

# Giuseppe Cartella

PHD STUDENT IN COMPUTER VISION @ AIMAGELAB RESEARCH GROUP

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**Giuseppe Cartella** is a third year PhD student in Information and Communication Technologies (ICT) at the University of Modena and Reggio Emilia. He is within the AlmageLab research group working on Computer Vision and Deep Learning under the supervision of Prof. Rita Cucchiara. His current research interest lies in the area of **human attention modelling**, scanpath prediction, and goal-oriented human visual search. He has recently published a research study on the influence of fake visual content on human gaze patterns and a survey paper on the interplay between human attention and vision-based, language-based, and vision-language applications. During his career, he designed and performed several eye-tracking experiments using desktop-mounted and head-mounted devices. He also has experience in the field of Generative AI. In particular, he co-authored research papers on garment design for the fashion domain published at top-tier conferences. In 2024, Giuseppe received two awards as **Outstanding Reviewer** at the European Conference on Computer Vision (ECCV) and at the ACM International Conference on Multimedia (ACMMM).

## Education

### Doctorate in Information and Communication Technologies

UNIVERSITY OF MODENA AND REGGIO EMILIA - AIMAGELAB RESEARCH GROUP

Modena, Italy

Jan. 2023 - Apr. 2026

**Supervisor:** Prof. Rita Cucchiara

**Research Interest:** Computer Vision, Human Visual Attention, Saliency Prediction, Scanpath Prediction, Task-Oriented Human Visual Search

### Master's Degree in Computer Engineering (AI Curriculum)

DEPARTMENT OF ENGINEERING "ENZO FERRARI" - UNIVERSITY OF MODENA AND REGGIO EMILIA

Modena, Italy

Sep. 2020 - Oct. 2022

**Thesis Title:** "Deep Reinforcement Learning Methods for Filling Machines Control: A Blueprint for Industry 4.0"

**Final Grade:** 110 / 110 cum laude

### Bachelor's Degree in Computer Engineering

DEPARTMENT OF ENGINEERING "ENZO FERRARI" - UNIV. OF MODENA AND REGGIO EMILIA

Modena, Italy

Sep. 2017 - Jul. 2020

**Final Grade:** 107 / 110

## Work Experience

### Visiting PhD Student

UNIVERSITY OF STUTTGART - COLLABORATIVE ARTIFICIAL INTELLIGENCE (CAI) GROUP

Stuttgart, Germany

Jul. 2025 - Nov. 2025

**Advisor:** Prof. Andreas Bulling **Research Topic:** Human-Aligned Multimodal Large Language Models

### Artificial Intelligence Engineer - Internship

TETRA PAK PACKAGING SOLUTIONS

Modena, Italy

May. 2022 - Oct. 2022

- Research and development of Deep Reinforcement Learning techniques for fluid level control of a filling machine.
- Explored different Actor-Critic architectures for the definition of a blueprint on how to approach control problems in industrial environments.
- Developed a process control application with a Soft Actor-Critic agent acting as a substitute of a PID controller. Achieved better performance in terms of Mean Absolute Error compared with a classic PID-based control in a simulated environment.
- Development of the Master's Thesis

## Technical Skills

- **Programming Languages:** Python (Proficient), C, Java, Bash
- **Frameworks & Technologies:** Pytorch, Numpy, Pandas, Scikit-Learn, OpenCV, Git, Hydra, SLURM

## Relevant Academic Service

Conf. **Reviewer**, ICCV 2025; CVPR 2025; ACMMM 2024; ECCV 2024; ACMMM 2023; ICIAP 2023  
Conf. **Workshop Reviewer**, ICCV W 2025; ECCV W 2024; CVPR W 2023  
Journ. **Reviewer** AI Communications 2023

## Summer Schools

2024 **ICVSS** International Computer Vision Summer School *Ragusa, Italy*  
2023 **VISMAL** International Summer School on Machine Vision *Padova, Italy*

## Honors & Awards

2024 **Outstanding Reviewer** for the European Conference on Computer Vision (ECCV) *Milan, Italy*  
2024 **Outstanding Reviewer** for the ACM International Conference on Multimedia (ACMMM) *Melbourne, Australia*

## Publications

• **Modeling Human Gaze Behavior with Diffusion Models for Unified Scanpath Prediction**  
IEEE/CVF INTERNATIONAL CONFERENCE ON COMPUTER VISION (ICCV) 2025  
Authors: **Giuseppe Cartella**, Vittorio Cuculo, Alessandro D’Amelio, Marcella Cornia, Giuseppe Boccignone, Rita Cucchiara

• **Sanctuarium-Gaze: A Multimodal Egocentric Dataset for Human Attention Analysis in Religious Sites**  
ACM JOURNAL ON COMPUTING AND CULTURAL HERITAGE (JOCCH) 2025  
Authors: **Giuseppe Cartella**, Vittorio Cuculo, Marcella Cornia, Marco Papasidero, Federico Ruozi, Rita Cucchiara

• **Unravelling Neurodivergent Gaze Behaviour through Visual Attention Causal Graphs**  
23RD INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING (ICIAP) 2025  
Authors: **Giuseppe Cartella**, Vittorio Cuculo, Alessandro D’Amelio, Rita Cucchiara, Giuseppe Boccignone

• **TPP-Gaze: Modelling Gaze Dynamics in Space and Time with Neural Temporal Point Processes**  
IEEE/CVF WINTER CONFERENCE ON APPLICATIONS OF COMPUTER VISION (WACV) 2025  
Authors: Alessandro D’Amelio, **Giuseppe Cartella**, Vittorio Cuculo, Manuele Lucchi, Marcella Cornia, Rita Cucchiara, Giuseppe Boccignone

• **Pixels of Faith: Exploiting Visual Saliency to Detect Religious Image Manipulation**  
EUROPEAN CONFERENCE ON COMPUTER VISION, WORKSHOPS (ECCVW) 2024  
Authors: **Giuseppe Cartella**, Vittorio Cuculo, Marcella Cornia, Marco Papasidero, Federico Ruozi, Rita Cucchiara

• **Trends, Applications, and Challenges in Human Attention Modelling**  
33RD INTERNATIONAL JOINT CONFERENCE ON ARTIFICIAL INTELLIGENCE (IJCAI) 2024  
Authors: **Giuseppe Cartella**, Marcella Cornia, Vittorio Cuculo, Alessandro D’Amelio, Dario Zanca, Giuseppe Boccignone, Rita Cucchiara

• **Unveiling the Truth: Exploring Human Gaze Patterns in Fake Images**  
IEEE SIGNAL PROCESSING LETTERS (SPL) 2024  
Authors: **Giuseppe Cartella**, Vittorio Cuculo, Marcella Cornia, Rita Cucchiara

• **Multimodal Garment Designer: Human-Centric Latent Diffusion Models for Fashion Image Editing**  
IEEE/CVF INTERNATIONAL CONFERENCE ON COMPUTER VISION (ICCV) 2023  
Authors: Alberto Baldrati\*, Davide Morelli\*, **Giuseppe Cartella**, Marcella Cornia, Marco Bertini, Rita Cucchiara

• **LaDI-VTON: Latent Diffusion Textual-Inversion Enhanced Virtual Try-On**  
31ST ACM INTERNATIONAL CONFERENCE ON MULTIMEDIA (ACMMM) 2023  
Authors: Davide Morelli\*, Alberto Baldrati\*, **Giuseppe Cartella**, Marcella Cornia, Marco Bertini, Rita Cucchiara

• **OpenFashionCLIP: Vision-and-Language Contrastive Learning with Open-Source Fashion Data**  
21ST INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING (ICIAP) 2023  
Authors: **Giuseppe Cartella**, Alberto Baldrati, Davide Morelli, Marcella Cornia, Marco Bertini, Rita Cucchiara