

PERSONAL DETAILS

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English (full professional proficiency)
French (elementary proficiency)

SUMMARY

In September 2012 I joined Intel Ireland as **Process Engineer** and since the start of 2014 I have been **FE Transfer Engineer for the 14nm process start up to the F24 site**. I have spent about 6 months in the Oregon Intel Fab (D1D) to learn and transfer the new technology. At the moment I am responsible for the technology implementation, recipe optimization, tool qualification, critical silicon and ramp readiness.

In the day-to-day tool operations and process implementation **data analysis plays a fundamental role**. **Decisions are data driven** and the **automation of data pulling and visualization** is a key requirement to speed up equipment and process troubleshooting. My **quantitative background** in Physics as well as my **strong programming and statistical model implementation skills** have been a solid foundation that I have improved and adapted upon for the industry needs during my years in Intel. My **ability to dig into data**, to find **correlations and analyse trends, spotting critical information** as well as the **development of models and hypothesis** is tested daily in new challenges which have amplified my **complex problem solving** and **critical thinking skills**.

I have graduated with honours in Physics and I have successfully completed a **PhD program in Experimental Particle Physics** working as a member of the **ATLAS collaboration** at the **European Organization for Nuclear Research (CERN)**. I am co-author of 400+ publications in High Energy and Detector Physics in referred journals and I have participated to multiple national and international conferences as speaker and organizer.

Upon completion of my profile, I have **very good attention to detail** and my approach to solving complex problems is practical. I have very **good relationship skills and the ability to work in a group**, communicating ideas/results clearly to colleagues with **actionable data presentations**. Nevertheless I am also able to work independently, completing the assigned tasks on time and under strict deadlines.

PROFESSIONAL EXPERIENCE

Since Sep 2012: **Intel Ireland Limited, Leixlip, Co. Kildare, Ireland**
Process Engineer, Dry Etch Department

I drive rapid and continuous improvements in safety, quality, yield, reliability, cost, process stability/capability, output and productivity while maintaining rigorous Copy Exactly (CE!) and best tool matching within the Intel 300mm factory network.

Responsibilities:

- equipment troubleshooting and sustaining ownership of day-to-day operations;
- continuously improve process and equipment operational indicators - quality, cycle-time, capacity & cost;
- deliver best-in-class results for tool availability, defects and parametric performance;
- meet tool and process matching requirements throughout start-up and ramp of new technology transfer;
- developing solutions to problems utilizing formal education, statistical knowledge, problem-solving tools and judgement.

Skills: lean manufacturing and six-sigma techniques, Statistical Process Control (SPC), failure analysis, root cause analysis, Design of Experiments (DoE), defect reduction.

Jul 2011 – Jun 2012: **European Organization for Nuclear Research – CERN, Geneva, Switzerland**
Researcher

Winner of a research grant from the Italian Institute for Nuclear Physics – INFN.
Responsible for the unfolding and related systematic uncertainties studies in the measurement of the Z/γ^* boson forward-backward asymmetry (A_{fb}) and the extraction of the effective weak mixing angle in the Electroweak sector of the Standard Model.
Member of the Physics Validation Task Force for the validation of data reconstruction and Monte Carlo production in the $Z/\gamma^* \rightarrow \mu^+\mu^-$ channel.

Jan 2010 – Apr 2010: **European Organization for Nuclear Research – CERN, Geneva, Switzerland**
Researcher

Winner of a European Union funded Marie Curie Research Training Network short-term fellowship.
Study of the Underlying Event (UE) structure with the first 900 GeV data collected with the ATLAS experiment applying a Fourier Transformation technique.

EDUCATION

2008 – 2011: **Ph.D. in Particle Physics, University of Rome “Tor Vergata”.**

Thesis: “*Forward-backward asymmetry measurement in $pp \rightarrow Z/\gamma^* \rightarrow \mu^+\mu^-$ events at $\sqrt{s} = 7$ TeV with the ATLAS experiment at the LHC*”.

2005 – 2007: **M.Sc. in Particle Physics, University of Rome “Tor Vergata”.**
1st class honours

Thesis: “*The ATLAS experiment at CERN LHC collider: RPC detector commissioning and Monte Carlo studies of supersymmetric events in the mSUGRA model*”.

2002 – 2005: **B.Sc. in Physics, University of Rome “Tor Vergata”.**
1st class honours

Thesis: “*Equalization and characterization of a sampling electromagnetic calorimeter in lead and optical scintillating fibers*”.

INFORMATION TECHNOLOGY, COMPUTER SKILLS

Operating Systems: Unix/Linux, Windows.

Programming: Python, C/C++, Html.

Various Applications: Software for data analysis and databases management (Excel, SQL, PAW, CERN ROOT, SAS JMP, SQLPathFinder3); word processing, presentations (Word, PowerPoint, LaTeX).

Networks / Internet: World-Wide-Web page building using HTML; vast experience with net services and programs/clients for e-mail, newsgroups, web browsing.

PHYSICS COURSES

1. *The XVI LNF Spring School “Bruno Touschek” in Nuclear, Subnuclear and Astroparticle Physics*, INFN Frascati National Laboratory, May 7th - 11th 2012;
 2. *2010 European School of High Energy Physics*, Raseborg (Finland), June 20th - July 3rd 2010;
 3. *The XV LNF Spring School “Bruno Touschek” in Nuclear, Subnuclear and Astroparticle Physics*, INFN Frascati National Laboratory, May 10th - 14th 2010;
 4. *The XIV LNF Spring School “Bruno Touschek” in Nuclear, Subnuclear and Astroparticle Physics*, INFN Frascati National Laboratory, May 11th - 15th 2009;
 5. *I School for INFN GRID users*, CNAF, Bologna, Italy, November 26th - 29th 2007.
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PRIZES AND GRANTS

1. *INFN Grant (Similfellow)*, Associated Member of the Personnel, European Organization for Nuclear Research (CERN), Geneva (Switzerland), July 2011 – June 2012;
 2. *MCnet Grant*, Marie Curie Research Training Network (European Union), Associated Member of the Personnel, European Organization for Nuclear Research (CERN), Geneva (Switzerland), January – April 2010;
 3. *Master Degree Prize “Sebastiano e Rita Raeli” for the best 300 students of the University of Rome “Tor Vergata”*, 2008;
 4. *Allowance for Tutoring*, 2007 – 2008, Faculty of Science, University of Rome “Tor Vergata”;
 5. *Student Prize*, 2006 – 2007, Faculty of Science, University of Rome “Tor Vergata”;
 6. *Student Prize*, 2004 – 2005, Faculty of Science, University of Rome “Tor Vergata”.
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PUBLICATIONS

From December 1st, 2008 I am **Author of the ATLAS collaboration**. A complete list of my publications as co-author (~400 on referred journals) can be found at: <https://twiki.cern.ch/twiki/bin/view/AtlasPublic/Publications>

SELECTED CONTRIBUTIONS

- Publications:** G. Aad *et al.* [The ATLAS Collaboration], *Measurement of the forward-backward asymmetry of Z/γ^* bosons decaying into electron or muon pairs with the ATLAS detector at $\sqrt{s} = 7$ TeV*, ATLAS-CONF-2013-43.
- G. Cattani, *Forward-Backward asymmetry measurement in $pp \rightarrow Z/\gamma^* \rightarrow \mu^+\mu^-$ events at $\sqrt{s} = 7$ TeV with the ATLAS experiment at LHC*, Frascati Phys.Ser. 55 (2012) 19-24.
- G. Cattani, *Forward-Backward asymmetry measurement in $pp \rightarrow Z/\gamma^* + X \rightarrow \mu^+\mu^- + X$ events at the ATLAS experiment*, Nuovo Cimento, Colloquia: IFAE 2011, doi: 10.1393/ncc/i2011-11075-8.
- G. Cattani, *The Resistive Plate Chambers of the ATLAS experiment: performance studies*. In 1st Roman Young Researchers Meeting Proceedings, 2011 J. Phys.: Conf. Ser. 280 012001.
- G. Cattani, *Performance of the ATLAS Resistive Plate Chambers*, Nuclear Instruments and Methods in Physics Research A (2010), doi:10.1016/j.nima.2010.07.073.
- G. Cattani, *Large-scale performance studies of the Resistive Plate Chamber fast tracker for the ATLAS first-level muon trigger*, Nuclear Instruments and Methods in Physics Research A (2009), doi:10.1016/j.nima.2009.06.053.
- E. Solfaroli *et al.*, *First cosmic ray results of the RPC commissioning in the ATLAS cavern*, Nucl. Phys. B Proc. Suppl. 177-178 (2008) 335.
- G. Aad *et al.* [The ATLAS Collaboration], *Measurement of the $W \rightarrow lv$ and $Z/\gamma^* \rightarrow ll$ production cross sections in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector*, JHEP 1012 (2010) 060, arXiv:1010.2130 [hep-ex].
- G. Aad *et al.* [The ATLAS Collaboration], *Measurement of the Z to ll production cross section in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector*, ATLAS-CONF-2010-076.

G. Aad *et al.* [The ATLAS Collaboration], *Observation of $W \rightarrow lv$ and $Z \rightarrow ll$ in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS Detector*, ATLAS-CONF-2010-044.

G. Aad *et al.* [The ATLAS Collaboration], *Commissioning of the ATLAS Muon Spectrometer with Cosmic Rays*, Eur.Phys.J. C70 (2010) 875-916, arXiv:1006.4384v1 [physics.ins-det].

Notes:

B. Boonekamp *et al.*, *Measurement of the forward-backward asymmetry of Z/γ^* bosons decaying into electron or muon pairs with the ATLAS detector at $\sqrt{s} = 7$ TeV*, ATLAS-COM-PHYS-2012-1178.

J. Barreiro Guimaraes da Costa *et al.*, *$W \rightarrow \mu\nu$ and $Z \rightarrow \mu\mu$ cross-sections measurements in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS Detector*, ATL-PHYS-INT-2011-019, ATL-COM-PHYS-2010-685.

J. Barreiro Guimaraes da Costa *et al.*, *Measurement of $W \rightarrow \mu\nu$ cross section and observation of $Z \rightarrow \mu\mu$ process in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS Detector*, ATL-PHYS-INT-2010-088, ATL-COM-PHYS-2010-474.

M. Bellomo *et al.*, *Observation of $W \rightarrow \mu\nu$ and $Z \rightarrow \mu\mu$ in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS Detector*, ATL-PHYS-INT-2010-087, ATL-COM-PHYS-2010-265.

CONTRIBUTIONS AT NATIONAL AND INTERNATIONAL CONFERENCES

Talks:

G. Cattani, *Forward-Backward asymmetry measurement in $pp \rightarrow Z/\gamma^* \rightarrow \mu^+\mu^-$ events at $\sqrt{s} = 7$ TeV with the ATLAS experiment at LHC*, 3rd Young Researchers Workshop: “Physics Challenges in the LHC Era”, INFN Frascati National Laboratory, May 7th and May 10th 2012;

G. Cattani, *Forward-Backward asymmetry measurement in $pp \rightarrow Z/\gamma^* + X \rightarrow \mu^+\mu^- + X$ events at the ATLAS experiment*, Incontri di Fisica delle Alte Energie (IFAE) 2011 - X Edizione, Perugia (Italy), 27th - 29th April 2011;

G. Cattani, *Performance of the ATLAS Resistive Plate Chambers*, X Workshop on Resistive Plate Chambers and related detectors, GSI – Darmstadt (Germany), February 9th – 12th 2010;

G. Cattani, *The Resistive Plate Chambers of the ATLAS Experiment: Performance Studies*, Roman Young Researchers Meeting 2009, Roma, Faculty of Science, University of Rome. “Tor Vergata”, July 21st 2009.

Posters:

G. Cattani, *Measurement of W and Z production cross sections with the ATLAS experiment at $\sqrt{s} = 7$ TeV*, XLIX International Winter Meeting on Nuclear Physics, Bormio, Italy, 24th - 28th January 2011;

G. Cattani, *Large-scale performance studies of the Resistive Plate Chamber fast tracker for the ATLAS first-level muon trigger*, Frontier Detectors for Frontier Physics, 11th Pisa Meeting on Advanced Detectors, La Biodola, Isola d’Elba, Italy, May 24th - 30th 2009.
