



# Vittorio Cuculo

POSTDOCTORAL RESEARCHER · INTERACTION DEVELOPER

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*"I don't have any solution, but I certainly admire the problem."*

## Education

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### Università degli Studi di Milano (UNIMI)

PH.D. IN MATHEMATICAL SCIENCES

Milan, Italy

2014 - 2017

- THESIS: "A probabilistic approach to the construction of a multimodal affect space".
- KEYWORDS: Affective computing, machine learning, facial expressions, physiological signals.

### Università degli Studi di Milano (UNIMI)

M.S. **CUM LAUDE** IN COMPUTER SCIENCE

Milan, Italy

2012 - 2014

- THESIS: "Using sparse coding for landmark localization in facial expressions"
- KEYWORDS: Computer vision, sparse coding, facial expression.

### Uppsala Universitet (IT.UU)

ERASMUS STUDENT

Uppsala, Sweden

2010

### Università di Pisa (UNIFI)

B.S. IN COMPUTER SCIENCE

Pisa, Italy

2007 - 2011

- THESIS: "Integration of instant message and videocall tools in the project DIASPORA\*\*".
- KEYWORDS: Videochat, XMPP, RTFMP, social network, web.

## Experience

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### Università degli Studi di Milano (UNIMI)

POSTDOCTORAL RESEARCHER IN COMPUTER SCIENCE (TYPE A)

Milan, Italy

Mar. 2018 - PRESENT

- Founding member of the **PHuSe Lab** research group at the Computer Science Dept. of UNIMI.
- Co-supervised several bachelor and master theses on topics related to my research interests.
- Assisted and tutored the exam projects for the master courses of "Natural Interaction" and "Affective computing models".
- KEYWORDS: Affective computing, eye gaze, probabilistic models, machine learning.

### Università degli Studi di Milano (UNIMI)

POSTDOCTORAL RESEARCHER IN COMPUTER SCIENCE (TYPE B)

Milan, Italy

Nov. 2017 - Feb. 2018

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INTERACTION DEVELOPER

Milan, Italy

Aug. 2013 - Aug. 2017

- Developed about 10 permanent and temporary interactive installations mixing architecture, design and digital technologies.
- Implemented several prototypes and final products adopting computer vision, embedded systems, sensors, mobile applications and web technologies.
- KEYWORDS: computer vision, HCI, electronics, microcontrollers, Arduino, Raspberry Pi, soldering, physical computing, sensors.

## Extracurricular Activity

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### opendot lab

CO-FOUNDER

Milan, Italy

Apr. 2014 - PRESENT

- opendot is a Fab Lab open and accessible to all, it is a space for innovation, which is generated through research and experimentation, the use of new technologies for rapid prototyping and digital fabrication, in an open and shared way.

### CVPL

MEMBER

Sep. 2014 - PRESENT

- Italian Association for Computer Vision, Pattern Recognition and Machine Learning.

## Google

DEVELOPER

May 2011 - Aug. 2011

- Selected as developer for the Google Summer of School 2011. Implemented and integrated a web application for IM and videocall inside the distributed social network DIASPORA\*, adopting XMPP and RTMFP protocols.

## Honors & Awards

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| 2018 | <b>NVIDIA GPU Grant</b> , An high performance GPU provided to support machine learning research. | NVIDIA     |
| 2017 | <b>Best Paper Award</b> , Awarded to the paper "Virtual EMG via facial video analysis".          | ICIAP 2017 |
| 2014 | <b>Ph.D. Scholarship</b> , 3 years scholarship for PhD in Mathematical Sciences.                 | UNIMI      |
| 2011 | <b>Student Grant</b> , GSOC 2011 (Google Summer of Code)   | Google     |

## Publications

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### Peer-reviewed journals

Deep construction of an affective latent space via multimodal enactment

Boccignone, Giuseppe, Donatello Conte, Vittorio Cuculo, Alessandro D'Amelio, Giuliano Grossi, and Raffaella Lanzarotti  
*IEEE Transactions on Cognitive and Developmental Systems* 10.4 (Dec. 2018) pp. 865–880. *IEEE*, 2018

### International peer-reviewed conferences proceedings

Predictive sampling of facial expression dynamics driven by a latent action space

Boccignone, Giuseppe, Matteo Bodini, Vittorio Cuculo, and Giuliano Grossi  
*IEEE 14th International Conference on Signal Image Technology Internet Based Systems (SITIS-2018)*, 2018

Give ear to my face: modelling multimodal attention to social interactions

Boccignone, Giuseppe, Vittorio Cuculo, Alessandro D'Amelio, and Raffaella Lanzarotti  
*ECCV'18 Workshop on Human Behavior Understanding*, 2018

Personality gaze patterns unveiled via automatic relevance determination

Cuculo, Vittorio, Alessandro D'Amelio, Raffaella Lanzarotti, and Giuseppe Boccignone  
*Federation of International Conferences on Software Technologies: Applications and Foundations*, 2018

AMHUSE: a multimodal dataset for HUmour SEnsing

Boccignone, Giuseppe, Donatello Conte, Vittorio Cuculo, and Raffaella Lanzarotti  
*Proceedings of the 19th ACM International Conference on Multimodal Interaction*, 2017

Virtual EMG via facial video analysis [**Best Paper Award**]

Boccignone, Giuseppe, Vittorio Cuculo, Giuliano Grossi, Raffaella Lanzarotti, and Raffaella Migliaccio  
*International Conference on Image Analysis and Processing*, 2017

Taking the Hidden Route: Deep Mapping of Affect via 3D Neural Networks

Ceruti, Claudio, Vittorio Cuculo, Alessandro D'Amelio, Giuliano Grossi, and Raffaella Lanzarotti  
*International Conference on Image Analysis and Processing*, 2017

A Note on Modelling a Somatic Motor Space for Affective Facial Expressions

D'Amelio, Alessandro, Vittorio Cuculo, Giuliano Grossi, Raffaella Lanzarotti, and Jianyi Lin  
*International Conference on Image Analysis and Processing*, 2017

The color of smiling: computational synaesthesia of facial expressions

Cuculo, Vittorio, Raffaella Lanzarotti, and Giuseppe Boccignone  
*International Conference on Image Analysis and Processing*, 2015

Using sparse coding for landmark localization in facial expressions

Cuculo, Vittorio, Raffaella Lanzarotti, and Giuseppe Boccignone  
*Visual Information Processing (EUVIP), 2014 5th European Workshop on*, 2014

## Congresses & Seminars

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Oct. 2018 **Invited lecture**, "Affective computing" at Workshop of Tangible Interaction - Domus Academy  
Aug. 2018 **Meeting**, CVPL 2018 (Computer Vision, Pattern Recognition and Machine Learning 2018)  
Jun. 2018 **Symposium**, DataMod 2018 (7th International Symposium From Data to Models and Back)  
Nov. 2017 **Conference**, ICMI 2017 (19th ACM International Conference on Multimodal Interaction)  
Sep. 2017 **Conference**, ICIAP 2017 (19th International Conference on Image Analysis and Processing)  
Sep. 2017 **Workshop**, 3AS 2017 (1st Automatic Affect Analysis and Synthesis Workshop)  
Feb. 2017 **Invited lecture**, "Affective computing" at Workshop of Tangible Interaction - Domus Academy  
Nov. 2016 **Invited speaker**, "Machine Learning tra etica, arte e legge" - Opendot  
Feb. 2016 **Workshop**, StaTalk on Bayesian Nonparametrics  
Sep. 2015 **Conference**, ICIAP 2015 (18th International Conference on Image Analysis and Processing)  
Jul. 2015 **Summer School**, ICVSS 2015 (International Computer Vision Summer School)  
May 2015 **Seminar**, Doctoral course of "Bayesian Inference of Stochastic Process Models"  
Dec. 2014 **Workshop**, EUVIP 2014 (5th European Workshop on Visual Information Processing)  
Mar. 2011 **Lightning talk**, "DIASPORA\* - Social network suitable for Mesh" - 4th Wireless Battle of Mesh  
Nov. 2011 **Invited speaker**, "DIASPORA\*: un altro social network è possibile" - Nardini Bookstore

*Milan, Italy*  
*Naples, Italy*  
*Toulouse, France*  
*Glasgow, UK*  
*Catania, Italy*  
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*Milan, Italy*  
*Milan, Italy*  
*Moncalieri, Italy*  
*Catania, Italy*  
*Scicli, Italy*  
*Milan, Italy*  
*Paris, France*  
*Vic, Spain*  
*Florence, Italy*