

# GIUSEPPE ANTONIO PIERRO

## EDUCATION

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**PhD in Physics (computer-science oriented)** 2008 - 2010

*The European Organization for Nuclear Research (CERN) and University of Bari*

- Thesis title: "Development of tools for handling and monitoring the data for the CMS experiment at CERN". [Reference](#).

**Specialization for Teaching Computer Science** 2003 - 2005

*SSIS Puglia - University of Bari*

- Thesis title: "Beginning Java For High School Students"

**Degree in Physics** 1996 - 2001

*University of Bari*

- Thesis title: "Interactive solution of classical physics problems using a web application".

## TECHNICAL SKILLS AND COMPETENCES

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- **Programming:** good knowledge of C, C++, Java, python, PHP. Good knowledge of relational database concepts and SQL. Very good knowledge of JavaScript, CSS, HTML.
- **JavaScript:** able to write stand alone JavaScript libraries. Very good knowledge of RequireJS, jQuery, UnderscoreJS, Modernizr.
- **Frameworks:** very good knowledge of MV\* framework such as Symfony2, Backbone.js, AngularJS and behavior-driven development frameworks to test JavaScript codes (Jasmine). Basic knowledge of Apache Hadoop.
- **Web Designer:** familiar with bootstrap, initializr, LESS, responsive CSS, Media Queries, Progressive Enhancement, SMACSS, OOCSS.
- **Other competences:** familiar with agile development practices, good knowledge of the development life-cycle. Strong analytical and debugging skills. Familiar with the principles of object-oriented design.
- Member of open source communities, mailing lists and projects reporting and fixing bugs.
- Experience in designing and testing the security of web applications and web services.

## LANGUAGES

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- Italian: Mother tongue.
- English: Fluent written and spoken.
- French: Fluent written and spoken.

## WORKING PROJECTS

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- LinkedIn: <http://it.linkedin.com/in/apierro> - My professional profile.
- Stackoverflow: <http://stackoverflow.com/users/647670> - My software questions and answers.
- Twitter: [http://twitter.com/an\\_pierro](http://twitter.com/an_pierro) - My tech tweets.
- GitHub: <https://github.com/apierro> - My public projects and open source contributions.

## WORK EXPERIENCE

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### **University of Cagliari**

*Software engineering*

January 2014 - Present

*Cagliari, Italy*

- Development of a 3D indoor navigation application using signal strength triangulation and smartphone sensors, such as the 3-axis accelerometer and the gyroscope. [Reference](#).
- Development of an application to boost the process of collecting, analyzing, interpreting, and writing the results of a PsychoPy experiment on metaphor comprehension. [Reference](#).

### **CERN**

*Software developer*

2008 - 2012

*Genève, Switzerland*

- Member of the CMS Database core project. Responsible for providing web services, taking part at the compilation of the requirements, as well as at the design and the development of different tools and services.

### **INFN**

*Web Designer & Developer*

2001 - 2007

*Italy*

- In charge to develop and run experiments in High Energy Physics (HEP) and Grid Computing. As to my activity in HEP, I worked in the "Compact Muon Solenoid" experiment. As to my activity in Grid Computing, I contributed to the development of a tool to monitor the resources of grid computing "GridICE". This tool was used to monitor the resources and the applications in the grid environment and to help detecting faulty situations, contract violations and user-defined events.
- I had the task of maintaining and monitoring the "Bari Tier-2 Computing Center" performance in order to support the overall needs of Physics Experiments. I participated to the software analyses by developing and using some software tools to analyze millions of real and simulated event data. I developed and studied a Simulation Model of Grid environment, using a software system called Ptolemy II (a set of Java packages supporting heterogeneous modeling, simulation, and design of concurrent systems).
- Designing, developing and maintenance of a web application to promote the cooperation between the INFN and the Investment Funds released by the European Union.

## TEACHING ACTIVITIES

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### University of Cagliari

2014 - Present

*Fixed-term position as Professor*

*Italy*

- Temporary contract to teach Physics at the Faculty of Biology.
- Temporary contract to teach Computer Science at the Faculty of Education.

### University of Cagliari

2013 - 2014

*Fixed-term position as Professor*

*Italy*

- Temporary contract to teach Physics at the Faculty of Engineering and Architecture.

### University of Cagliari

2013 - 2014

*Fixed-term position as Assistant Professor*

*Italy*

- Temporary contract to support teaching activities in Computer Science at the Faculty of Engineering and Architecture.

## SPECIALIZATION

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### University of Cagliari

2013-2014

- Pattern Recognition (Elements of Bayesian Decision Theory, Introduction to statistical classification techniques, parametric techniques, non-parametric techniques, linear discriminant functions, performance evaluation, feature selection, data clustering).

### CRS4

November 25, 2014 - December 17, 2014

- Tecnologie mobile per lo sviluppo di applicazioni multimediali.
- Interoperabilità tra sistemi clinici: dagli standard all'implementazione.
- Big Data and Hadoop - Data Scalable Solutions for Industrial Applications (HDFS, MapReduce, Pydoop).
- Scripting and DataWarehouse on Big Data (Pig and Hive). [Reference](#).

### CERN

- CERN openlab Multi-threading and Parallelism Workshop. November 2008, CERN. [Reference](#).
- Developing secure software. [Reference](#).
- Computer Security, Architecture and Performance Tuning, Creating secure software, Networking, QoS and Performance. CERN School of Computing - Gjøvik - Norway. [Reference](#).

### INFN

- Oracle Applications 11i: Install, Patch, and Maintain; System Administrator Fundamentals: Manage application security and system resources. April - May 2010. Bologna, Italy.
- School for Grid Site Administrator. Grid security, site configuration and management, services configuration and management. May 2005. Bologna, Italy.
- Programmazione ad oggetti in Java e C++ (Object Oriented Programming in Java and C++). February - May 2008. Bari, Italy.
- HTML and JAVA language and their use for the creation of Physics experiments (simulations). September - October 2002. Bari, Italy.

## SELECTED PUBLICATIONS

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**I published several papers, ten of which are talks presented at International Conferences and collected in the Proceedings. For the full record of my scientific publications, please refer to the High-Energy Physics Literature Database. [Reference](#).**

- G. Antonio Pierro (with A. Ledda, F. Eras), “Does Expertise Favor the Detection of the Metaphoric Fallacy?” in L. Bonelli, S. Felletti, F. Paglieri (eds.), *The Psychology of Argument, Studies in Logic and Argumentation Series 59*, London College Publication, London, 2016, pp. 223-243, ISBN: 978-1-84890-195-7.
- G. Antonio Pierro (with CMS collaboration), “Identification techniques for highly boosted W bosons that decay into hadrons”, in *JHEP 1412 (2014) 017*, 2014. 43 pp.
- G. Antonio Pierro (with Serguei Chatrchyan et al.), “Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC”, in “*Physics Letters*”, B716, 2012, pp. 30-61.
- G. Antonio Pierro (with Serguei Chatrchyan et al.), “Combined results of searches for the standard model Higgs boson in pp collisions at  $\sqrt{s} = 7$  TeV”, in “*Physics Letters*”, B710, 2012, pp. 26-48.
- G. A. Pierro et al., “jSPyDB, an open source database-independent tool for data management”, in “*Journal of Physics Conference Series*”, 331 042020, 2011, pp. 1-7. **Presented at CHEP2010: International Conference on Computing in High Energy and Nuclear Physics**, 18-22 Oct. 2010, Taipei (Taiwan).
- G. A. Pierro et al., “Fast access to the CMS detector condition data employing HTML5 technologies”, in “*Journal of Physics Conference Series*”, 331 042019, 2011, pp. 1-7. **Presented at CHEP2010**, 18-22 Oct. 2010, Taipei (Taiwan).
- G. Antonio Pierro (with Francesca Cavallari et al.) “Time-critical Database Condition Data Handling in the CMS Experiment During the First Data Taking Period”, in “*J. Phys.: Conf. Ser*”, 331 042007, 2011.
- G. Antonio Pierro (with Michele De Gruttola et al.), “Time-Critical Database Conditions Data-Handling for the CMS Experiment”, in “*Nuclear Science. IEEE Transactions on*”, 58: 4, pp. 1460-1464, Aug. 2011.
- G. Antonio Pierro et al., “CMS conditions database web application service”, in “*Journal of Physics Conference Series*”, 219 072048, 2010, pp. 1-10. **Presented at CHEP 2009**, Prague, March 2009.
- G. Antonio Pierro (with Michele De Gruttola et al.), “First experience in operating the population of the condition database of the CMS experiment”, in “*J. Phys. Conf. Ser*”, 219: 042046”, 2010.
- G. Antonio Pierro et al., “PopCon monitoring: web application monitoring for detailed real-time database transaction monitoring”, in “*DMS 2009 Proceedings*”, AIP Conf. Proc. 1504, vol. 1, pp. 966-970. **Presented at** the 15th International Conference on Distributed Multimedia Systems, San Francisco Bay, September 2009.
- G. Antonio Pierro et al., “Probing methods for automatic error resolution in a heterogeneous software environment“, in “*AIP Conference Proceedings*”, 1504, 2012, pp. 999-1002. **Presented at ICCMSE 2009: Symposium on Computing in Experimental High Energy Physics**, Rhodes, October 2009.
- G. Antonio Pierro et al., “Development of Web Tools for the automatic Upload of Calibration Data into the CMS Condition Data”, in Claude Leroy, Pier Giorgio Rancoita (eds.), *Astroparticle, Particle And Space Physics, Detectors And Medical Physics Applications, Volume 5*, World Scientific Publishing, London, 16: 7, 2010, pp. 724-728. **Presented at** 11th ICATPP. Villa Olmo, Como 5-9 October 2009.
- G. Antonio Pierro (with Michele De Gruttola et al.), “Persistent storage of non event data in the CMS databases”, in “*Journal of Instrumentation*”, Volume 5, Issue 04, pp. 4003, 2010.
- G. Antonio Pierro (with Cristina Aiftimiei et al.), “GridICE: monitoring the user/application activities on the grid”, in “*Journal of Physics Conference Series*”, 119, 2008, pp. 1-7.
- G. Antonio Pierro et al., “Design Principles of a Web Interface for Monitoring Tools”, in “*Journal of Physics Conference Series*”, 119 062005, 2008, pp. 1-9.
- Giuseppe Antonio Pierro et al., “Combined Analysis of GRIDICE and BOSS Information Recorded During CMS-LCG0 Production”, in “*CMS Note*”, CERN-CMSNOTE-2004-028, 2004, pp. 1-12.

- Giuseppe Antonio Pierro (with Tim Barrass et al.), “The CMS analysis chain in a distributed environment”, in: “Nucl. Instrum. Methods Phys. Res.”, A 559, 1, 2006, pp. 38-42.
- Giuseppe Antonio Pierro (with Julia Andreeva et al.), “Distributed Computing Grid Experiences in CMS”, in “IEEE Transactions on Nuclear Science”, 52: 4, 2005, pp. 884-890.
- G. Antonio Pierro (with Julia Andreeva et al.), “Use of grid tools to support CMS distributed analysis”, in “Nuclear Science Symposium Conference Record, 2004 IEEE”, Volume: 4, pp. 2029-2032. **Presented at** Nuclear Science Symposium, Medical Imaging Conference: 16-22 October 2004, Rome, Italy.