

Francesco Cappio Borlino

RESEARCH SCIENTIST AT AMAZON

francescocappio.github.io | FrancescoCappio | Google Scholar



Summary

I'm a Research Scientist at Amazon, working on Anomaly Detection for Computer Vision applications. I have a PhD in Computer Vision from Politecnico di Torino where I have been part of the Vandal lab.

Skills

Programming Languages	Python, Java, C, C++, Bash, SQL, Javascript, PHP
Technologies and Frameworks	Linux, PyTorch, AWS, 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

Turin, Italy

May, 2020 - July, 2024

- **Thesis:** "Addressing Distributional Shift challenges in Computer Vision for Real-World Applications"
- **Supervisors:** Barbara Caputo, Tatiana Tommasi.
- **Research group:** Vandal Lab

Master's Degree in Computer Engineering

POLITECNICO DI TORINO

Turin, Italy

Oct. 2017 - Dec. 2019

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

Bachelor's Degree in Computer Engineering

POLITECNICO DI TORINO

Turin, Italy

Oct. 2014 - Sept. 2017

- **Final Mark:** 107/110

Publications

Foundation Models and Fine-Tuning: A Benchmark for Out of Distribution Detection

2024

AUTHORS: FRANCESCO CAPPIO BORLINO, LORENZO LI LU, TATIANA TOMMASI

[Link](#)

In: IEEE Access, 2024

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

2023

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

[Link](#)

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

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

2022

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

[Link](#)

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

Semantic Novelty Detection via Relational Reasoning

2022

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

[Link](#)

In: European Conference on Computer Vision, ECCV 2022

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

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

[Milan, Italy](#)
March 2024 - Ongoing

 - Working on Anomaly Detection on Computer Vision applications.
- Amazon**
RESEARCH SCIENTIST INTERN

[Luxembourg](#)
September 2023 - January 2024

 - Working on a Model Predictive Control project.
- Politecnico di Torino**
TEACHING ASSISTANT

[Turin, Italy](#)
May. 2020 - Ongoing

 - 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
- Italian Institute of Technology**
RESEARCHER

[Turin, Italy](#)
Feb. 2020 - Apr. 2020

 - Further development of my Master's Degree Thesis project in visual object detection across domains.
- Feedback Italia Srl**
SOFTWARE DEVELOPER

[Moncalieri, TO | Italy](#)
Mar. 2017 - Jan. 2019

 - 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.