

# Simone Alberto Peirone

ELLIS PHD STUDENT · ARTIFICIAL INTELLIGENCE

Politecnico di Torino, Turin, Italy

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## Introduction

I am a last year PhD Student in Artificial Intelligence at Politecnico di Torino, under the supervision of **Prof. Giuseppe Averta**. I am mostly interested in building **egocentric video understanding** models that mimic the compositionality and hierarchy behind human reasoning skills. I am currently visiting EPFL, under the supervision of **Prof. Pascal Frossard**, exploring the intersection of video understanding and **concepts learning**.

## Education

### École polytechnique fédérale de Lausanne (EPFL)

Lausanne, Switzerland

VISITING PHD STUDENT

March 2025 - present

- **Supervisor:** Prof. Pascal Frossard

### Politecnico di Torino

Turin, Italy

ELLIS PHD STUDENT

November 2022 - present

- Developed video understanding models that extract knowledge from various egocentric vision tasks in a reusable format, using Graph Neural Networks (GNNs). Studied different aspects of domain generalization in action recognition.
- **Programme:** National PhD Programme in Artificial Intelligence
- **Thesis title:** Egocentric Vision for Advanced Human-Robot Cooperation
- **Supervisors:** Prof. Giuseppe Averta, Prof. Barbara Caputo

### Politecnico di Torino

Turin, Italy

M.Sc. COMPUTER ENGINEERING

2020 - 2022

- **Thesis title:** EGO-T<sup>3</sup>: Test Time Training for Egocentric Videos
- **Supervisors:** Prof. Barbara Caputo, Doct. Mirco Planamente, Doct. Chiara Plizzari
- **Final mark:** 110/110 cum Laude

### Politecnico di Torino

Turin, Italy

B.Sc. COMPUTER ENGINEERING

2017 - 2020

- **Final mark:** 110/110 cum Laude

## Publications

### PUBLISHED

**Peirone, S. A.**, Pistilli, F., & Averta, G. (2025). HiERO: understanding the hierarchy of human behavior enhances reasoning on egocentric videos. **International Conference on Computer Vision (ICCV)**. [Paper] [Code]

Nasirimajd, A., Plizzari, C., **Peirone, S. A.**, Ciccone, M., Averta, G. & Caputo, B. (2025). Domain Generalization using Action Sequences for Egocentric Action Recognition. **Pattern Recognition Letters**. [Page] [Paper] [Code]

**Peirone, S. A.\***, Goletto, G.\*, Planamente, M., Bottino, A., Caputo, B., & Averta, G. (2025). Egocentric zone-aware action recognition across environments. **Pattern Recognition Letters**, 188, 140-147. [Page] [Paper] [Code]

**Peirone, S. A.**, Pistilli, F., Alliegro, A., & Averta, G. (2024). A backpack full of skills: Egocentric video understanding with diverse task perspectives. In Proceedings of the IEEE/CVF **Conference on Computer Vision and Pattern Recognition (CVPR)** (pp. 18275-18285). [Page] [Paper] [Code]

Planamente, M., Plizzari, C., **Peirone, S. A.**, Caputo, B., & Bottino, A. (2024). Relative norm alignment for tackling domain shift in deep multi-modal classification. **International Journal of Computer Vision**, 132(7), 2618-2638. [Paper]

### PRE-PRINTS (UNDER REVIEW)

**Peirone, S. A.**, Pistilli, F., Alliegro, A., Tommasi, T., & Averta, G. (2025). Hier-EgoPack: Hierarchical Egocentric Video Understanding with Diverse Task Perspectives. [Page] [Paper] [Code]

## Professional Experience

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- 2018-2020 **Full stack developer (part-time)**, Leonardo Web S.r.l, Manta (Italy)  
2017 **Summer Internship**, KYOCERA Document Solutions España, Las Rozas De Madrid (Spain)

## Awards, Fellowships, & Grants

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- 2025 **IscrC “EgoProc” grant (56k compute hours)**, CINECA  
2023 **EPIC-Kitchens UDA Challenge, CVPR 2023**, 2nd place  
2017 **Talenti Neodiplomati**, Selection-based summer internship abroad  
2016 **Gara Nazione di Informatica (GNI)**, 2nd Place

## Teaching Experience

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- Spring 2025 **Machine Learning and Deep Learning**, Teaching Assistant  
Fall 2024 **Advanced Machine Learning**, Teaching Assistant  
Fall 2024 **Data Analysis and Artificial Intelligence**, Teaching Assistant  
Fall 2024 **Algoritmi e Strutture Dati**, Teaching Assistant  
Spring 2024 **Machine Learning and Deep Learning**, Teaching Assistant  
Fall 2023 **Algoritmi e Strutture Dati**, Teaching Assistant

## Co-Supervised M.Sc. Students

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- 2025 **Mattia Sabato**, Applications of Topological Deep Learning in Video Understanding  
2025 **Federico Castriotta**, Learning the hierarchy of human activities in multi-view scenarios  
2023-2024 **Domenico Mereu**, MARE-Graph: Multimodal Action Recognition in Egocentric video with Graph Neural Network  
2024-2024 **Giuseppe Atanasio**, HIMU-MAE: Exploiting Head-mounted Inertial Measurement Unit with Masked Autoencoders for Egocentric Vision  
2023-2024 **Amirshayan Nasirimajd**, Sequential Domain Generalisation for Egocentric Action Recognition

## Outreach And Community Engagement

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### CONFERENCE ABSTRACTS / SHORT PAPERS

- June 2025 **Learning reusable concepts across different video understanding tasks**, Simone Alberto Peirone, Francesca Pistilli, Antonio Alliegro, Tatiana Tommasi and Giuseppe Averta *Nashville, USA*  
Extended Abstract presented at the *EgoVis* and *Visual Concepts* workshops (CVPR 2025)  
June 2025 **Reasoning on hierarchical representation of human behavior from Ego-videos**, Simone Alberto Peirone, Francesca Pistilli and Giuseppe Averta *Nashville, USA*  
Extended Abstract presented at the *EgoVis Workshop* (CVPR 2025)  
Sept. 2024 **Egocentric zone-aware action recognition across environments**, Simone Alberto Peirone, Gabriele Goletto, Mirco Planamente, Andrea Bottino, Barbara Caputo, Giuseppe Averta *Milan, Italy*  
Extended Abstract at *FOCUS Workshop* (ECCV)  
June 2024 **A Backpack Full of Skills: Egocentric Video Understanding with Diverse Task Perspectives**, Simone Alberto Peirone, Francesca Pistilli, Antonio Alliegro and Giuseppe Averta *Seattle, USA*  
Invited CVPR Paper at *EgoVis Workshop* (CVPR 2024)  
June 2024 **Test Time Adaptation for Egocentric Vision**, Simone Alberto Peirone, Mirco Planamente, Barbara Caputo and Giuseppe Averta *Seattle, USA*  
Short paper at the *3rd National Conference on Artificial Intelligence (Ital-IA)*

## SUMMER SCHOOLS

July 2025 **International Computer Vision Summer School**, Computer Vision for Spatial Intelligence *Scicli, Italy*  
Sept. 2023 **ELLIS Summer School**, Large-Scale AI for Research and Industry *Modena, Italy*

## PEER REVIEW

CVPR, ICCV, ECCV, NeurIPS, BMVC  
IEEE International Conference on Robotics and Automation (ICRA)  
IEEE Transactions on Emerging Topics in Computing (TETC)  
IEEE Transactions on Multimedia (TMM)

## ACADEMIC SERVICE

ELLIS (European Lab for Learning & Intelligent Systems) PhD Recruiting Committee, Evaluator (a.y. 2024-25)