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## Carlos I. ACERO CABALLERO

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### OUTLINE

Post-Graduate Student (MSc), Electronic Engineer with strong academic and ethical foundations. Fondness of Computer Vision and Signal Processing, excellent command of *MATLAB* as well as knowledge and experience on Industrial Control Systems. Industrial and Academic experience, mental strength, group management and adaptation skills.

Additionally, experience at working under pressure, Risk Analysis Management and an incomparable enjoyment and easiness at learning.

### EDUCATIONAL BACKGROUND

2007 - 2009 MSc in Computer Vision and Robotics (VIBOT) (expected).  
Erasmus Mundus Master VIBOT  
Heriot Watt University, Universitat di Girona, Université de Bourgogne

1997-2003 Electronic Engineer "Cum Laude" (B.Sc).  
Universidad Industrial de Santander (UIS). Bucaramanga, Colombia.

1991-1996 Technical Baccalaureate, Specialized in Electronics (Tech. High School).  
ITS "DÁMASO ZAPATA". Bucaramanga, Colombia.

### ACADEMIC HONORS AND AWARDS

- Erasmus Mundus Scholarship (2007-2009). European Masters in Computer Vision and Robotics (VIBOT)  
European Commission, VIBOT Consortium (Université de Bourgogne – France, Heriot Watt University – Scotland, Universitat de Girona – Spain).
- Cum Laude Diploma. Universidad Industrial de Santander. Bucaramanga – Colombia, 2003.
- Cooperation Interuniversity Programme Latin America – Spain 2003. Teaching assistantship at Universidad de Córdoba (March – June 2003). Spanish Agency for International Cooperation AECI.
- Outstanding student: first and second term during the period between 1997 and 2000. (Eight academic terms).
- High School Student of the State. 1st place Academic Contest Sponsored by Corporación Universitaria de Santander. Score: 186/200. December 1996.

### COMPLEMENTARY STUDIES

- Safety Instrumented Functions: Shell Best Practices for Safety Assessment in SIF. Shell Global Solutions - ECOPETROL, Barrancabermeja (Col), August 2006 (40h)
- DCS Honeywell TPS. Configuration and graphic design, Native Window management, HPM y GUS. ECOPETROL, Barrancabermeja (Col), May 2006. (40h).
- PLC Allen Bradley Configuration. Network structure, Programming and Turbogas Application. ECOPETROL, Barrancabermeja (Col). April 2006. (40h)
- Electro-Pneumatics and Electro-Hydraulics Cycle. National Service for Learning "SENA". Girón (Col). August 2004 - May 2005. (300 hours).

## **ADDITIONAL SKILLS**

**Languages:**

- SPANISH. Mother tongue.
- ENGLISH. High level of Command. TOEFL iBT Score: 93. Dec. 2006.
- FRENCH. Medium knowledge (120h). Alliance Française at Bucaramanga, Alliance Française at Girona.
- GERMAN. Basic knowledge. UIS Language Institute at Bucaramanga (50h). 2004.

**IT:**

- MATLAB. (Math, Signal Processing, Graphics, Neural networks, Simulink, GUI toolboxes).
- Programming: C++, Visual Basic for applications, Assembler, Object Oriented Programming.
- Microsoft Office Package (Word, Powerpoint, Excel, Frontpage).
- OS: Windows 98/2000/XP/Vista; Linux.

**Specialized:** Configuration and Maintenance Software for Plant Control Systems (DCS TPS Honeywell, ESD FSC Honeywell, DCS IA Foxboro, Bently Nevada).

**Team Work/Communication** The interaction and work with people of different ages, cultures, backgrounds and academic, formation throughout all experiences: Master Thesis in Germany, Erasmus Mundus Scholarship, Student's Union Committee, Mentoring programmes, Internship, Teaching and Industrial Work, has allowed me to develop skills at addressing people, organise, take part and lead team work, supervise and interact with people

## **RELEVANT STUDENT PROJECTS**

- Estimation of internal Parameters of a camera using combination of geometric and photometric information (Master Thesis). Aim: Develop a toolbox to perform a improved algorithm for camera calibration.
- 3D Reconstruction of Transparent objects using the Quadrangle Technique. Application of the quadrangle technique to obtain the 3D reconstruction of objects using common laser and webcam. Extension to transparent objects.
- Post-processing of MRI Prostate Gland images. Software development of a Graphic User Interface (MATLAB) to show the images resulted from a MRI examination and implementation of four post-processing algorithms that helps in the diagnosis of Prostate Cancer.
- Task achievement using an e-puck robot. Development of three tasks missions in C++ for the autonomous robot e-puck of webots: odometry guidance, obstacle avoidance and map localisation.
- Basic Image Processing Toolbox in C++.

## **PROFESSIONAL EXPERIENCE AND SERVICE**

### **Plant-Support Electronic Engineer.**

Colombian Petroleum Co. ECOPETROL S.A. B/meja, Colombia. Nov. 2005 – Aug. 2007. Technical support of the Control Systems of the Aromatics and Poliolefins Plants: Maintenance, configuration, planning and troubleshooting of Distributed Control Systems (DCS) and PLCs, Emergency Shutdown and Turbo-machinery Control Systems. Management of shutdown and turnaround, problem solving and root-cause analysis of electronic equipment failures.

Examples of Projects developed:

- Migration of Wired Emergency shut down to DCS based logic (Honeywell TPS).
- Integration of Tank Inventory System to DCS (Honeywell TPS) via MODBUS communications.
- Implementation of the Fire & Gas system (Honeywell FSC) of the Aromatics Plant.

**Part-time Lecturer**

Universidad Santo Tomás de Aquino. Bucaramanga, Colombia. February – November 2005.

Lectures of Modules: Control Systems I and Circuits Analysis I; participation in the competence-based re-design of the Module. Labs design and supervision. Class Project supervision and Final project assessment.

Achievements: Development of cognitive and communicative abilities, management and interaction with people.

**Part-time Lecturer**

Unidades Tecnológicas de Santander. Bucaramanga, Colombia. February – November 2005.

Lectures of Modules: Electric Circuits I and Electronics II, participation in the competence-based re-design of the Module, Project supervision.

Achievements: Development of cognitive and communicative abilities, management and interaction with people.

**Technical Support - Industrial Internship**

Occidental de Colombia S.A. OXY. Caño Limón, Bogotá - Colombia. Jan. - July, 2002.

Database Analysis and application development. Performance analysis of the Variable Speed Controllers of the 200 wells in the Production Field of Caño Limón based on historical data. Comparison between different models.

**Academic Committee President / Fresher's Tutor**

Electrical and Electronic Engineering Student's Union. Bucaramanga, Colombia. 2001.

Management of Academic Affairs of Student Union: design and planning of academic events such as seminars and additional courses of interest (programming), book acquisition and modernization of library of the Students Union.

**PERSONAL INFORMATION**

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|-------------|--------------------------------|
| Birth date  | 13 <sup>th</sup> November 1979 |
| Birth place | Bucaramanga – Colombia         |
| Nationality | Colombian                      |
| Age         | 29 years                       |