

# Paolo Didier Alfano

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👤 Paolo Alfano

## Current position

Now **Postdoctoral**, *Italian Institute of Technology, Genoa.*

2022 Nov. I'm currently working with Lorenzo Rosasco and Francesca Odone on efficient machine learning methods for dynamical systems involving agent-environment interactions. My focus lies on two branches of machine learning algorithms for robotics:



- Diffusion techniques for object surface recognition in vision-based tactile sensors
- Computer vision techniques for real-time action recognition

## Education

2022 Oct. **Ph.D. in Computer Science**, *University of Genoa, Italy.*

2019 Nov. Ph.D. in statistical learning applied to computer vision, emphasizing transfer learning and domain adaptation under resource constraints (e.g., time, space, data). I conducted an extensive and in-depth investigation into the applicable statistical techniques within the field of computer vision.



- Ph.D. thesis: *Efficient machine learning with resource constraints.*

Supervised by Lorenzo Rosasco and Francesca Odone. Defense: May 30, 2023.

2019 Apr. **Master Degree in Computer Science**, *University of Turin, Italy.*

2016 Nov. Artificial Intelligence curriculum, focused on artificial intelligence and machine learning.



- Master thesis: *Adapting a recurrent network to tonal analysis of audio files.* A study on techniques, methodologies, and models associated with speech recognition to predict sequences of chords played within audio tracks.

Supervised by Roberto Esposito.

- Final mark: 110/110 cum laude

2016 Oct. **Bachelor Degree in Computer Science**, *University of Pisa, Italy.*

2013 Nov. ○ Bachelor thesis: *Deep Learning Model for graphics accelerator.* An overview over convolutional deep learning models. The results were presented as demo during the Nvidia's GPU Europe technology conference 2016.



Supervised by Davide Bacciu.

## Awards and Prizes

2022 **Postdoctoral researcher position**, funded by the Italian Institute of Technology (IIT), Genoa, Italy.

2019 **Ph.D. position**, funded by the European Research Grant SLING 819789 at the University of Genoa, Italy.

2018 **Internship position**, funded by Fermi National Accelerator Laboratory (FermiLab), Chicago, IL, USA..

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## Internships, Schools, Workshops

2023 Sep. **Primo Workshop 2023**, University of Bari, Italy.

Poster presentation.



PRIMO Workshop offers an overview on topics within the research areas of imaging science, deep learning and non linear optimization.

2022 Jul. **International Computer Vision Summer School**, University of Catania, Italy.



Poster presentation.

In the International Computer Vision Summer School (ICVSS), experts from academia and industry deliver courses on theory, practical problem-solving, and commercial applications.

2018 Sep. **Internship at the Fermi National Accelerator Laboratory**, FERMILAB, Chicago.

2018 Jul. Oral presentations.



A two-month internship where I developed deep learning algorithms for CAPTCHA image analysis. Our work led to recommendations for creating stronger CAPTCHAs and expanded our understanding of applying deep learning to malicious code detection.

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## Publications and Preprints



*Sim2Surf: a Sim2Real Surface Classifier for Vision-Based Tactile Sensors with a Bilevel Adaptation Pipeline.*

PD. Alfano, GM. Caddeo, A. Maracani, NA. Piga L. Rosasco, L. Natale  
in IEEE Sensors Journal, Issue 2, 2025



*Sim2Real Bilevel Adaptation for Object Surface Classification using Vision-Based Tactile Sensors.*

PD. Alfano, GM. Caddeo, A. Maracani, NA. Piga L. Rosasco, L. Natale  
in International Conference on Robotics and Automation 2024



*Top-Tuning: a study on transfer learning for an efficient alternative to fine tuning for image classification with fast kernel methods.*

PD. Alfano, VP. Pastore, L. Rosasco, F. Odone  
in Image and Vision Computing Journal, volume 142, 2023



*An unsupervised learning approach to resolve phenotype to genotype mapping in budding yeasts vacuoles.*

VP. Pastore, P.D. Alfano et al.  
in International Conference of Image Analysis and Processing 2023



*Efficient Unsupervised Learning for Plankton Images.*

P.D. Alfano, M. Rando, M. Letizia, F. Odone, L. Rosasco and VP. Pastore  
in International Conference on Pattern Recognition 2022

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## Teaching

2022 *Advanced Machine Learning, 10 hours*, Master Degree in Computer Science, laboratory teaching assistant, Genoa University.

Prepare, present and correct code for laboratories.

2021 *Introduction to Deep Learning and Convolutional Neural Networks, 4 hours*, Introductory lessons for corporate students through the MAIA program.

Prepare code and oral presentations on general-purpose deep learning mechanisms.

2021 *Algorithm and data structure, 20 hours*, Bachelor Degree in Computer Science, exam assistant, Genoa University.

Present and correct code for laboratories.

- 2021 *Advanced Machine Learning, 20 hours*, Master Degree in Computer Science, laboratory assistant, Genoa University.  
Prepare, present and correct code for laboratories.
- 2020 *Introduction to Deep Learning and Convolutional Neural Networks, 8 hours*, Introductory lessons for corporate students through the MAIA program.  
Prepare code and oral presentations on general-purpose deep learning mechanisms.
- 2020 *Regularization Methods for Machine Learning, 16 hours*, Summer school, laboratory assistant, Genoa University.  
Prepare, present and correct code for laboratories.
- 2020 *Algorithm and data structure, 20 hours*, Bachelor Degree in Computer Science, exam assistant, Genoa University.  
Present and correct code for laboratories.
- 2020 *Advanced Machine Learning, 20 hours*, Master Degree in Computer Science, laboratory assistant, Genoa University.  
Prepare, present and correct code for laboratories.

## Technical skills

- Programming Languages: C, C++, Python, Java, F#, HTML, CSS, JavaScript, Prolog, CLINGO, CLIPS, Ocaml, SQL, MATLAB.
- Machine Learning Genoa Center(MaLGa) servers maintenance since 2020.

## Languages

- Italian: mother tongue
- English: fluent
- French: basic

## References

- Lorenzo Rosasco:  
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