# Lorenzo Baraldi

*Curriculum Vitae*

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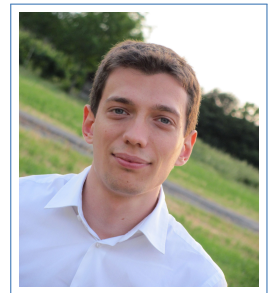
## Education

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| 2014–on going | **PhD Student**, *University of Modena and Reggio Emilia, Italy*. Research topics: Multimedia technologies for video analysis, tagging, retrieval and accessing<br>Supervisor: Prof. Rita Cucchiara |
| 2012–2014 | **Master Degree in Computer Engineering**, *University of Modena and Reggio Emilia, Italy*.<br>Mark: 110/110 cum laude<br>Thesis title: "Hand Segmentation and Gesture Recognition in Ego-centric Videos"<br>Supervisors: Prof. Rita Cucchiara, Dr. Giuseppe Serra<br>Abstract: The thesis explores and proposes state-of-the-art computer vision and pattern recognition techniques for hand segmentation and gesture recognition in egocentric vision. The proposed algortihms are tested on prototype wearable sensors. |
| 2008–2011 | **Bachelor Degree in Computer Engineering**, *University of Modena and Reggio Emilia, Italy*.<br>Mark: 110/110 cum laude<br>Thesis title: "Dimensionality reduction techniques for Web datasets: PCA vs SVD"<br>Supervisor: Dr. Riccardo Lancellotti |
| 2003–2008 | **Scientific High School Diploma**, *Scientific High School "A. Tassoni"*, Modena, Italy.<br>Mark: 100/100 cum laude |

## Languages

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| Italian | **Mothertongue** |
| English | **Council of Europe Level B2 – Cambridge ESOL Certificate** |
| French | **Basic** |

## Computer skills

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| Programming languages | C, C++, Matlab, Python, Java, Javascript, CUDA, HTML |
| Databases | SQL, Microsoft SQL Server |
| Libraries | OpenCV, Caffe, Theano, Tensorflow, Keras |

## Research Interests

- Computer Vision
- Image Processing
- Pattern Recognition and Machine Learning
- Deep Learning
- Multimedia

## Seminars, courses and events attended

2016    International VISMAC Summer School - Grado

ACM International Conference on Multimedia Retrieval - ICMR, New York

12th Italian Research Conference on Digital Libraries - IRCDL, Firenze

"Challenge, Experience, Master, Reward: games, psychology and cognitive neuroscience" – Dott. Alan Mattiassi

"Complex and multilayer networks: from structure to dynamics" – Dott. Stefano Boccaletti

2015    "Insights from Big Data: Interaction, Design and Innovation" – Dr. Alejandro Jaimes

"A Vision for the Future of Computer Science & Engineering and Higher Education" – Dr. James C. Spohrer (Leader of IBM's Cognitive Systems Institute Group)

"Innovation, Inspiration and Vision" – Prof. Arnold Smeulders - Professor at the University of Amsterdam, Director of COMMIT, Founder of EuVision

"GPU Programming" – Dott. Francesco Paci

"Computer Graphics and 3D Reconstruction" – Prof. Nadia Magnenat Thalmann (Director of the Institute for Media Innovation in Singapore) and Prof. Daniel Thalmann

"Diffusion of Information in Social Media" – Prof. William Rand, University of Maryland

"Academic English Workshop I" – Dott. Silvia Cavalieri

"Academic English Workshop II" – Dott. Silvia Cavalieri

11th Italian Research Conference on Digital Libraries - IRCDL, Bolzano

7th Iberian Conference on Pattern Recognition and Image Analysis - IbPRIA, Santiago de Compostela

International Conference on Multimedia and Expo - ICME, Torino

International Computer Vision Summer School - ICVSS, Sicily

2014    "Second Short Spring School on Surveillance" – S5

"Egocentric Recognition of Objects and Activities" – Prof. James M. Rehg

"Active Contours in Image Processing and Computer Vision" – Prof. Anthony Yezzi

"Introduction to Machine Learning and Online Learning" – Prof. Roberto Paredes

2012    "Analyzing human activities in video" – Prof. Larry Davis

## Grants and awards

2016    NVIDIA Hardware Grant, with the donation of one Tesla K40 GPU

Italian Supercomputing Resource Allocation (ISCRA) Grant from CINECA, for accessing the Galileo HPC Platform.

## Teaching activities

2016 Laboratory lecturer for the Computer Vision course, Prof. Cucchiara, at University of Modena and Reggio Emilia

2015 Laboratory lecturer for the Computer Vision course, Prof. Cucchiara, at University of Modena and Reggio Emilia

Laboratory lecturer for the graduate Master in Visual Computing and Multimedia Technologies, at University of Modena and Reggio Emilia

Tutor for the Fundamentals of Computer Science I course, at University of Modena and Reggio Emilia

Teaching assistant for the Machine Learning course: three lectures on Deep Learning and Convolutional Neural Networks

Tutor for the Fundamentals of Computer Science I Lab.

### Theses supervision

Marcella Cornia (MSc) - Deeply learned Saliency prediction

Fabio Pozzi (MSc) - Shot and scene detection in broadcast videos

Angelo Perri (BSc) - Optimization of convolution algorithms on GPU architectures

Dodiane Carole Ngatcha Nana (BSc) - Optimization of convolution algorithms on multicore architectures

## Journals Reviewing

IEEE Transactions on Multimedia

Multimedia Tools and Applications

IEEE Transactions on Human-Machine Systems

## Publications

2016 Andrea Corbelli, Lorenzo Baraldi, Fabrizio Balducci, Costantino Grana, and Rita Cucchiara. Layout analysis and content classification in digitized books. In *Proceedings of the 12th Italian Research Conference on Digital Libraries*, Firenze, February 2016.

Lorenzo Baraldi, Costantino Grana, Guido Borghi, Roberto Vezzani, and Rita Cucchiara. Shot, scene and keyframe ordering for interactive video re-use. In *Proceedings of the 11th International Conference on Computer Vision Theory and Applications*, Rome, February 2016.

Lorenzo Baraldi, Costantino Grana, Guido Borghi, Roberto Vezzani, and Rita Cucchiara. Scene-driven retrieval in edited videos using aesthetic and semantic deep features. In *Proceedings of the 6th ACM on International Conference on Multimedia Retrieval*, New York, June 2016.

2015    Lorenzo Baraldi, Francesco Paci, Giuseppe Serra, Luca Benini, and Rita Cucchiara. Gesture recognition using wearable vision sensors to enhance visitors' museum experiences. *IEEE Sensors Journal*, 15(5):2705–2714, March 2015.

Lorenzo Baraldi, Costantino Grana, and Rita Cucchiara. Shot and scene detection via hierarchical clustering for re-using broadcast video. In *Proceedings of the 16th International Conference on Computer Analysis of Images and Patterns*, Valletta, Malta, September 2015.

Lorenzo Baraldi, Costantino Grana, and Rita Cucchiara. Scene segmentation using temporal clustering for accessing and re-using broadcast video. In *Proceedings of the IEEE International Conference on Multimedia and Expo (IEEE ICME 2015)*, Torino, Italy, June 2015.

Lorenzo Baraldi, Costantino Grana, and Rita Cucchiara. Measuring scene detection performance. In *Proceedings of the 7th Iberian Conference on Pattern Recognition and Image Analysis*, pages 395–403, Santiago de Compostela, Spain, July 2015.

Lorenzo Baraldi, Costantino Grana, and Rita Cucchiara. A deep siamese network for scene detection in broadcast videos. In *Proceedings of the 23rd ACM International Conference on Multimedia*, October 2015.

Lorenzo Baraldi, Costantino Grana, and Rita Cucchiara. Analysis and re-use of videos in educational digital libraries with automatic scene detection. In *Proceedings of the 11th Italian Research Conference on Digital Libraries*, Bolzano, Italy, January 2015.

2014    Lorenzo Baraldi, Francesco Paci, Giuseppe Serra, Luca Benini, and Rita Cucchiara. Gesture recognition in ego-centric videos using dense trajectories and hand segmentation. In *Proc. of 10th IEEE Embedded Vision Workshop (EVW)*, Columbus, Ohio, June 2014.

2013    Giuseppe Serra, Marco Camurri, Lorenzo Baraldi, Michela Benedetti, and Rita Cucchiara. Hand segmentation for gesture recognition in ego-vision. In *Proc. of ACM Multimedia International Workshop on Interactive Multimedia on Mobile and Portable Devices (IMMPD)*, Barcelona, Spain, October 2013.

ICVSS 2015

International Computer Vision Summer School
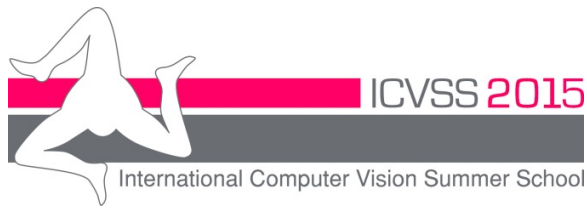
To whom it may concern

This is to certify that Lorenzo Baraldi has successfully completed examination session (1 hour) at the International Computer Vision Summer School, held in Sicily, Italy from the 12th of July to the 18th of July 2015. The examination paper was related the courses (30 hours) delivered by the following world-renowned experts in the field, from both academia and industry:

- Yoshua Bengio, Université de Montréal, Canada

- Thomas Brox, University of Freiburg, Germany

- Daniel Buchmuller, Amazon, Cambridge, UK

- Fei-Fei Li, Stanford University, USA

- Marc Pollefeys, ETH Zurich, Switzerland

- Silvio Savarese, Stanford University, USA

- Cees Snoek, University of Amsterdam, The Netherlands

- Stefano Soatto, UCLA, USA

- Doris Tsao, California Institute of Technology, USA

- Andrea Vedaldi, University of Oxford, United Kingdom

- Rene Vidal, The Johns Hopkins University, USA

- Takeo Kanade, Carnegie Mellon University, USA

- Stéphane Mallat, École Normale Supérieure, France

- Matthew Zeiler, Clarifai, USA

The courses have covered both theoretical and practical aspects of real Computer Vision problems as well as examples of their successful commercialization.

Sicily,  19 July 2015

The School Directors

Prof. Sebastiano Battiato          Prof. Roberto Cipolla          Dr. Giovanni Maria Farinella