Antonio **Finocchiaro**

MS in Computer Science

Catania, Italy

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antonio-finocchiaro-834522288 | Date of Birth: 27/12/2000

Education

University of Catania

Catania, Italy

PhD in Computer Science (withdrew) — *October 2025 - March 2026*

- Field of study: Object Discovery from Egocentric Vision
- Supervisor: Prof. Antonino Furnari

University of Catania

Catania, Italy

Master's Degree in Computer Science LM-18 — *October 2023 - September 2025*

- Field of study: Information and Communication Technologies: Software and applications development and analysis
- Final grade: 110 with honors
- Level in EQF: EQF level 7
- Type of credits: ECTS | Number of credits: 120
- Thesis: Investigating Object Detection for Human Behavior Understanding, Supervisor Prof. Antonino Furnari

University of Catania

Catania, Italy

Bachelor's Degree in Computer Science L-31 — *October 2020 - July 2023*

- Field of study: Information and Communication Technologies: Software and applications development and analysis
- Final grade: 110 with honors
- Level in EQF: EQF level 6
- Type of credits: ECTS | Number of credits: 183
- Thesis: Temporal Video Segmentation of Calisthenics Skills based on Body Pose Analysis, Supervisor Prof. Antonino Furnari

Academic Experience

Multi-Agent Simulator for Real-Time Decision-Making Strategies in Uncertain Egocentric Scenarios

University of Catania

Master Student Scholarship Holder — *May 2025 - Nov 2025*

- Scholarship Contract with UNICT for research activity, supervised by Prof. Antonino Furnari.
- The activities consisted of fine-tuning State-of-the-Art Object Detection models on a modified version of the EgoTracks dataset. This was done by filtering annotations per procedure using an LLM. Designed and implemented a custom filtering pipeline to prune detections using global and local object embeddings to initialize a tracking algorithm.

International Conference on Image Analysis and Processing (ICIAP 2025)

Rome, Italy

Conference Speaker — *September 2025*

- Presented the paper titled *Efficient Calisthenics Skills Classification through Foreground Instance Selection and Depth Estimation* as a conference speaker and A Real-Time System for Egocentric Hand-Object Interaction Detection in Industrial Domains.

Monitoring Egocentric Gaze for Analysis of Behaviors and Interactions with Targets (MEGABIT)

University of Catania

Master Student Scholarship Holder — *March 2024 – March 2025*

- Scholarship contract with UNICT for research activity, supervised by Prof. Antonino Furnari.
- In the first stage of the project, I studied and worked with the EgoTracks and EgoObjects datasets, with particular focus on the EgoTracks taxonomy. The experiments conducted during this phase involved both single-stage and two-stage Object Detection models.
- Participant in the research project "Tracking in Egovision for Applied Memory" (TEAM – PRIN 2022 PNRR). The TEAM project is carried out in collaboration with Prof. Christian Micheloni (University of Udine). [Project Website Link]

ELIAS ELLIS VISMAC Winter School 2025 *Brunico, Italy*

Winter School Participant *January 27, 2025 - January 31, 2025*

- The ELIAS ELLIS VISMAC Winter School focused on Multimodal Learning, Generative Models, Embodied AI/Robotics, and Sustainability.
- The program covered both the theoretical and practical aspects of large-scale AI challenges, featuring real-world applications and examples of successful commercialization. As a participant, I completed a final group examination (in teams of 5–6), proposing and implementing modifications to existing algorithms and solutions while leveraging NVIDIA infrastructure for the experiments.

19th International Conference on Computer Vision Theory and Applications (VISAPP 2024) *Rome, Italy*

Conference Speaker *February 2024*

- Presented the paper titled *Calisthenics Skills Temporal Video Segmentation* as a conference speaker.

Publications

Conference Papers

Online Episodic Memory Visual Query Localization with Egocentric Streaming Object Memory *Winter Conference on Applications of Computer Vision (WACV)* *2026*

- Zaira Manigrasso, Matteo Dunnhofer, Antonino Furnari, Moritz Nottebaum, Antonio Finocchiaro, Marana Davide, Rosario Forte, Giovanni Maria Farinella, Christian Micheloni

Efficient Calisthenics Skills Classification through Foreground Instance Selection and Depth Estimation *International Conference on Image Analysis and Processing (ICIAP)* *2025*

- Antonio Finocchiaro, Giovanni Maria Farinella, Antonino Furnari. To appear in the Proceedings of ICIAP 2025. DOI: 10.5220/0012400600003660, ISBN: 978-3-032-10191-4

T-EVO: Tracking in Egovision for Online Visual Episodic Memory *International Conference on Image Analysis and Processing (ICIAP)* *2025*

- Zaira Manigrasso, Antonio Finocchiaro, Davide Manara, Rosario Forte, Moritz Nottebaum, Matteo Dunnhofer, Giovanni Maria Farinella, Antonino Furnari, Christian Micheloni. To appear in the Proceedings of ICIAP 2025. DOI: 10.5220/0012400600003660, ISBN: 978-3-032-10191-4

Calisthenics Skills Temporal Segmentation *VISAPP 2024 – International Conference on Computer Vision Theory and Applications* *2024*

- Antonio Finocchiaro, Giovanni Maria Farinella, Antonino Furnari. Published in the Proceedings of VISAPP 2024. [PDF Link], DOI: 10.5220/0012400600003660, ISSN: 2184-4321

Workshop Papers

A Real-Time System for Egocentric Hand-Object Interaction Detection in Industrial Domains *ICIAP 2025 – Workshop on Human-Object Interaction: Integrating Egocentric and Exocentric Perspectives* *2025*

- Antonio Finocchiaro, Alessandro Sebastiano Catinello, Michele Mazzamuto, Rosario Leonardi, Antonino Furnari, Giovanni Maria Farinella.
  To appear in the Proceedings of the ICIAP 2025 Workshop on Human-Object Interaction: Integrating Egocentric and Exocentric Perspectives.,
  DOI: 10.1007/978-3-032-11317-7_38, ISBN: 978-3-032-11316-0

Extended Abstracts

Online Episodic Memory Visual Query Localization with Egocentric Streaming Object Memory

Second Joint Egocentric Vision (EgoVis) Workshop @ CVPR 2025 – Nashville, USA

2025

- Zaira Manigrasso, Matteo Dunnhofer, Antonino Furnari, Moritz Nottebaum, Antonio Finocchiaro, Davide Marana, Giovanni Maria Farinella, Christian Micheloni.
  Presented at the Second Joint Egocentric Vision (EgoVis) Workshop held in conjunction with CVPR 2025. [arXiv Link]

Certifications

Cambridge English Entry Level Certificate in ESOL International – University of Cambridge

Siracusa, Italy

Language Certificate

01/10/2015 – 30/07/2016

- Performance: Pass with Distinction (Entry 3*, CEFR Level B1)
- Score: 142/150

Robotics License COMAU: "Use and Programming"

Grugliasco, Italy

Robotics Certificate

September 30, 2017 - June 5, 2018

- Robotics License: Cooperative Learning, Industry 4.0 & Robotics and Use and Programming.
- Overall Rating: 90.95
- Level: ADVANCED
- *Description.* The course was followed by an exam session based on the verification of theoretical knowledge acquired, on the virtual programming (through the Robosim development environment) and physics of an anthropomorphic robotic arm through a controller TP5 in which the Monza circuit was to be circumscribed with appropriate commands; team-leader operations directed; and "problem solving" applied.

Quality Development: how to properly write your project

University of Catania

Certificate

September 10, 2023 - November 20, 2023

- *Description.* Through this course, covering topics such as Git, Open Source, SOLID principles, Unit Tests, GitHub Actions, pipeline and more, a software entitled 'xCoreBot' has been developed. This project involves the creation of a Telegram Bot aimed at delivering users the most recent music releases from the metal music scene. Users have the option to access this information using two distinct commands. They can choose to retrieve all the latest releases or specify a subset based on their preferences.
- *Topics covered.* Git, Open Source, SOLID principles, Unit Tests, GitHub Actions, pipeline and more
- [GitHub Repository]

Coursera R Programming

Online Course Certificate

October 10, 2022

- Johns Hopkins University
- *Description.* Completed online course on R Programming fundamentals

Skills

Computer Vision	Egocentric Vision, Object Detection, Video Temporal Segmentation, Pose Recognition, Depth Estimation, Image Classification, Dataset Pre-processing & Filtering
Deep Learning	PyTorch, PyTorch Lightning, Detectron2, Ultralytics, Torchmetrics, DDP Training
Programming	Python (NumPy, Pandas, Scikit-Learn), C/C++, OpenCV, Bash Scripting
Data Engineering	ELK Stack (Elasticsearch, Logstash, Kibana), Apache Spark, Docker, Apache Kafka
Database	MySQL, SQL ChromaDB, Neo4j
Other Technical	n8n Workflows, API Development, Git, Linux/SSH, 3D Modelling (Blender), JSON/PT Data Handling
Media & Design	Adobe Suite (Lightroom, Photoshop, After Effects), Sony Vegas Pro, Sports Photography
Languages	Italian (Native), English (B2 Level Certificate)

Additional Experience

Scatto Rapido srls

Catania, Italy

Sports Photographer

March 2017 - July 2021

Etna Hi-Tech

Catania, Italy

Training Intern

May 31, 2018 - July 31, 2018

- Completed Training Internship with work made through Cooperative Learning.

Cultural Association Centro Studi Acitrezza

Catania, Italy

Board Member

January 9, 2017 - December 14, 2019

- Served a two-year term on the Board of the cultural association Centro Studi Acitrezza.
- Participated in the organization and management of various cultural activities.

Projects

Coralike

Software Project

March 2026

Description. A personal automation pipeline that monitors CoreRadio for new metal releases and delivers telegram notifications only when a release matches the user's taste profile. It has been built entirely in n8n as a self-hosted workflow, it scrapes and deduplicates releases hourly, then routes them through an AI filter (Groq / Llama 3.3) to assess relevance. Users can update their favorite bands and genres at any time using natural language messages to the telegram bot, which are parsed and applied immediately.
[GitHub Repository]

Exploring and Evaluating Advanced Methods in Object Detection and Instance Segmentation Tasks

Research Project

May 2024 - August 2024

Abstract. Nowadays, object detection and segmentation are two of the main tasks in computer vision. In recent years, several architectures have been developed, some of which have been improved in various ways. When it comes to choosing one of them, there are several factors to consider, such as performance in terms of both accuracy and speed. Key models such as Faster R-CNN, Mask R-CNN and YOLO are the main actors in the scene. In this work, we propose a comparison between these models, considering their performance evaluated on the COCO-O dataset, which includes challenging scenarios due to the different contexts considered for each class. Considering that it is an object detection dataset, we will enrich the annotations for the segmentation task through a preprocessing elaboration using SAM. The performance of the model will be discussed through metrics such as mAP and mAR and some visual inspections will follow.

Human Body Pose Estimation Missing Joints Reconstruction through Interpolations Comparison

Research Project

December 2023 - February 2024

Abstract. In this work, we focus on Human Pose Estimation (HPE), a field dedicated to determining the pose of a human body by estimating the 2D or 3D spatial position of its joints. HPE finds widespread use in sports contexts for understanding movements. Specifically, we apply HPE to classify Calisthenics isometric elements. For this purpose, we utilize OpenPose as the chosen pose estimator, configured specifically for 2D pose estimation. The discipline of Calisthenics comprises various branches, including endurance, strength, and skills. In recent years, each of these branches has experienced significant growth in competitive arenas. Notably, the skills branch holds a particularly influential position on the international stage due to the demanding strength requirements of the performed poses. Calisthenics encompasses a wide range of skills and their variations. However, for this specific project, a carefully selected subset of skills has been chosen.
[GitHub Repository]

An Outlook on Machine Learning Resource Requirements: Literature and Load Analysis Across Various Configurations

Research Project *March 2024 - July 2024*

Abstract. Nowadays, Machine Learning and Deep Learning architectures have demonstrated how far the horizon of human capabilities has expanded in recent years. Despite their overlooked mechanisms and output results, the impact they have in the underlying running machines is still underestimated. In a fine-grained view, what is the influence of the principal hyperparameters of a neural network on the computational and memory load? In this work, we will provide an overview trying to interweave different aspects of the topic. We will discuss how these challenges can be addressed at various levels of hardware design, ranging from the dataflow strategies of deep neural networks to the availability of hardware components and related areas explored by NVIDIA. Subsequently, we will then create and fine-tune a multilayer perceptron to perform various experiments on a defined dataset, discussing about the related outcomes.

FeelsCore

Software Project *March 2023 - June 2023*

Descriptions. The goal of this project is to develop a system capable of updating the list of latest releases in the music scenario, and to provide a real-time analysis of the emotions that the song is able to transmit to the listener.
[GitHub Repository]

Calisthenics Competitions Database

Software Project *December 2022 - January 2023*

Descriptions. The project involves designing and building a database for Calisthenics competitions. It was developed using XAMPP with phpMyAdmin, where all the tables were created and populated, and various queries and triggers were implemented. All project details, including the Entity-Relationship (E-R) diagram, applied transformations, and entity attributes, as well as instructions for using the product, are extensively discussed in the report accessible through the project's link.
[GitHub Repository]

xCoreBot

Software Project *October 2023 - November 2023*

Description. Project for the course 'Quality Development: how to properly write your project' covering topics such as Git, Open Source, SOLID principles, Unit Tests, GitHub Actions, pipeline and more. This project involves the creation of a Telegram Bot aimed at delivering users the most recent music releases from the metal music scene. Users have the option to access this information using two distinct commands. They can choose to retrieve all the latest releases or specify a subset based on their preferences.
[GitHub Repository]