

# Carlos García Argos

## Personal Information

 <https://www.linkedin.com/in/garciaargos>

Born in Málaga (Spain), 1980-07-01. Spanish nationality.

B driving licence.

Publication list: <https://inspirehep.net/authors/1314944>


## Brief Introduction

I am a Telecommunication Engineer and Doctor in Experimental Particle Physics with wide experience in research and innovation. I worked in the telecom industry at the beginning of my career, doing research in intelligent network optimisation. Afterwards I worked on silicon strip detectors system tests and safety critical systems for particle accelerators, and I am currently designing electronics for physics experiments, focusing on multi-gigabit FPGA developments.

## Professional Experience

### Electronics Engineer

[Albert-Ludwigs-Universität Freiburg](#), Physikalisches Institut, Electronics Design & Development

 Since 2018-12-01  Freiburg (DE)

- Conception, design, development and manufacture of electronic solutions for physics experiments at the Physics Institute, supporting the experiments at the various groups.
- FPGA developments, from PCB design to firmware and software.
- Currently developing the DAQ for the pixel detector of the AMBER experiment.
- Procurement, deployment and maintenance of internal servers.
- Development of an inventory database to track components stock.

### Postdoctoral Researcher in experimental particle physics

[Albert-Ludwigs-Universität Freiburg](#), Physikalisches Institut, Karl Jakobs Group

 2016-03-01 – 2018-11-30  Freiburg (DE)

- Test-beam, irradiation and system tests of silicon strip detectors for ATLAS ITk upgrade.
- Operations of the ATLAS Semiconductor Tracker.
- PCB designs for DAQ systems, interfacing optical modules with FPGAs up to 10 Gbps per lane through FMC.
- Design and deployment of cleanroom monitoring systems.
- Advanced lab courses teaching.

### Marie Curie COFUND Fellow for Machine Protection

[CERN](#), Technology Department, Machine Protection and Electrical Integrity Group

 2014-03-03 – 2016-02-29  Geneva (CH)

- Development and testing of components for the upgrade of the Beam Interlock System (BIS) at the CERN accelerators complex, including FPGAs and optical transceivers.
- Maintenance of the BIS at the LHC and SPS.
- Development of the optical transceivers upgrade of the BIS.

### Electronics Engineer

[Instituto de Física Corpuscular \(CSIC-IFIC\)](#) and [CERN](#)

 2011-07-01 – 2014-03-02  Valencia (ES) and Geneva (CH)

- System tests of silicon strips detectors for the ATLAS Tracker Upgrade.
- Electronic components lifetime testing.
- Maintenance, operation and performance studies of the ATLAS Semiconductor Tracker.

### Fellow and R&D Engineer

[Telefónica Investigación y Desarrollo](#)

 2005-07-18 – 2011-06-30  Madrid (ES)

- Innovation projects focused on intelligent optical networking and routing optimisation.

## Formal Education

**Doctorate in Physics.** Universidad de Valencia, Spain Graduated: 2015-01  
Thesis: *A Silicon Strip Detector for the Phase II High Luminosity Upgrade of the ATLAS Detector at the Large Hadron Collider.*

**Master's Degree in Computer Science and Telecommunication** Graduated: 2011-05  
Universidad Autónoma de Madrid, Spain Major: Communications and Networking  
Dissertation: *An Industrial Application of Multilayer Traffic Engineering Techniques.*

**Higher Degree in Telecommunication Engineering** Graduated: 2008-01  
Universidad de Málaga, Spain Majors: Telematics and Electronics  
Dissertation: *Definition and Evaluation of Multipath Routing Strategies for Optical Burst Switching Networks* (in Spanish).

## Foreign Languages

Language	Listening	Reading	Spoken interaction	Spoken production	Writing
English	C2	C2	C2	C2	C2
French	B1	B1	B1	B1	A2
German	A2	A2	A2	A2	A2

## Additional Recent Training

- 2022-07. Experimental EMC Seminar - Interference Immunity 1 (Langer EMV-Technik GmbH).
- 2018-10. Workshop on Scientific Programming in Python (Albert-Ludwigs-Universität Freiburg).
- 2017-07. Successful Leadership and Supervision (Albert-Ludwigs-Universität Freiburg).
- 2017-07. Project and Innovation Management for Postdocs (Albert-Ludwigs-Universität Freiburg).
- 2016-06. GBT-FPGA Tutorial (CERN).
- 2015-07. Reliability and System Risk Analysis (CERN).
- 2014-07. Electromagnetic Compatibility: Applications (CERN).
- 2013-12. Electromagnetic Compatibility: Introduction (CERN).
- 2013-07. Introduction to VHDL (CERN).
- 2013-07. Laser Users (CERN).
- 2013-06. Laser Experts (CERN).
- 2013-06. Signal Integrity: Essential Principles of Signal Integrity (CERN).

## Relevant Skills

### Electronics:

- Signal integrity, EMC and EMI, measurement and testing techniques and instruments (oscilloscopes, vector network analysers, multimeters, etc.)
- Optical transceivers and high-speed serial links.
- FPGA: VHDL and Verilog, Xilinx ISE and Vivado, 7-Series and UltraScale+ FPGAs, and 7-Series SoCs, as well as PCB designs using FPGAs.
- PCB design, including high speed, low noise and power delivery, using KiCad and Altium.
- Circuit simulation with Spice.

### Software development and data analysis:

- C/C++, Python.
- Bash, Tcl scripting.
- Octave/Matlab, ROOT.
- Version control systems: Git and SVN.

*Last update: 2022-11-30*