

Eduardo Dadalto, PhD Candidate in Machine Learning

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)
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Research interests: Safety AI, Out-of-distribution detection, Representation learning, Computer vision, NLP.

Education

CentraleSupélec, L2S, Université Paris-Saclay, CNRS
PhD in Machine Learning.

November 2020-
Paris, France

- 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
MSc. in Applied Mathematics and Operations Research.

Sep. 2019 - Oct. 2020
Toulouse, France

Dissertation: “Training Binarized Deep Neural Networks” supervised by Franck Mamalet and François Malgouyres.

ISAE-SUPAERO

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

Sep. 2018 - Apr. 2020
Toulouse, France

Instituto Tecnológico de Aeronáutica (ITA)
BE (double degree) in Aerospace Engineering.

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

Dissertation: “Machine Learning Applied to Communication Channels” supervised by Meryem Bennamar and Manish Sharma.

Work Experience

IRT Saint Exupéry, DEEL Team
Undergraduate Research Intern.

Apr. 2020 - Oct. 2020
Toulouse, France

- 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

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

CentraleSupélec, Université Paris-Saclay

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

2020-2021

Gif-sur-Yvette, France

Services

- **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

Globalink MITACS Scholarship

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

Oct. 2022 - Feb. 2023

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

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

February 2020

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

Detectors

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

May 2023.

Todd / ToddBenchmark

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

February 2023

Skills

- **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.

References

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Marco Romanelli
Research Associate
NYU Tandon School of Engineering
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