Davide **Moltisanti**

Prize Fellow at the University of Bath

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Education

PhD in Computer Vision

Bristol, United Kingdom

University of Bristol — *September 2015 - November 2019*

- Thesis title: "Temporal Labelling for Action Recognition in Videos". Examiner: Prof. Cees Snoek (University of Amsterdam).
  - Best doctoral thesis - Faculty of Engineering 2019/2020.
- Supervised by Prof. Dima Damen.
- June - August 2017: visiting student at University of Toronto, worked with Prof. Sanja Fidler.

MSc in Computer Science

Catania, Italy

Università degli Studi di Catania — *September 2011 - November 2013*

- Thesis title: "Web Scraping of Online Newspaper via Image Matching".
- Supervised by Prof. Giovanni Maria Farinella and Prof. Sebastiano Battiato.
- January - September 2012: exchange period (ERASMUS project) at Universidad Complutense, Madrid, Spain.

BSc in Computer Science

Catania, Italy

Università degli Studi di Catania — *September 2007 - March 2011*

- Thesis title: "Experiments on semantic search of text documents".
- Supervised by Prof. Emiliano Tramontana.

Work Experience

Prize Fellow

Bath, United Kingdom

University of Bath — *September 2023 - to date*

Research Associate

Edinburgh, United Kingdom

University of Edinburgh — *January 2022 - September 2023*

Working with Prof. Frank Keller, Dr. Laura Sevilla and Dr. Hakan Bilen.

- **Research** I worked on *adverb* recognition, i.e. learning *how* actions are carried out in a video. I also worked on action recognition in semantic ambiguous settings, i.e. the problem of recognising actions when class labels overlap, are noisy or interchangeable.
- **Supervising PhD student** I also helped supervising PhDs students.

Research Fellow

Singapore

Nanyang Technological University — *March 2020 - December 2021*

Worked with Prof. Chen Change Loy.

- **Research** I initially focused on action recognition in both video and skeleton data. I then transitioned to dance motion synthesis, with a focus on efficient data collection and annotation for this task.
- **COVID-19 detector** Between September 2020 and January 2021 I was involved in a multi-disciplinary project in collaboration with NTU SCELSE and A* Singapore. The aim of the project was to develop a fast and accurate COVID-19 detector analysing images of saliva swabs. I led the computer vision team of the project, which delivered a fully working prototype.
- **Final year projects** I have independently supervised two students (undergraduate and postgraduate) for their final year projects.

Teaching Assistant

Bristol, United Kingdom

University of Bristol — *January 2016 - June 2019*

- **Symbols, Patters and Signals** The unit provides an introduction to data processing and machine learning. I prepared the lab sheets and courseworks for the academic year 2018/2019.
- **Applied Deep Learning** The unit provides an introduction to deep learning using PyTorch and TensorFlow.
- **Object Oriented Programming With Java** The unit teaches object-oriented designs using Java.

Web services backend development

Catania, Italy

Neodata Group — *September 2013 - July 2015*

- I worked on web metadata parsing, distributed cloud computing systems, big data processing tools and generic web services interfaces for online advertising technologies.

Publications

Learning Action Changes by Measuring Verb-Adverb Textual Relationships

Davide Moltisanti, Frank Keller, Hakan Bilen, Laura Sevilla-Lara

Conference on Computer Vision and Pattern Recognition (CVPR)

2023

An Action Is Worth Multiple Words: Handling Ambiguity in Action Recognition

Kiyoon Kim, **Davide Moltisanti**, Oisin Mac Aodha, Laura Sevilla-Lara

British Machine Vision Conference (BMVC)

2022

BRACE: The Breakdancing Competition Dataset for Dance Motion Synthesis

Davide Moltisanti, Jinyi Wu, Bo Dai, Chen Change Loy

European Conference on Computer Vision (ECCV)

2022

Rescaling Egocentric Vision: Collection Pipeline and Challenges for EPIC-KITCHENS-100

Dima Damen, Hazel Doughty, Giovanni Maria Farinella, Antonino Furnari, Evangelos Kazakos, Jian Ma, **Davide Moltisanti**, Jonathan Munro, Toby Perrett, Will Price, Michael Wray

International Journal of Computer Vision (IJCV)

2021

The EPIC-KITCHENS Dataset: Collection, Challenges and Baselines

Dima Damen, Hazel Doughty, Giovanni Maria Farinella, Sanja Fidler, Antonino Furnari, Evangelos Kazakos, **Davide Moltisanti**, Jonathan Munro, Toby Perrett, Will Price, Michael Wray

Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

2020

Action Recognition from Single Timestamp Supervision in Untrimmed Videos

Davide Moltisanti, Sanja Fidler, Dima Damen

Conference on Computer Vision and Pattern Recognition (CVPR)

2019

Scaling Egocentric Vision: The EPIC-Kitchens Dataset

Dima Damen, Hazel Doughty, Giovanni Maria Farinella, Sanja Fidler, Antonino Furnari, Evangelos Kazakos, **Davide Moltisanti**, Jonathan Munro, Toby Perrett, William Price, Michael Wray

European Conference on Computer Vision (ECCV)

2018

Trespassing the Boundaries: Labelling Temporal Bounds for Object Interactions in Egocentric Video

Davide Moltisanti, Michael Wray, Walterio Mayol-Cuevas, Dima Damen

International Conference on Computer Vision (ICCV)

2017

SEMBED: Semantic Embedding of Egocentric Action Videos

Michael Wray*, **Davide Moltisanti***, Walterio Mayol-Cuevas, Dima Damen (*equal contribution)

European Conference on Computer Vision Workshops (ECCVW)

2016

Monitoring Accropodes Breakwaters Using RGB-D Cameras

Davide Moltisanti, Giovanni Maria Farinella, Rosaria Ester Musumeci, Enrico Foti, Sebastiano Battiato

International Conference on Computer Vision Theory and Applications (VISAPP)

2015

Web Scraping of Online Newspapers via Image Matching

Davide Moltisanti, Giovanni Maria Farinella, Sebastiano Battiato, Giovanni Giuffrida

European Consortium for Mathematics in Industry (ECMI)

2014

Honours & Awards

- **2022 - Outstanding reviewer**, ECCV 2022.
- **2021 - Outstanding reviewer**, CVPR 2021.
- **2020 - Best Doctoral Thesis (Faculty of Engineering)**, academic year 2019-2020, University of Bristol. My thesis was selected amongst all dissertations from the Faculty of Engineering submitted during the academic year.
- **2015-19 - Full PhD scholarship (fees + stipend)**, funded by the EPSRC Doctoral Training Programme.
- **2016 - Poster honourable mention**, British Machine Vision Association Summer School.
- **2013 - Reading Group Prize**, International Computer Vision Summer School (ICVSS). I was part of the 4-people winning team. The reading group is organised by Prof. Stefano Soatto (UCLA, Vice President at Amazon Web Services). The school is organised by Prof. Roberto Cipolla (University of Cambridge), Prof. Giovanni M. Farinella and Prof. Sebastiano Battiato (University of Catania).

Academic Service

What is Next in Video Understanding? Workshop at CVPR 2024 in Seattle *CVPR 2024*

Workshop organiser *2024*

Workshop web-page

European Conference on Computer Vision *ECCV 2024*

Area Chair *2024*

BMVA Symposium on Vision and Language *London - BMVA*

Chair *2023*

Symposium web-page

What is motion for? Workshop at ECCV 22 in Tel-Aviv *ECCV 2022*

Workshop organiser *2022*

Workshop web-page

Reviewer

2016 - to date

I regularly serve as a reviewer for several conferences and journals, including CVPR, ICCV, ECCV, TPAMI, IJCV, AAAI.

Research Projects

EPIC Kitchens *epic-kitchens.github.io*

University of Bristol *April 2017 - to date*

- I was in charge of data collection in Bristol and Toronto.
- I developed the video narrator tool we used to annotated videos.
- I developed the Amazon Mechanical Turk interface to annotate the actions temporal boundaries.
- I developed the official download tool.
- I actively participate in reviewing submissions to the various challenges we run every year at CVPR/ECCV. I also help writing the official report we release at the end of the competitions.

EPIC Labs

University of Bristol *February 2019 - December 2019*

- Egocentric dataset recording students performing chemistry lab experiments.
- The project aimed at recognising actions in a visually difficult scenario: chemistry tools and liquids are mainly transparent, laboratories are naturally cluttered environments.

Image Processing Laboratory

University of Catania *January 2013- July 2015*

- My research activities focused on automating webpage layout analysis (web scraping via computer vision techniques), 3D reconstruction and point clouds measurement for hydraulic engineering applications.

Invited Talks

Temporal Information for Action Recognition
University of Tübingen, Germany
February 2023

Understanding Videos for Different Tasks
University of Catania, Italy
May 2022

Labelling Actions in Videos
Machine Learning Genoa Centre, Italy
June 2021

Languages

Fluent English, Spanish
Native speaker Italian