# Rodríguez Canosa, Gonzalo Ruy

*PhD in Robotics*

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*Date of birth: 07-12-1984*


*Doctor Engineer with great experience in hw+sw projects development. 5 year of experience.*

## Profesional Experience

### Working

Feb 2014 – present **Senior development engineer**, *eProsima*, Madrid, Spain.
Real Time Publisher Subscriber (RTPS) implementation (DDS standard by the OMG) focused on performance and security.

Feb 2009 – Nov 2013 **PhD researcher**, *Robotic and Cybernetic Group*, Madrid, Spain.
MultiRobot Systems for security and surveillance in Critical Infrastructures.

Sep 2011 – Dec 2011 **Visiting researcher**, *Robotics Research Group (UoA)*, Auckland, New Zealand.
Dynamic object detection system from UAV based on optical flows differences, supervised by Dr. Bruce MacDonald

May 2008 – Aug 2008 **Trainee Engineer**, *Flight Science Dept. at Bombardier*, Montreal, Canada.
User interface to optimize the documentation process of the simulation and testing reports.

### Scholarships and Grants

Feb 2008 – Apr 2008 **Research scholarship**, *Transportation Engineer Dept.*, University of Seville, Spain.
Study of the CANBUS devices, protocols and data in different automobiles.

Nov 2007 – Jan 2008 **Final Degree Project**, *Automatic and Systems Engineering Dept.*, Seville, Spain.
User interface to define transportation and storage problems was created, along with a centralized control system to obtain the optimum solution.

## Education

2009-2013 **PhD in Robotics and Automatics**, *4 years*, Technical University of Madrid, Spain.

2008-2010 **MSc in Automatics and Robotics**, *2 years*, Technical University of Madrid, Spain.

2006-2007 **Erasmus**, *1 year*, Royal Institute of Technology (KTH), Stockholm, Sweden.

2002-2008 **MsC in Systems and Automatics Engineering**
**BSc in Industrial Engineering**, *5 years*, University of Seville, Spain.

2000-2002 **Secondary Education in High-School Martinez Montañés**, *Seville*, Spain.
International Baccalaureate Organization Diploma - IBO.

1988-2000 **Primary Education in German School Albrecht Dürer**, *Seville*, Spain.

## Languages

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|---|---|---|
| Spanisch | **Native language** | |
| Englisch | **Full proffesional competence** | *High written and spoken level.* |
| German | **Basic proffesional competence** | *'Zentrale MittelstuffePrüfung' of the Goethe Institut (C1).* |

## Technical capabilities

### Computer Skills

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| SO | Linux and Windows. |
| Office Suite | MS Word, Excel, PowerPoint, LaTeX. |
| C++ | Large experience in different projects with multiple libraries (Boost, OpenCV, ...). Experience with performance improvements techniques and profilers tools. |
| Programming | Beginner level of C#, Python, Django, HTML, Java, Android SDK, OpenGL. |
| Development | CMake, Git, SVN, Eclipse, Microsoft Visual Studio, ... |

### Engineering Processes

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| Simulation | Webots, Player-Gazebo, Simulink. |
| Matlab | Fast prototyping of algorithms. Graphical Interfaces. |
| Robotics | Mobile and aerial robotics (UGV y UAV), Robot Operating System (ROS). |
| Vision | Expert development in OpenCV and PCL (Point Cloud Library). |
| Hardware | Experience in sensor and actuator control. Data adquisition platforms and mechanisms design. Experience with LIDAR sensors and 3D cameras. |

## Research Projects

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| 2011 - 2013 | ROTOS national project. Multirobot Systems for protection of large critical infraestructures. Ref: DPI2010-17998 of DPI subprogram |
| 2009 - 2010 | Networked Multi-Robot Systems (NMRS) project by the European Defense Agency. B-0004-ESM2_ERG. |

## Publications

- G. Rodríguez-Canosa, A. Barrientos y J. Cerro *Detection and Tracking of Dynamic Objects by Using a Multirobot System: Application to Critical Infrastructures Surveillance* Sensors. vol.14 -2 pags. 2911 - 2943. 2014.
- D. Sanz, G. Rodríguez-Canosa, J. Barrientos, J. Cerro, J. Hernandez, A. Barrientos. *Sensorized robotic sphere for large exterior critical infrastructures supervision* Journal of Applied Remote Sensing vol.7 pags. 1-19 (F.I. .876) 2013. JCR: 1.953
- Gonzalo R. Rodríguez-Canosa, Stephen Thomas, Jaime del Cerro, Antonio Barrientos and Bruce MacDonald.*A Real-Time Method to Detect and Track Moving Objects (DATMO) from Unmanned Aerial Vehicles (UAVs) Using a Single Camera*. Remote Sensensing. 2012, 4(4), 1090-1111; doi:10.3390/rs4041090. JCR: 2.171

## PhD thesis

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| Title | Detection and Tracking of Dynamic Objects. A MultiRobot Approach to Critical Infrastructures Surveillance. |
| Advisors | Jaime del Cerro and Antonio Barrientos. |
| Description | My thesis was focused in MultiRobot Systems for security and surveillance of Exterior Critical Infrastructures (CI). I have developed detection of dynamic objects algorithms for both aerial and ground robots. A Point Cloud based robot localization system has also been developed. Main skills and tools used in this thesis include but are not limited to: Mobile robotics, Simulation, Webots, ROS, PCL, OpenCV. Download: *thesis.pdf* |