

Giuseppe Cartella

PHD STUDENT IN INFORMATION AND COMMUNICATION TECHNOLOGIES

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Short Biography

Giuseppe Cartella is a second 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. He received his Master's Degree in 2022 with a thesis entitled "Deep Reinforcement Learning Methods for Filling Machines Control: A Blueprint for Industry 4.0", developed during an internship period at Tetra Pak, Modena. 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** for the European Conference on Computer Vision (ECCV) and for the ACM International Conference on Multimedia (ACMMM).

Education

Doctorate in Information and Communication Technologies

Modena, Italy

INTERNATIONAL DOCTORATE SCHOOL IN ICT - UNIVERSITY OF MODENA AND REGGIO EMILIA
ALMAGELAB RESEARCH GROUP

Jan. 2023 - Dec. 2025

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)

Modena, Italy

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

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

Modena, Italy

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

Sep. 2017 - Jul. 2020

Final Grade: 107 / 110

Work Experience

Artificial Intelligence Engineer - Internship

Modena, Italy

TETRA PAK PACKAGING SOLUTIONS

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

Relevant Academic Service

2024	Reviewer ACM International Conference on Multimedia (ACMMM)	Melbourne, Australia
2024	Reviewer European Conference on Computer Vision (ECCV)	Milan, Italy
2024	Reviewer European Conference on Computer Vision (ECCV), Workshops.	Milan, Italy
2023	Reviewer ACM International Conference on Multimedia (ACMMM)	Ottawa, Canada
2023	Reviewer International Conference on Image Analysis and Processing (ICIAP)	Udine, Italy
2023	Reviewer International Conference on Computer Vision (ICCV), Workshops.	Paris, France
2023	Reviewer Conference on Computer Vision and Pattern Recognition (CVPR), Workshops.	Vancouver, Canada
2023	Reviewer AI Communications	

Summer Schools

2024	ICVSS International Computer Vision Summer School	Ragusa, Italy
2023	VISMAC 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

CONFERENCES

- Alessandro D'Amelio, Giuseppe Cartella, Vittorio Cuculo, Manuele Lucchi, Marcella Cornia, Rita Cucchiara, Giuseppe Boccignone. "TPP-Gaze: Modelling Gaze Dynamics in Space and Time with Neural Temporal Point Processes". In Proceedings of the Winter Conference on Applications of Computer Vision (WACV), 2024
- Giuseppe Cartella, Vittorio Cuculo, Marcella Cornia, Marco Papasidero, Federico Ruoizzi, Rita Cucchiara. "Pixels of Faith: Exploiting Visual Saliency to Detect Religious Image Manipulation". In Proceedings of the European Conference on Computer Vision Workshops (ECCVW), 2024.
- Giuseppe Cartella, Marcella Cornia, Vittorio Cuculo, Alessandro D'Amelio, Dario Zanca, Giuseppe Boccignone, Rita Cucchiara. "Trends, Applications, and Challenges in Human Attention Modelling". In Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI-24), 2024.
- Alberto Baldrati, Davide Morelli, Giuseppe Cartella, Marcella Cornia, Marco Bertini, Rita Cucchiara. "Multimodal Garment Designer: Human-Centric Latent Diffusion Models for Fashion Image Editing". In Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), 2023.
- Davide Morelli, Alberto Baldrati, Giuseppe Cartella, Marcella Cornia, Marco Bertini, Rita Cucchiara. "LaDI-VTON: Latent Diffusion Textual-Inversion Enhanced Virtual Try-On". In Proceedings of the 31st ACM International Conference on Multimedia (ACMMM), 2023.
- Giuseppe Cartella, Alberto Baldrati, Davide Morelli, Marcella Cornia, Marco Bertini, Rita Cucchiara. "OpenFashionCLIP: Vision-and-Language Contrastive Learning with Open-Source Fashion Data". In Proceedings of the International Conference on Image Analysis and Processing (ICIAP), 2023.

JOURNALS

- Giuseppe Cartella, Vittorio Cuculo, Marcella Cornia, Rita Cucchiara. "Unveiling the Truth: Exploring Human Gaze Patterns in Fake Images". IEEE Signal Processing Letters (2024).