

# Curriculum Vitae

Luca Zappella

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## 1 Personal Information

<i>Nationality</i>	Italian
<i>Name and Surname</i>	Luca Zappella
<i>Place of Birth</i>	Bergamo, Italy
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## 2 Summary

I achieved my master degree in computer science in Italy, at the University of Milan at the end of 2003. Since the second year of study I have been always working in the field of software as a developer or a teacher (ECDL, linux). Then I enjoyed working for three years, first in a company then as a freelance (mainly as computer vision expert and developer). Working in a company with a team taught me the importance of team working, team leading and of a good organization. On the other hand, working as a freelance taught me how to deal with customers, how to plan projects and deal with multiple deadlines and most important how to co-ordinate other people work.

I applied for the VIBOT master (European Master in Vision and Robotics hosted in Edinburgh UK, Girona Spain and Le Creusot France) because I am interested in vision and even though I was already working in this field I wanted to improve my knowledge. Besides, the experience of living for two years in three different countries and with people coming from every corner of the world is something that no one can ever teach you.

Currently, I am completing my PhD at the University of Girona (Spain) on Motion Segmentation and 3D Structure from Motion.

## 3 Education

### 3.1 Personal Education History

- June 19<sup>th</sup>, 2008 - Master degree in Vision and Robotics (VIBOT). *Graduated with Honors* at: University of Girona, Heriot-Watt University of Edinburgh and University of Dijon.

VIBOT is a two-year Master Program in 3D Vision and Robotics accredited in 2006 by the European Commission in the framework of the Erasmus Mundus program, a co-operation and mobility program of the European Commission in the field of higher education in order to promote the European Union as a centre of excellence in learning around the world. It is the only Erasmus Mundus Master Program in 3D Vision and Robotics among the 103 Erasmus Mundus Master Programs accredited since 2004 in all disciplines.

- December 19<sup>th</sup>, 2003 - Master degree in *Computer Science*. *Graduated with Honors* at the University of Milan.

### 3.2 Education Grants

- September 2007 - *Mobility Fellowship from the Spanish Ministry of Education* as European Student in the VISION and roBOTic Master studying outside Spain (Université de Bourgogne, Le Creusot, France).

- December 2006 - PhD grant from *Agència de Gestió d'Ajuts Universitaris i de Recerca, University of Girona*
- September 2006 - *Mobility Fellowship from the Spanish Ministry of Education* as European Student in the VISION and roBOTic Master studying outside Spain (Heriot-Watt University, Edinburgh, UK).
- July 2006 - *Université de Bourgogne* as European Student in the VISION and roBOTic Master.
- February 1999 - Grants from *Associazione Cremasca Studi Universitari* for students with particular merits.

### 3.3 Extra Courses

- *Wavelet Transform*
- *FSE Computer Forensics Base*
- *FSE Computer Forensics Advanced*
- *FSE Linux Advanced*
- *FSE MPI*
- *FSE 3D Video Games (DirectX) Base*
- *FSE 3D Video Games (DirectX) Advanced*
- *FSE Photography*

## 4 Research Activities

- *Motion Segmentation from Feature Trajectories* is the title of my thesis for the VIBOT master. Supervisors: Dr. Xavier Lladò and Dr. Joaquim Salvi.

Motion segmentation is an essential process for many computer vision algorithms. During the last decade, a large amount of work has been trying to tackle this challenge, however, performances of most them still fall far behind human perception.

So far I have been studying the state of the art of motion segmentation analyzing and reviewing the most important and newest techniques (I published my review at CCIA2008 conference, [ccia2008.acia.cat](http://ccia2008.acia.cat)).

After the state of the art I have focused on one of the most promising technique emerged from the review, the Local Subspace Affinity (LSA) in order to understand strengths and weaknesses. I am currently working on some improvements to this technique.

Part of this work can be found in my European Master Thesis in Vision and Robotics: [www.amcomputersystems.com/vibot/vibots/zappella/index.html](http://www.amcomputersystems.com/vibot/vibots/zappella/index.html)

- *Computer Vision Techniques for Video Surveillance Systems* is the title of my thesis for the computer science master, I carried it out for a security company in Milan in collaboration with the University of Milan, supervisors: Prof. Alessandro Rizzi and Fabrizio Cornelli.

The aim was to create a video surveillance system for motion detection and motion tracking using computer vision techniques like Optical Flow and Kanade-Lucas-Tomasi tracking algorithm.

## 4.1 Summer Schools

- Jyvaskyla Summer School on Variational Methods for Imaging. Jyvaskyla, Finland. August 6th to 12th 2006.
- Ninth EPSRC Summer School on Computer Vision at the University of Surrey, Guilford, England. June 17th to 23rd 2003.

## 5 Technical Knowledge

### 5.1 Languages

- *Italian* Native speaker
- *English* Advanced level; I achieved the IELTS certification
- *Spanish* Intermediate level; I achieved the UdG certification
- *French* Basic level

### 5.2 Programming Languages

- *Pascal, Cobol, Java, Perl, ML, Prolog*: university experience
- *C++, C, C#, Python, MatLab and Delphi*: university and job experience

### 5.3 C/C++ Libraries

- *Boost, Libavc, OpenCV, LiveMedia, ffmpeg*

### 5.4 Mark-up Languages

- *LATEX*

### 5.5 Net

- *Knowledge of the principals net protocols*
- *Linux firewalls (Iptable, Ipchain)*
- *OpenBSD firewalls (Ipfilter)*
- *Linux proxy (Squid)*

## 6 Professional Experiences

- Since January 2007 to now  
PhD Student at the University of Girona (Spain) on *Motion Segmentation and 3D Structure from Motion*.
- From October 2006 to June 2008  
Master in Vision and Robotics (VIBOT)

- January 2006 October 2006  
I worked as a free lance (see the next session for a quick summary of the main jobs). Companies (customers):
  - Hornet Technologies
  - RITAS Security
  - CISCO Systems
  - University of Milan
- December 2004 January 2006  
Company: Hornet Technologies  
Scientific consultant and developer for the study and the realization of a video surveillance system.
- October 2004 to October 2005  
Company: University of Crema  
Tutor to the Computer Architecture on-line course.
- September 2004  
Company: Pragma Srl  
ECDL Teacher.
- March 2003 to March 2004  
Company: Enterprise Technologies  
Computer Vision and Video surveillance system.
- January 2004  
Company: Nuovi S.O.C.I.  
Linux Expert consultant.
- August 2003  
Company: En.Te.Co. Srl  
Linux Expert consultant.
- March 2003 to May 2003  
Company: Ponte Lavoro  
Linux Teacher.
- February 2003  
Company: Pragma Srl  
ECDL Teacher.
- August 1998 to June 2002  
Company: Marsilli Spa  
Programmer.
- March 1999  
Company: University of Milan, Pole of Crema  
ECDL Teacher.
- August 1997 to January 1998  
Company: SIA Software House Srl  
Programmer.

## 6.1 Short description of the last jobs

- The main job I worked on recently is the job I started with the Hornet Technologies company. I started to work for the Hornet during my Master Thesis (when the company name was Enterprise Technologies), then they employed me and when I became a free lance we kept our collaboration. In three years of work, together with other two members of the team and with the company RITAS Security, we projected and developed a video surveillance system for banks. Since the October 2005, our software has been installed in more than one hundred banks. My job was mainly related to the imaging and video aspects: motion detection, object tracking, encoding and streaming. We have developed the software under Linux Debian using C, C++ and Python. Occasionally, I worked also to the study and the development of other software components and to the graphical interface in C#. During this last period, my job was to add features to our system like: face detection, face recognition, fire and smoke detection and person counter using cameras.

## 7 Interests and Activities

I love travelling: I spent three months in South America in 2004 and I have been to Africa twice (Guinea Bissau and Sierra Leon) with Altrove ONLUS (<http://altrove.crema.unimi.it>). Altrove is a volunteer association which aims to promote technical education in poor countries: the most important projects performed are two computer science schools in Malawi and Sierra Leon. I play volleyball and I like climbing, I am studying to play guitar and I love every kind of music, particularly rock, jazz and blues. I am fond of cinema, David Lynch above all.