

Francesco Cappio Borlino

PHD STUDENT AT POLITECNICO DI TORINO

✉ francesco.cappio@polito.it | 🏠 francescocappio.github.io | 📄 FrancescoCappio | 🎓 Google Scholar



Summary

I am a Ph.D. student in Computer And Control Engineering at Politecnico di Torino. I work on Deep Learning based techniques for Computer Vision tasks. My research focus is on robustness of models across semantic and visual domain shifts: I work on out-of-distribution detection and visual domain adaptation and generalization. My purpose is to build models that are ready for real world applications.

Skills

Programming Languages	Python, Java, C, C++, Bash, SQL, Javascript, PHP
Technologies and Frameworks	Linux, PyTorch, Jax+Flax, Hadoop, Spark, Android Studio
Languages	Italian: Native English: level B2-C1 (First CE) French level: B2-C1
Interests	Technology Deep/Machine Learning Free Software Hiking Cooking Reading

Education

Main studies

PhD in Computer and Control Engineering

POLITECNICO DI TORINO

- Research in Deep Learning for Computer Vision

Turin, Italy

May, 2020 - Ongoing

Master's Degree in Computer Engineering

POLITECNICO DI TORINO

- **Thesis:** "Visual object detection across different domains by solving self supervised tasks"
- **Supervisors:** Barbara Caputo, Tatiana Tommasi, Antonio D'Innocente.
- **Final mark:** 110L/110

Turin, Italy

Oct. 2017 - Dec. 2019

Bachelor's Degree in Computer Engineering

POLITECNICO DI TORINO

- **Final Mark:** 107/110

Turin, Italy

Oct. 2014 - Sept. 2017

Additional trainings

4th International School on Deep Learning

DEEPLearn 2021 SUMMER

Las Palmas de Gran Canaria, Spain

July 26-30, 2021

Publications

Large Class Separation is not what you need for Relational Reasoning-based OOD Detection

AUTHORS: LORENZO LI LU, GIULIA D'ASCENZI, FRANCESCO CAPPIO BORLINO, TATIANA TOMMASI

In: International Conference on Image Analysis and Processing, ICIAP 2023

2023

Link

3DOS: Towards 3D Open Set Learning – Benchmarking and Understanding Semantic Novelty Detection on Point Clouds

AUTHORS: ANTONIO ALLIEGRO*, FRANCESCO CAPPIO BORLINO*, TATIANA TOMMASI

In: Proceedings of the Neural Information Processing Systems (NeurIPS) Track on Datasets and Benchmarks, 2022

2022

Link

Semantic Novelty Detection via Relational Reasoning

AUTHORS: FRANCESCO CAPPIO BORLINO*, S. BUCCI*, T. TOMMASI

In: European Conference on Computer Vision, ECCV 2022

2022

Link

LUXEMBOURG, OCTOBER 2023 - IN COMPLIANCE WITH THE ITALIAN LEGISLATIVE DECREE NO. 196 DATED 30/06/2003, I HEREBY AUTHORIZE YOU TO USE AND PROCESS MY

PERSONAL DETAILS CONTAINED IN THIS DOCUMENT.

Self-Supervision & Meta-Learning for One-Shot Unsupervised Cross-Domain Detection

AUTHORS: FRANCESCO CAPPIO BORLINO, S. POLIZZOTTO, B. CAPUTO, T. TOMMASI

In: Computer Vision and Image Understanding Journal (CVIU)

2022

[Link](#)

Contrastive Learning for Cross-Domain Open World Recognition

AUTHORS: FRANCESCO CAPPIO BORLINO, SILVIA BUCCI, TATIANA TOMMASI

In: The 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)

2022

[Link](#)

Distance-based Hyperspherical Classification for Multi-source Open-Set Domain Adaptation

AUTHORS: SILVIA BUCCI*, FRANCESCO CAPPIO BORLINO*, BARBARA CAPUTO, AND TATIANA TOMMASI

In: Winter Conference on Applications of Computer Vision, WACV 2022

2022

[Link](#)

Rethinking Domain Generalization Baselines

AUTHORS: FRANCESCO CAPPIO BORLINO, ANTONIO D'INNOCENTE, AND TATIANA TOMMASI.

In: 25th International Conference on Pattern Recognition, ICPR 2020

2021

[Link](#)

Domain Generalization vs Data Augmentation: An Unbiased Perspective

AUTHORS: FRANCESCO CAPPIO BORLINO, ANTONIO D'INNOCENTE, AND TATIANA TOMMASI.

In: Computer Vision – ECCV 2020 Workshops

2020

[Link](#)

One-shot unsupervised cross-domain detection

AUTHORS: ANTONIO D'INNOCENTE, FRANCESCO CAPPIO BORLINO, SILVIA BUCCI, BARBARA CAPUTO, AND TATIANA TOMMASI

In: European Conference on Computer Vision, ECCV 2020

2020

[Link](#)

*equal contributions

OpenPatch: a 3D patchwork for Out-Of-Distribution detection

AUTHORS: PAOLO RABINO, ANTONIO ALLIEGRO, FRANCESCO CAPPIO BORLINO, AND TATIANA TOMMASI

In: Arxiv, 2023

2023

[Link](#)

Additional research-related work

REVIEWER

ECCV 2020, TASKCV 2020, NeurIPS 2020, ICRA 2021, CVPR 2021, ICCV 2021, WACV 2022, Pattern Recognition Journal, ICPR 2022, Robotics and Automation Letters (RAL) Journal, NeurIPS Datasets and Benchmarks track 2022, International Journal of Computer Vision (IJCV), CVPR 2023, NeurIPS Datasets and Benchmarks track 2023, ICIAP 2023, TPAMI 2023

I have been named one of **CVPR 2023 outstanding reviewers**: CVPR

PROGRAM COMMITTEE

Adapting to Change: Reliable Learning Across Domains, ECML-PKDD 2023 Workshop

Work Experience

Amazon

RESEARCH SCIENTIST INTERN

- Working on anomaly detection on Computer Vision problems

[Luxembourg](#)

September 2023 - Ongoing

Politecnico di Torino

TEACHING ASSISTANT

- 2020-2021: master course on Artificial Intelligence and Machine Learning
- 2021-2022: master course on Advanced Machine Learning
- 2022-2023: master course on Advanced Machine Learning

[Turin, Italy](#)

May. 2020 - Ongoing

Italian Institute of Technology

RESEARCHER

- Further development of my Master's Degree Thesis project in visual object detection across domains.

[Turin, Italy](#)

Feb. 2020 - Apr. 2020

Feedback Italia Srl

SOFTWARE DEVELOPER

- I did a curricular Internship and I was then offered a job as a software developer that I kept while studying for my Master's Degree. I worked almost two years developing a messaging application for Android and a C/C++ based service for a Linux embedded system. I left this position to work on my Master's Degree thesis.

[Moncalieri, TO | Italy](#)

Mar. 2017 - Jan. 2019