radar frames](#). arXiv preprint arXiv:2212.11172., 2022, IEEE Transactions on Intelligent Transportation Systems (T-ITS)

**C. Decourt**, R. VanRullen, D. Salle, T. Oberlin. [Leveraging Self-Supervised Instance Contrastive Learning for Radar Object Detection](#). arXiv preprint arXiv:2402.08427., 2024, IEEE Intelligent Vehicles Symposium (IV)

## Education

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[University of Toulouse 3 - Paul Sabatier](#)

*Toulouse, France*

PHD IN ARTIFICIAL INTELLIGENCE

*2020 - 2023*

- Research topic: Multiple target extraction, identification and tracking for radar using AI.
- PhD as part of the ANITI program, in collaboration with NXP Semiconductors.
- **Advisors:** Rufin VanRullen (CNRS), Thomas Oberlin (ISAE-SUPAERO), Didier Salle (NXP Semiconductors)

[Bordeaux Graduate Engineering School in Telecommunications \(ENSEIRB-MATMECA\)](#)

*Bordeaux, France*

MSC IN TELECOMMUNICATIONS, MAJOR ARTIFICIAL INTELLIGENCE

*2017 - 2020*

- Artificial intelligence (machine learning, computer vision, natural language processing, reinforcement learning)
- Signal and image processing
- Digital communications and networks
- Software engineering

Lycée Alphonse Daudet

*Nîmes, France*

UNDERGRADUATE STUDIES TO PREPARE FOR COMPETITIVE ENTRANCE EXAMS TO ENGINEERING SCHOOLS.

*2015 - 2017*

- Mathematics, Physics, French literature and English.