Simone Alberto **Peirone**

ELLIS PhD Student · Artificial Intelligence

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Introduction

I am a final year PhD Student in Artificial Intelligence at Polytechnic University of Turin (Italy), 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. In Summer 2025, I visited EPFL under the supervision of **Prof. Pascal Frossard**, exploring the intersection of video understanding and **concepts learning**.

Education

Polytechnic University of Turin *Turin, Italy*

ELLIS PhD Student *November 2022 - present*

- Working on egocentric video understanding of human activities through the lenses of *compositionality*, exploring how different reasoning tasks can share and benefit from complementary knowledge, and *hierarchy*, by enabling models to reason about the structure behind human activities.
- **Programme:** National PhD Programme in Artificial Intelligence
- **Thesis title:** Egocentric Vision for Advanced Human-Robot Cooperation
- **Supervisors:** Prof. Giuseppe Averta, Prof. Barbara Caputo

École Polytechnique Fédérale de Lausanne (EPFL) *Lausanne, Switzerland*

Visiting PhD Student *March 2025 - Sept. 2025*

- Working on applications of concepts learning to video understanding models.
- **Supervisor:** Prof. Pascal Frossard

Polytechnic University of Turin *Turin, Italy*

M.Sc. Computer Engineering *2020 - 2022*

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

Polytechnic University of Turin *Turin, Italy*

B.Sc. Computer Engineering *2017 - 2020*

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

Publications

Peirone, S. A., Pistilli, F., Alliegro, A., Tommasi, T., & Averta, G. (**2025**). Hier-EgoPack: Hierarchical Egocentric Video Understanding with Diverse Task Perspectives. **IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)**. **[Page] [Paper] [Code]**

Peirone, S. A., Pistilli, F., & Averta, G. (**2025**). HiERO: understanding the hierarchy of human behavior enhances reasoning on egocentric videos. **IEEE/CVF International Conference on Computer Vision (ICCV)**. **[Page] [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 (PRL)**. **[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 (PRL)**. **[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. **IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)**. **[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 (IJCV)**. **[Paper]**

Professional Experience

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

2025 **Doctoral Consortium**, Selected as a mentee at ICCV 2025
2025 **IscrC "EgoProc" grant (56k compute hours)**, CINECA
2023 **2nd place at EPIC-Kitchens UDA Challenge**, CVPR 2023
2017 **Talenti Neodiplomati**, Selection-based summer internship in Madrid (Spain)
2016 **2nd place at Gara Nazione di Informatica (GNI)**, National-level computer science competetion for high-school students

Teaching Experience

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

ongoing **Mattia Sabato**, Applications of Topological Deep Learning in Video Understanding
ongoing **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

Conference abstracts / Short papers

Peirone, S. A., Pistilli, F., & Averta, G., (2025). Exploiting hierarchy and compositionality to understand human behavior. Oral presentation at the *ACVR 2025 workshop*, organized in conjunction with ICCV 2025.

Peirone, S. A., Pistilli, F., & Averta, G., (2025). HiERO: understanding the hierarchy of human behavior enhances reasoning on egocentric videos. Oral presentation at the *SG2RL 2025 workshop*, organized in conjunction with ICCV 2025.

Peirone, S. A., Pistilli, F., Alliegro, A., Tommasi, T., & Averta, G., (2025). Learning reusable concepts across different video understanding tasks. Poster presented at the *EgoVis* and *Visual Concepts workshops*, organized in conjunction with CVPR 2025.

Peirone, S. A., Pistilli, F., & Averta, G., (2025). Reasoning on hierarchical representation of human behavior from Ego-videos. Poster presented at the *EgoVis workshops*, organized in conjunction with CVPR 2025.

Peirone, S. A., Goletto, G., Planamente, M., Bottino, A., Caputo, B., & Averta, G. (2024). Egocentric zone-aware action recognition across environments. Poster presented at the *FOCUS Workshop*, organized in conjunction with ECCV 2024.

Peirone, S. A., Pistilli, F., Alliegro, A., & Averta, G., (2024). A Backpack Full of Skills: Egocentric Video Understanding with Diverse Task Perspectives. Poster presented at the *EgoVis workshop*, organized in conjunction with CVPR 2024.

Peirone, S. A., Planamente, M., Caputo, B., & Averta, G. (2023). Test Time Adaptation for Egocentric Vision. 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
International Journal of Computer Vision (IJCV)
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, 2025-26)