

# Paolo Didier Alfano

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🌐 Paolo Alfano



## Current position

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

2022 Oct. 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.

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.

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. **Workshop**, *Primo Workshop 2023*, University of Bari, Bari, Topic: Machine Learning, Inverse problems & Optimization.

 The PRIMO Workshop offers an overview on topics within the research areas of imaging science, deep learning and non linear optimization to early-career researchers.

2022 Jul. **Summer School**, *International Computer Vision Summer School*, University of Catania, Catania, Topic: Deep Learning & Computer vision.



The International Computer Vision Summer School (ICVSS) offers an exploration of cutting-edge Computer Vision research. Experts from academia and industry deliver courses on theory, practical problem-solving, and commercial applications.

2018 Sep. **Internship**, *Summer Student program at the Fermi National Accelerator Laboratory*,

2018 Jul. FERMI LAB, Chicago, Topic: Deep Learning & Cybersecurity.



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



*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.*

P.D. Alfano, VP. Pastore 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 assistant, Genoa University.

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

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

2021 *Advanced Machine Learning, 20 hours*, Master Degree in Computer Science, laboratory assistant, Genoa University.

2020 *Introduction to Deep Learning and Convolutional Neural Networks, 8 hours*, Introductory lessons for corporate students through the MAIA program.

- 2020 *Algorithm and data structure, 20 hours*, Bachelor Degree in Computer Science, exam assistant, Genoa University.
- 2020 *Advanced Machine Learning, 20 hours*, Master Degree in Computer Science, laboratory assistant, Genoa University.

## Technical skills

- Programming Languages: C, C++, Python, Java, F#, HTML, CSS, JavaScript, Prolog, CLINGO, CLIPS, Ocaml, SQL, MATLAB.
- Computer Science: artificial intelligence, machine learning, neural networks, data structures, algorithms, logic, operating systems, computer architectures, computer networks, databases.
- Mathematics: numerical analysis, calculus, probability theory and statistics

## Languages

Italian	Mother Tongue				
English	Listening	Reading	Spoken Interaction	Spoken Production	Writing
	C1	C1	C1	C1	C1
French	Listening	Reading	Spoken Interaction	Spoken Production	Writing
	A2	A2	A1	A1	A1