

# Daide Talon

POSTDOCTORAL RESEARCHER IN MULTIMODAL LEARNING

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## Relevant Experiences

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### Fondazione Bruno Kessler POSTDOCTORAL RESEARCHER

Apr 2024 - Today | Trento, IT

Laboratory: Deep Visual Learning (DVL);

Supervisors: Prof. Elisa Ricci and Dr. Yiming Wang;

Main Topic: Efficient adaptation of VLMs;

Responsibilities: Research activities, advise PhD and Master students, EU project technical activities coordinator, EU project proposal support.

### Fondazione Bruno Kessler COLLABORATOR

Jan 2024 - Feb 2024 | Trento, IT

Laboratory: Deep Visual Learning (DVL);

Supervisors: Prof. Elisa Ricci and Dr. Yiming Wang;

Main Topic: Causal Representation Learning (CRL) and VLMs;

Responsibilities: Research activities, advise PhD students.

### Istituto Italiano di Tecnologia RESEARCH FELLOW

Nov 2023 - Dec 2023 | Genova, IT

Laboratory: Pattern Analysis and Computer Vision (PAVIS);

Supervisor: Prof. Alessio Del Bue;

Main Topic: Structured Representation Learning for Visual Data;

Responsibilities: Research activities.

### University of Amsterdam (UvA) VISITING PHD STUDENT

Jan 2023 - Jun 2023 | Amsterdam, NL

Laboratory: INtelligent Data Engineering Lab (INDE Lab);

Supervisor: Prof. Sara Magliacane;

Main Topic: Efficient adaptation of Causal Representations for new unseen environments;

Responsibilities: Research activities.

### Charanga Ltd SOFTWARE DEVELOPER INTERN

June 2012 | Brighton, UK

Supervisor: Paul Fletcher

Main Topic: Web development

Responsibilities: R&D of the company Digital Assets Management System.

## Education

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Nov 2020 - Mar 2024 | **PhD Student** | *Istituto Italiano di Tecnologia (IIT) and University of Genova (UniGE)*

PhD in Science and Technology for Electronic Engineering and Telecommunications

Laboratory: Pattern Analysis and Computer Vision Group (PAVIS);

Supervisor: Prof. Alessio del Bue;

Co-supervisor: Prof. Stuart James;

Main Topic: Representation learning for causality and disentanglement in visual data;

Thesis Title: "Structured Representation Learning for Visual Data";

External reviewers: Prof. Stefano Teso (UniTN), Prof. Oisín Mac Aodha (UoE);

Award date: March 29th, 2024.

2017 - 2020 | **Master Student** | *University of Padova (UniPD)*

Master of Science in Computer Engineering

Supervisor: Prof. Alessandro Chiuso;

Thesis Title: "Contextual Multi-task Learning via Regularization";

Coursework: Data structures and Algorithms, Advanced Algorithms, Big Data Computing, Parallel Computing, Machine Learning, Computational Neuroscience, Operations Research, Intelligent Systems, Human Data Analytics;

Grade: 110/110 *cum laude*.

2013 - 2017 | **Bachelor Student** | *University of Padova (UniPD)*

Bachelor of Science in Information Engineering

Supervisor: Prof. Andrea Zanella;

Thesis Title: "Experimental study of adaptative video streaming algorithms";

Grade: 103/110.

## Selected projects

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2025 - today | **TURING EU Project** | *HORIZON - Research and Innovation Actions*

Project No. 101215032

PI: Dr. Elisabetta Farella (FBK);

Role: WP Leader;

Objective: To adapt pretrained foundation models for scientific applications by developing few- and low-shot fine-tuning strategies that preserve generalization, advance uncertainty quantification and explainable AI for trustworthy behavior.

2025 - today | **IPCEI-CIS 8RA** | *Important Projects of Common European Interest*

Project site - 8ra.com

PI: Dr. Elisabetta Farella (FBK);

Role: Researcher;

Objective: To design and validate scalable computer vision and multimodal learning methods that enable efficient, privacy-aware, and adaptable AI solutions for Edge-to-cloud continuum of distributed, cooperative and orchestrated intelligence.

2025 - today | **Future of AI Research** | *Piano Nazionale di Ripresa e Resilienza (PNRR)*

Project site - fondazione-fair.it

PI: Dr. Paolo Traverso (FBK);

Role: Researcher;

Objective: To design and validate scalable computer vision and multimodal learning methods for integrative AI.

2024 - today | **PATTERN EU Project** | *HORIZON Coordination and Support Actions (WIDERA)*

Project No. 101159751

PI: Dr. Alessio Brutti (FBK);

Role: Task Leader;

Objective: to develop core traffic analytics components of PATTERN roads monitoring service and their technical integration required for deployment.

2023 - 2025 | **LoCa AI** | *Bando Ricerca e Sviluppo 23 - Fondazione Cariverona*

Funding results - [fondazionecariverona.org](https://fondazionecariverona.org)

PI: Dr. Yiming Wang (FBK);

Role: Leading Researcher;

Objective: to design and validate efficient adaptation methods for foundation models that enhance VLMs' understanding of abstract adjectives and text-to-image generation.

2023 - 2025 | **Causality and Disentanglement** | *PhD Project*

PI: Prof. Alessio Del Bue (IIT);

Objective: From raw observations understand the underlying concepts and the causal relationships between them. In a second step, build on the modular nature of causal relationships to efficiently adapt to a new setting.

## Skills

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### Computer skills

Over 5000 lines: Python, Java, Matlab. Proficient with Pytorch, Numpy, HF-Transformers, HPC (PBS, Slurm), Git, Containers(Docker, Singularity).

### Soft skills

Team working, leadership, open-mindedness, self-motivation, self-management, curiosity, problem setting, problem solving, persistence.

## Publications

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### Journal publications

[J1] Mattia Litrico, **Davide Talon**, Sebastiano Battiato, Alessio Del Bue, Mario Valerio Giuffrida, and Pietro Morerio. Uncertainty-guided open-set source-free unsupervised domain adaptation with target-private class segregation. *In press in International Journal of Computer Vision*, 2025.

[J2] **Davide Talon**, Alessio Del Bue, and Stuart James. Ganzzle++: Generative approaches for jigsaw puzzle solving as local to global assignment in latent spatial representations. *Pattern Recognition Letters*, 2025.

### Conference publications

[C1] Deepayan Das, **Davide Talon**, Massimiliano Mancini, Yiming Wang, and Elisa Ricci. One vlm to keep it learning: Generation and balancing for data-free continual visual question answering. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2025a.

[C2] Deepayan Das, **Davide Talon**, Yiming Wang, Massimiliano Mancini, and Elisa Ricci. Training-free personalization via retrieval and reasoning on fingerprints. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*, 2025b.

[C3] Francesco Laiti, **Davide Talon**, Jacopo Staiano, and Elisa Ricci. How to take a memorable picture? empowering users with actionable feedback. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026.

[C4] Federico Girella, **Davide Talon**, Ziyue Liu, Zanxi Ruan, Yiming Wang, and Marco Cristani. Lots of fashion! multi-conditioning for image generation via sketch-text pairing. In *Oral presentation at The IEEE/CVF International Conference on Computer Vision (ICCV)*, 2025.

- [C5] Ziyue Liu, Federico Girella, Yiming Wang, and **Davide Talon**. Evaluating attribute confusion in fashion text-to-image generation. In *International Conference on Image Analysis and Processing (ICIAP)*, 2025.
- [C6] **Davide Talon**, Federico Girella, Ziyue Liu, Marco Cristani, and Yiming Wang. Seeing the abstract: Translating the abstract language for vision language models. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025.
- [C7] **Davide Talon**, Phillip Lippe, Stuart James, Alessio Del Bue, and Sara Magliacane. Towards the reusability and compositionality of causal representations. In *Oral presentation at Causal Learning and Reasoning*, 2024.
- [C8] **Davide Talon**, Alessio Del Bue, and Stuart James. Ganzzle: Reframing jigsaw puzzle solving as a retrieval task using a generative mental image. In *Oral presentation at IEEE International Conference on Image Processing (ICIP)*, 2022.
- [C9] **Davide Talon**, Luca Attanasio, Federico Chiariotti, Matteo Gadaleta, Andrea Zanella, and Michele Rossi. Comparing dash adaptation algorithms in a real network environment. In *25th European Wireless Conference*, 2019.

## Workshop publications

- [W1] Francesco Laiti, **Davide Talon**, Jacopo Staiano, and Elisa Ricci. How to take a memorable picture? empowering users with actionable feedback. In *Second International Workshop on Skilled Activity Understanding, Assessment and Feedback Generation at CVPR 26*, 2026.
- [W2] Federico Girella, **Davide Talon**, Ziyue Liu, Zanxi Ruan, Yiming Wang, and Marco Cristani. Lots of fashion! multi-conditioning for image generation via sketch-text pairing. In *Oral presentation at the 7th Workshop on Computer Vision for Fashion, Art, and Design at ICCV 25*, 2025.
- [W3] Andrea Maracani, Raffaello Camoriano, Elisa Maiettini, **Davide Talon**, Lorenzo Rosasco, and Lorenzo Natale. Key design choices for double-transfer in source-free unsupervised domain adaptation. *ECML 2023 Workshop on Reliable Multimodal Learning Across Domains*, 2023.
- [W4] **Davide Talon**, Phillip Lippe, Stuart James, Alessio Del Bue, and Sara Magliacane. Towards the reusability and compositionality of causal representations. In *Causal Representation Learning Workshop at NeurIPS 2023*, 2023.

## Other publications (Ongoing or arxiv)

- [O1] Andrea Maracani, Raffaello Camoriano, Elisa Maiettini, **Davide Talon**, Lorenzo Rosasco, and Lorenzo Natale. Key design choices in source-free unsupervised domain adaptation: An in-depth empirical analysis. *arXiv preprint arXiv:2402.16090*, 2024.
- [O2] **Davide Talon**. Structured representation learning for visual data. 2024. PhD Thesis.

## Teaching Experience

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- **Advanced Multimodal Learning**, *Fall 2025*  
Course: IECS Doctoral School - University of Trento  
Level: PhD;  
Role: Lecturer;  
Duration: 20 hours (10 teaching).
- **Introduction to Machine Learning**, *Spring 2025*  
Course: Data Science Master Degree - University of Trento  
Level: Master;  
Role: Co-Lectured;  
Duration: 48 hours (24 teaching).

## Grants

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**Abstract Aware Vision-Language Models to Bridge the Concreteness Gap** Principal Investigator, EuroHPC Development Access Call, 3.5K standard computational hours

**Abstract Aware Vision-Language Models to Bridge the Concreteness Gap (A2VLM)** Principal Investigator, Founded by CINECA - Iskra-C, 80K standard computational hours

## Invited Talks

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- May, 28th 2026 TLM machine learning journal club - “Multimodal Learning: advancing vision with language”

- May, 27th 2026 - Advanced Machine Learning Course at UniVR - “Human-centered Foundation Models”
- April 22nd 2026 - AI Compliance Day - “Privacy preserving and unbiased learning”
- Feb, 26th 2026 - SMACT Digital Transformation Training - “Progettazione ed industrializzazione di prodotto e processo con AI: come usare gli strumenti per progettare prodotti e processi efficienti” [Link]
- Nov, 26th 2025 - Foundation Models Course at UniTN - “Human-centered Foundation Models”
- Oct, 14th 2025 - Parameters Lab retreat “LOTS of Fashion! Multi-Conditioning for Image Generation via Sketch-Text Pairing”
- Sep, 16th 2025 - ItalNet Workshop at ICIAP25 - “Seeing the Abstract: Translating the Abstract Language for Vision Language Models”[Link]
- Jul, 8th 2025 - Summer school algoritmos e chips verdes para intelixencia artificial - “State-of-the-Art Multimodal Models: Concepts, Drawbacks and Advantages” [Link]
- May, 29th 2025 - Computer Vision Trento Symposium - “Seeing the Abstract: Translating the Abstract Language for Vision Language Models” [Link]
- May, 21st 2025 - ResearchTrend.AI “Seeing the Abstract: Translating the Abstract Language for Vision Language Models” [Link]
- Jan, 30th 2025 - Workshop FAIR Spoke 2 “Multimodal Perception” [Link]

## Other activities

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### Member of:

- The Computer Vision Foundation (CVF)
- The Italian Association for Computer Vision, Pattern Recognition and Machine Learning (CVPL)

### Participant of:

- Eastern European Machine Learning Summer School (EEML21)
- VISMAC23 Summer school.

### Workshop organizer for:

- 1st Workshop on Green Foundation Models at ECCV24 [Homepage].
- Computer Vision Trento Symposium 2026 (May 2026) [Homepage]

### Tutorial organizer for:

- Tutorial on Human-centric Embodied Multimodal Interaction at ICMI '26

### Area Chair for:

- BMVC: 2025

### Journal Reviewer for:

- Pattern Recognition

### Conference Reviewer for:

- BMVC (2021, 2026), ECCV (2024-26), IROS (2024), ICRA (2025), CVPR (2024-26), ACM MM (2025), ICPR (2026), NeurIPS (2026)

### Workshop reviewer for:

- MULA@CVPR22, CRL@UAI22, VISART@ECCV22, nCSI@NeurIPS22, MULA@CVPR23, AtC@ECMLPKDD23, CRL@NeurIPS23, MULA@CVPR24, MULA@CVPR25 MULA@CVPR26

## Bibliographic indices

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- **Google Scholar** *h-index* 7, *n. citations* 82
- **ORCID Number** 0009-0003-6029-1532