

João Carlos Arnauth Pela

CONTACT INFORMATION 15 Mapesbury Court *Mobile:* +44 7919533220
59-61 Shoot Up Hill *E-mail:* joaopela@gmail.com
NW2 3PU London
United Kingdom

INTERESTS High Energy Physics, Instrumentation, Detector Design, Simulation

SCIENTIFIC **Imperial College London**, London, United Kingdom
PROFESSIONAL

EXPERIENCE *Ph.D. Student at the CMS Experiment at the LHC* **Jan 2012 to Dec 2015**

- Member of the VBF Higgs to Invisible analysis group. Responsible for the cross check analysis for the publication with full Run I data using parked data.
- Designed the event selection algorithm (trigger) for both the 2012-13 analysis as well as the 2015 analysis.
- Provided service work as: Trigger Shifter, Trigger Field Manager and Shift Leader.
- Member of the Higgs to $\gamma\gamma$ analysis group. Worked on fit function systematics determination and Higgs spin analysis.

CERN - European Organization for Nuclear Research, Geneva, Switzerland

CMS L1T Data Monitoring Quality Coordinator **Jul 2012 to Jun 2014**

- Coordination of a group of 5 people with the task of maintaining high operational standards the the CMS L1T system.
- Responsible for the real time monitoring of a mission critical system.
- Responsible for the data quality certification for physics usage.

CERN - European Organization for Nuclear Research, Geneva, Switzerland

Engineer/Physicist for the CMS Experiment at the LHC **Feb 2011 to Dec 2012**

- Design and implementation of monitoring tools for the Level 1 Trigger in the framework of the Data Quality Monitoring (DQM) system. Resulting work is used for online monitoring and data quality certification.
- A shift as CMS Shift Leader (collisions) **Aug 2001**
- Several shifts as CMS Online Trigger Shifter (collisions) **Aug 2011 to Dec 2011**

Laboratório de Instrumentação e Física Experimental de Partículas, Lisbon, Portugal

Junior Researcher for the CMS Experiment at the LHC **2007 to 2010**

- Coordinator and developer of the EXOTripleton Exercise for CMS Exotica group as a part of 2009 October Exercise with the objective of testing LHC Data Flow Model **Oct 2009**
- Several shifts as CMS-ECAL Barrel, Endcaps and Safety Shifter, during the CRAFT 2009 (cosmics) program. **Aug 2009**
- Design and implementation of method for studying potential for Universal Extra Dimensions with a four lepton final state **Dec 2008 to present**
- Design and implementation of method for studying $t\bar{t}$ in semileptonic and fully leptonic with hadronic τ channels **Set 2007 to Dec 2008**

	<p>Centro de Fusão Nuclear, Lisboa, Portugal</p> <p><i>Experimental Physist</i> 2003 to 2004</p> <ul style="list-style-type: none"> Helped to design a test PCB Board to implement the new system of slow control of the ISTOK Tokamak Fusion Reactor based in CAN technology.
TEACHING EXPERIENCE	<p>Imperial College London, London, United Kingdom</p> <p><i>Demonstrator at the Physics 1st Year Laboratories</i> Sep 2014 to Jun 2015</p> <ul style="list-style-type: none"> Demonstrator in Demonstration Experiments and Electronics. Marking of two cycles of reports. Supervision of two final year projects.
SUPERVISION EXPERIENCE	<p>CERN - European Organization for Nuclear Research, Geneva, Switzerland</p> <p><i>Summer students Project</i> Jun 2011</p> <ul style="list-style-type: none"> Design and implementation of monitoring tools for the Level 1 Trigger in the framework of the Data Quality Monitoring (DQM) system. Development of an algorithm to detect dead areas or spikes in the Level 1 Trigger trigger primitives.
OUTREACH EXPERIENCE	<p>CERN - European Organization for Nuclear Research, Geneva, Switzerland</p> <p><i>CERN official guide</i> Jun 2011 to Jun 2014</p> <ul style="list-style-type: none"> <p>CERN - European Organization for Nuclear Research, Geneva, Switzerland</p> <p><i>CMS official guide</i> Jun 2011 to Jun 2014</p> <ul style="list-style-type: none">
EDUCATION	<p>Imperial College London, London, United Kingdom</p> <p>Ph.D., Experimental Particle Physics Dec 2015</p> <ul style="list-style-type: none"> Thesis Topic: Search for Higgs Decay to Dark Matter and Trigger Studies Supervisor: Professor David Colling Area of Study: Experimental Particle Physics <p>Instituto Superior Técnico, Lisboa, Portugal</p> <p>M.S., Engineering Physics and Technology Oct 2010</p> <ul style="list-style-type: none"> With final grade of 90% (Excellent) Thesis Topic: Multi-Lepton Final States in the Search for New Physics at the Large Hadron Collider Supervisor: Professor João Varela Co-Supervisor: Michele Gallinaro Area of Study: Experimental Particle Physics <p>B.S., Engineering Physics and Technology Feb 2009</p> <ul style="list-style-type: none"> With final grade of 70% (Good) Engineering specialization (emphasis on Instrumentation)

COURSES AND CERTIFICATIONS

ITC Certificate in First Aid for Sport, Exercise & Fitness **Nov 2014**

Level 1 Mechanical Workshop Course, **Jun, 2010**

- Basic use and construction techniques with Mechanical Workshop tools and machines
- Allowed use of the Instituto Superior Técnico Mechanical Workshop

IELTS Academic **Feb, 2010**

- Listening: 7.0
- Reading: 7.5
- Writing: 6.5
- Speaking 7.0
- Overall band: 7.0

AWARDS

Prize for Excellence in the Support of Teaching & Learning **May 2015**

- Awarded to individuals who have made a major contribution to the support of learning and teaching within the Faculty of Natural Sciences at Imperial College London.

Faculty of Natural Sciences Student Award for Best Demonstrator **May 2015**

- Awarded to the most voted elements of staff in each category. Obtained for my work demonstrating at the Physics 1st Year Laboratories

Development of Excellence in Sport Grant **Sep 2012 to Jun 2015**

- Awarded by Imperial College London to high achieving athletes
- Received for 3 consecutive years

PhD Grant - Fundação para a Ciência e Tecnologia **Jan 2012**

- Offered by the Fundação para a Ciência e Tecnologia (governmental funding agency)
- Offered a fully paid grant for pursuing a Ph.D. program at Imperial College London.
- Ranked at top 10% applicants.

Engineer Internship Grant - Agencia de Inovação **Jan 2011**

- Offered by the Agencia de Inovação (Portuguese governmental agency)
- Awarded a paid engineer internship position at the CMS experiment at CERN.
- Ranked at top 10% applicants.

PUBLICATIONS

Thesis

- Multi-Lepton Final States in the Search for New Physics at the Large Hadron Collider, João Carlos Arnauth Pela, 2010, Instituto Superior Técnico

CMS Internal Notes (directly involved)

- CMS L1T Upgrade TDR.
- CMS Exotica PAG: E. Barberis, O. Boeriu, J. Brooke, G. Bruno, J. Chen, J.P. Chou, K. F. Chen, A. De Roeck, S. Eno, M. Gallinaro, S. Harper, C. Hill, G. Landsberg, M. Mozer, J. Pela, S. Rappoccio, A. Rizzi, K. Rossato, P. Rumerio, A. Safonov, C. Shepherd-Themistocleous, “Data Flow for the CMS Exotica Group for Early Running” CMS AN - 2009/XX (Under Preparation)

	<ul style="list-style-type: none"> • P. Ribeiro, M. Gallinaro, M. Kazana, J. Pela, J. Varela, “<i>Discovery potential for Universal Extra Dimensions in the four leptons final state in pp collisions at $\sqrt{s} = 14 \text{ TeV}$</i>” CMS AN - 2008/035 	
CONFERENCE PRESENTATIONS	PASC Winter School 2008 - Discovery potential for Extra Dimensions in the four lepton final state at the LHC	
ACADEMIC SOCIETIES	<p>Imperial College London, London, United Kingdom</p> <p>Imperial College London Judo Club</p> <ul style="list-style-type: none"> • Club committee member 2014-15 • Men team captain 2014-15 <p>Instituto Superior Técnico, Lisboa, Portugal</p> <p>NFIST (IST Physics Students Association) Member</p> <ul style="list-style-type: none"> • Development and implementation of School Registration Web Application for <i>Physics Week 11</i> and <i>Physics Week 12</i> at IST • Development and implementation of an integrated system of mailing lists, library and forum • Responsible for many activities over the years • Responsible and developer of many activities Web Site (Social Activities and Outreach). <p>National Physics Students Meeting 2008</p> <ul style="list-style-type: none"> • Member of the organization committee • Development and implementation of all the website’s applications, including Student Registration, Forum, News Portal, etc 	
OTHER PROFESSIONAL EXPERIENCE	<p>Web Designer</p> <ul style="list-style-type: none"> • Designed commercial web sites for 2 small companies <p>IT System Administrator</p> <p>At a small local sports club during 2 years</p> <p>Summer Camp Counsellor</p> <p>Organized by Borough of Benfica, Lisbon</p> <p>Looked after +30 children</p> <p>Responsible for the Judo classes</p>	<p>innerlist</p> <p>innerlist</p> <p>innerlist</p>
CITIZENSHIP	Portuguese (European Union)	

LANGUAGE SKILLS

Portuguese: Native or bilingual proficiency

English: Native or bilingual proficiency

French: Full professional proficiency

Spanish: Professional working proficiency

TECHNICAL SKILLS

Extensive hardware and software experience in information technology

Programming: C, C++, Python, JAVA, Fortran 95, Python, Mathematica, Assembler

Database: MySQL, SQL

Web Oriented: HTML, PHP, CSS, Javascript, XML

System Administration: Shell Scripting (Bash, SH Shell), SVN, CVS

Applications: L^AT_EX, Microsoft Office, Open Office, and other common productivity packages for Windows and Linux platforms

Operating Systems: Linux (administration knowledge), Microsoft Windows XP/2000/Vista/7

Driver's Licence for motorcycle (all A classes) and cars (B class)

SPORTS

EXPERIENCE

Judo

Awards

- 2nd Degree black belt - 2nd Dan **2007**
- Level 2 Coach in Portugal **2007**
- Level 2 Coach in the United Kingdom **2015**
- Portuguese Regional Referee level **2008**

Selected Competition Results

- 5th British University Championship (individuals) **2014-15**
- 1th London University Open (individuals) **2013**
- 2nd Portuguese University Championship (individuals) **2005-06**
- 3rd Portuguese University Championship (individuals) **2004-05**
- 3rd Portuguese National Kata Championship **2007**

Coaching Experience

- Second coach - Imperial College London University Judo Club **2014-2015**
- Invited coach - Judo Club Meyrin, Geneva, Switzerland **2012-2014**
- Second coach - Externato Champagnat, Lisboa, Portugal **2006**
- Main coach - Parque Colombo Gym, Lisboa, Portugal **2005**