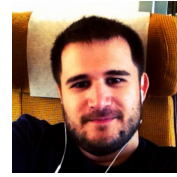# Rodríguez Canosa,
Gonzalo Ruy

PhD in Robotics

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in *grcanosa* ⦿ *grcanosa*

Doctor Engineer, 10 years of experience in SW(+HW) projects.
Great coding skills. Interested in Big Data.

▬▬▬▬ Profesional Experience

Working

Mar 2015 Now	**Senior Software Development Engineer**, *SEPSA*, Pinto, Madrid, Spain. Multiple technologies integration and software development for projects in the Railway Industry; i.e., CCTV systems or passenger information and entertainment systems.
Feb 2014 Feb 2015	**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. Transportation and storage problem resolution using centralized control algorithms.

▬▬▬▬ Technical capabilities

Computer Skills

C++	Large experience in different projects with multiple libraries (Boost, OpenCV, STL, C++11). Experience with performance improvements techniques and profilers tools.
Python	Experience with different multi-purposes modules. Object oriented programming. Experience with **data analytics** libraries such as pandas, numpy, matplotlib, seaborn, bokeh, folium, ...
Other	Scala, C#, Java, SQL, bash, batch
Programming	Great experience in Object Oriented Programming, concurrency and multithreading issues. Experience in Functional Programming. UML design. Qt GUIs.
Development	Git, SVN, Docker, Jupyter notebooks, IntelliJ, Eclipse, CMake, Makefile, Microsoft Visual Studio, GDB debugger, Valgrind, ... SCRUM methodologies and Agile development. Test Driven Development.
Linux	Large development experience in Linux based systems using terminal-based utilities.
Virtualization	Virtual machines, chroot, Docker, docker-compose.

Engineering Processes

Production	Experience in the full product cycle from prototypes validation, to testing, to validation, to client technical support.
Hardware	Sensor and actuator control. I2C, 485, ethernet,... Experience with train related equipments: cabin monitors, cctv cpus, passenger monitors, TCMS, MVB,...
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).

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.

Self-education

- Python mega course: building 10 real-world applications. Python course covering web, databases, web scraping, data science, web visualizations, image processing.

- Functional Programming in Scala Specialization. Using Scala to analyze data sets small to large; from parallel programming on multicore architectures, to distributed programming on a cluster using Apache Spark. Completed 2 of the 5 courses:
  - ✓ Functional Programming Principles in Scala.
  - ✓ Functional Program Design in Scala.
  - ↻ Parallel Programming (in process).
  - ↻ Big Data Analysis with Scala and Spark (in process).

- Managing Big Data with MySQL. Execute the most useful query and table aggregation statements for business analysts, and practice using them with real databases.

Languages

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

Personal projects

- Home Automation. Control of home devices (mainly electrical sockets and lights) using HomeAssistant and ZWave products on a RaspberryPi.
- Telegram bots. Personal telegram bots programmed in Python using python-telegram-bot.
- Web Scrapping. Real-time web analysis for low-price products notification using python and BeautifulSoup.
- Web Monitoring. Real-time analysis of train tickets prices for low-prices notifications using python and selenium. renfe-notifier-bot