

# Eduardo Dadalto, PhD Candidate in Machine Learning

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*I am a PhD Candidate working towards safer deep learning algorithms and committed to making AI a beneficial technology for all.*

Eduardo Dadalto Câmara Gomes (he/him)  
CentraleSupélec, L2S, Université Paris-Saclay  
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Research interests: Safety AI, Out-of-distribution detection, Representation learning, Computer vision, NLP.

## Education

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### CentraleSupélec, L2S, Université Paris-Saclay, CNRS

November 2020-  
Paris, France

*PhD in Machine Learning.*

- Title: [Securing the use of Artificial Intelligence](#).
- Keywords: Out-of-distribution detection, Statistical Drift, Safety AI, Computer Vision, NLP.
- Supervised by Prof. [Pablo Piantanida](#) and [Florence Alberge](#).

### Institut de Mathématiques de Toulouse, Université Toulouse III

Sep. 2019 - Oct. 2020  
Toulouse, France

*MSc. in Applied Mathematics and Operations Research.*

Dissertation: “Training Binarized Deep Neural Networks” supervised by Franck Mamalet and [François Malgouyres](#).

### ISAE-SUPAERO

Sep. 2018 - Apr. 2020  
Toulouse, France

*Diplôme d'Ingénieur (double degree) in Data and Decision Science.*

### Instituto Tecnológico de Aeronáutica (ITA)

Feb. 2015 - Jul. 2018  
São José dos Campos, Brazil

*BE (double degree) in Aerospace Engineering.*

Dissertation: “Machine Learning Applied to Communication Channels” supervised by [Meryem Bennamar](#) and [Manish Sharma](#).

## Work Experience

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### IRT Saint Exupéry, DEEL Team

Apr. 2020 - Oct. 2020  
Toulouse, France

*Undergraduate Research Intern.*

- Six months internship working on binarizing the weights of neural networks.
- Supervised by Franck Mamalet and co-supervised by [François Malgouyres](#) and Adrien Gauffriau.

## Publications

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For an up to date list of publications, please see my [Google Scholar page](#).

1. [Eduardo Dadalto](#), Marco Romanelli, Georg Pichler, Pablo Piantanida. *A Data-Driven Measure of Relative Uncertainty for Misclassification Detection*. **Recently Submitted**.
2. [Eduardo Dadalto](#), Pierre Colombo, Guillaume Staerman, Nathan Noiry, Pablo Piantanida. *A Functional Perspective on Multi-Layer Out-of-Distribution Detection*. **Recently Submitted**.
3. [Eduardo Dadalto](#), Marco Romanelli, Federica Granese, Siddharth Garg, Pablo Piantanida. *Trusting the Untrustworthy: A Cautionary Tale on the Pitfalls of Training-based Rejection Option*. **Recently Submitted**.
4. Pierre Colombo, [Eduardo Dadalto](#), Guillaume Staerman, Nathan Noiry, Pablo Piantanida. *Beyond Mahalanobis Distance for Textual OOD Detection*. **NIPS 2022**. [LINK](#) [PDF](#)

5. [Eduardo Dadalto](#), Florence Alberge, Pierre Duhamel, Pablo Piantanida. *Igeood: An Information Geometry Approach to Out-of-Distribution Detection*. **ICLR 2022**. [LINK](#) [PDF](#) [CODE](#)

## Teaching

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**CentraleSupélec, Université Paris-Saclay**

2020-2021

Teaching Assistant for the course *Introduction to Deep Learning (3SQ2050)*.

Gif-sur-Yvette, France

## Services

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- **Reviewer:** Neural Information Processing Systems (NeurIPS 2022, 2023), Computer Vision and Pattern Recognition (CVPR 2023).
- **Conferences:**
  - Conference on Neural Information Processing Systems (NeurIPS), 2021-2022.
  - International Conference on Learning Representations (ICLR), 2021.
  - NeurIPS Workshop on Distribution Shifts (DistShift), 2021.
  - IEEE International Symposium on Topics in Coding (ISTC), 2021.

## Awards and Scholarships

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**Globalink MITACS Scholarship**

Oct. 2022 - Feb. 2023

Research visitor at the *International Laboratory on Learning Systems (ILLS)*.

Montreal, QC, Canada

- Partnership between MILA, ETS, McGill, and Université Paris-Saclay.
- Subject: Misclassification Detection for Medical Image Segmentation.
- Directed by [Pablo Piantanida](#) and [Jose Dolz](#).

**BCG Gamma Data Science Hackathon**

February 2020

Hackathon for *BCG Gamma* and *Instituto Tecnológico de Aeronáutica*.

São José dos Campos, Brazil

- Fine tuning a YOLOv3 model for object detection on infrared drone footage.
- Best presentation award. Placed 2/10. Advised by [Filipe Verri](#).

## Software

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[Detectors](#)

May 2023.

Open source package to accelerate research on out-of-distribution (OOD) detection for computer vision applications.

[Todd](#) / [ToddBenchmark](#)

February 2023

Open source package to accelerate research on out-of-distribution (OOD) detection for textual applications.

## Skills

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- **Languages:** English (Cambridge C2 Proficiency), French (fluent), Portuguese (native).
- **Programming:** Python, Java, C, Bash, Scripting,  $\LaTeX$ , Slurm, Git, Docker, GCP.
- **Libraries:** PyTorch, Transformers, Keras, TensorFlow, Scikit-Learn, Pandas.