

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.

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..

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.

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.

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

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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- Francesca Odone:
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