Personal information

Firstname	**Adriano**
Surname	**Di Florio**
E-mail	adriano.diflorio@ba.infn.it
Nationality	Italian
Date of birth	28 December 1989

Education and training

2003-2008	————————————————————————————
Title of qualification awarded	**Scientific High School Diploma**
Final Grade	100/100 cum laude
Institution	Liceo Scientifico Enrico Fermi - Bari
	- 2003/2008 elected as member of School Student Committee
2008-2011	————————————————————————————
Title of qualification awarded	**Bachelor's Degree in Physics**
Final Grade	110/110 cum laude
Institution	Univesità degli Studi di Bari "Aldo Moro" - University of Bari
	- Exams average mark: 28.68/30 .
	- Thesis Title : *Study of the Gain-Bandwidth product for a single photoelectron sensitive electronics preamplifier stage* - Supervisor: *Prof.Giordano Francesco.*
	- 2008/2012 member of Physics Department Council as students' elected representative.
2012-2015	————————————————————————————
Title of qualification awarded	**Master Degree in Physics** **Nuclear, Subnuclear and Astroparticle Physics**
Final Grade	110/110 cum laude
Institution	Univesità degli Studi di Bari "Aldo Moro" - University of Bari
	- Exams average mark: 28.76/30 .
	- Thesis Title : *Applications of GooFit on GPUs for statistical data analysis in High Energy Physics* - Supervisor: *Prof.Alexis Pompili.*
	- Thesis results have been presented at the 17th International workshop on Advanced Computing and Analysis Techniques (*ACAT*). Conference proceedings "GPUs for statistical data analysis in HEP: a performance study of GooFit on GPUs vs Roofit on CPUs" *A.Pompili* and *A.Di Florio,* J.Phys.Conf.Ser. 762 (2016) no.1, 012044
	- Thesis results are being reported in the CMS Internal Analysis Note AN-2015-334.
	- 2012/2014 member of Physics Department Council as students' elected representative.

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2016 - 2017	**INFN MAE Scholarship (3 months)**
	INFN scholarship to spend a 3-month period at CERN labs
Institution	Istituto Nazionale Di Fisica Nucleare and CERN
Topic	Application of Machine Learning Techniques to Track Seeding at the CMS High Level Trigger on CPU-GPU Heterogenous platforms
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2018	**Global DOC Scholarship Scholarship (5 months)**
	University of Bari/Regione Puglia scholarship to spend a 5-month period at CERN labs
Institution	Università degli Studi di Bari "Aldo Moro" - University of Bari and CERN
Topics	- Search for exotic quarkonium-like states at CMS experiment - Application of Machine Learning Techniques to Track Seeding at the CMS High Level Trigger on CPU-GPU Heterogenous platforms
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2015 - Ongoing	**Physics PhD Student XXXI Cycle**
Institution	Università degli Studi di Bari "Aldo Moro" - University of Bari
Title	*Search for exotic resonances in J/$\psi\phi$ final state and GPU-based techniques for event reconstruction and statistical significance estimation at the CMS experiment*
	XXXI Cycle
Topics	- Search for exotic quarkonium-like states at CMS experiment - GooFit applications to the estimation of local and global statistical significance of a physical signal - GooFit applications to full amplitude analysis of 3-bodies B decays - Research collaboration with the CMS Tracking POG for development of new tracking algorithms on heterogenous computing systems and application of Machine Learning Techniques to Track Seeding at the CMS High Level Trigger

HEP Physics and Computing Schools & Other Workshops	
May 2016	Intensive CUDA Graphic Units Programming Course, Bari (Italy), 11-13 May 2016
June 2016	XXVIII National Workshop on Nuclear and Subnuclear Physics "Francesco Romano", Otranto (Italy), 3-10 Jun 2016
September 2016	CERN School of Computing 2016, SKC-CEN, Mol (Belgium), 28 Aug - 10 Sep 2016. Final exam (6 ETFS CREDITS) passed.
October 2016	WLCG Workshop, San Francisco, 8-9 Oct 2016
July 2017	Third Machine Learning in High Energy Physics Summer School, Reading (UK), 16-23 Jul 2017
September 2017	CMS Physics Object School (CMSPOS), Bari (Italy), 4-8 Sep 2017
May 2018	3rd Patatrack Hackaton, CERN Geneva (Switzerland), 22-25 May 2018
July 2018	CMS Machine Learning Workshop, CERN Geneva (Switzerland), 2-4 July 2018

Teaching Activity

February 2015 - July 2015	**Academic Tutor**
Main Activity	Didactic and general counseling for students enrolled in the Bachelor and Master's Degree in Physics. Guidance in preparation for exams and study method.
Employer	Università Degli Studi di Bari, via Orabona, 4 - BARI (BA) ITALIA
Further details	250 hours contract
March 2017 - Ongoing	**Academic Tutor**
Main Activity	Didactic and general counseling for students enrolled in the Bachelor and Master's Degree in Physics. Guidance in preparation for exams and study method.
Employer	Università Degli Studi di Bari, via Orabona, 4 - BARI (BA) ITALIA
Further details	250 hours contract
March 2016 - July 2016	**Assistant Lecturer**
Main Activity	Lectures and seminars for the Physics courses of the Bachelor degree in Biology (Biology Department).
Employer	Università Degli Studi di Bari, via Orabona, 4 - BARI (BA) ITALIA
Further details	Academic Year 2015/2016 - Main course held by Professor Sebastiano Stramaglia (sebastiano.stramaglia@ba.infn.it)
April 2016 - October 2016	**Assistant Lecturer**
Main Activity	Lectures and seminars for the Physics courses of the Bachelor degree in Management Engineering (Mechanical, Management and Electrical Engineering Department).
Employer	Politecnico di Bari, Via Edoardo Orabona, 4, 70126 - BARI (BA) ITALIA
Further details	Academic Year 2015/2016 Main course held by Professor Donato Creanza (donato.creanza@poliba.it)
March 2017 - July 2017	**Assistant Lecturer**
Main Activity	Lectures and seminars for the Physics courses of the Bachelor degree in Biology (Biology Department).
Employer	Università Degli Studi di Bari, via Orabona, 4 - BARI (BA) ITALIA
Further details	Academic Year 2016/2017 - Main course held by Professor Sebastiano Stramaglia (sebastiano.stramaglia@ba.infn.it)
29-30 March 2017	**Bari CMS Masterclass Facilitator**
2017 - 2018	**European Researcher Night in Bari**
Main Activity	Member of the local organizer committee, presenter for the CMS Bari Team.

Papers , Conference Proceedings and Publications

- A. Di Florio et al., ***GPUs for statistical data analysis in HEP: a performance study of GooFit on GPUs vs. RooFit on CPUs***, J.Phys.Conf.Ser. 762 (2016) no.1, 012044 - Proceedings of "17th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Valparaíso (Chile), 18-22 January 2016.

- A. Di Florio et al., ***Statistical significance estimation of a signal within the GooFit framework on GPUs***, EPJ Web Conf. 137 (2017) 11005 - Proceedings of "XIIth Quark Confinement and the Hadron Spectrum" conference, Thessaloniki (Greece), 28 Aug- 4 September 2016.

- A. Di Florio et al., ***Performance studies of GooFit on GPUs versus RooFit on CPUs while estimating the statistical significance of a new physical signal,*** J.Phys.Conf.Ser. 898 (2017) no.7, 072036 **-** Proceedings of "CHEP 2016: 22nd International Conference on Computing in High Energy and Nuclear Physics", San Francisco (CA), 10-14 Oct 2016.

- A. Di Florio et al., ***Convolutional Neural Network for Track Seed Filtering at the CMS High-Level Trigger*** - Proceedings of "18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017, in peer review. [*https://indico.cern.ch/event/567550/papers/2638698/files/ 6044-ACAT2017_CNN_DiFlorio_78_rev1.pdf]*

- A. Di Florio et al., ***Performance studies of GooFit on GPUs versus RooFit on CPUs while estimating the global statistical significance of a new physical signal*** - Proceedings of "18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017, in peer review. [*https://indico.cern.ch/event/567550/papers/2629709/files/6148-Pompili_GooFit_ACAT2017_Revised.pdf]*

- A. Di Florio et al., ***Convolutional Neural Network for Track Seed Filtering at the CMS HLT*** Proceedings of "IFAE 2018: *XVII Incontri di Fisica delle Alte Energie*", Milano (Italy), 4-6 Apr 2018, in peer review.

- A. Di Florio et al., ***Track Seed Filtering using Convolutional Neural Network at the CMS High Level Trigger*** - Proceedings of "CHEP 2018: 23rd International Conference on Computing in High Energy and Nuclear Physics", Sofia (Bulgaria), 9 Jul - 13 Jul 2018, in preparation.

- A. Di Florio et al., ***Estimation of global statistical significance of a new signal within the GooFit framework on GPUs*** - Proceedings of "XIIIth Quark Confinement and the Hadron Spectrum (QCHS)", Maynooth University (Ireland), 31 Jul - 6 Aug 2018, in preparation.

- A. Di Florio et al., ***Convolutional Neural Network for Track Seed Filtering at the CMS High-Level Trigger*** - Proceedings of "18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017, in peer review. [*https://indico.cern.ch/event/567550/papers/2638698/files/ 6044-ACAT2017_CNN_DiFlorio_78_rev1.pdf]*

- A. Di Florio et al., ***Performance studies of GooFit on GPUs versus RooFit on CPUs while estimating the global statistical significance of a new physical signal*** - Proceedings of "18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017, in peer review. [*https://indico.cern.ch/event/567550/papers/2629709/files/6148-Pompili_GooFit_ACAT2017_Revised.pdf]*

Papers , Conference Proceedings and Publications

- A. Di Florio, *Heavy Flavour production at ATLAS and CMS -* Proceedings of LHCP 2018, Bologna, 4-9 Jun 2018, in peer review.

- CMS Collaboration, *"Observation of the $Z \to \psi \ell^+ \ell^-$ decay in pp collisions at sqrt(s)=13 TeV"*, Phys.Rev.Lett. **121** (2018) 141801

- CMS Collaboration, *"Angular analysis of the decay $B^+ \to K^+ \mu^+ \mu^-$ in proton-proton collisions at sqrt(s) =8 TeV"*, Phys.Rev.Lett. **121** (2018) 141801

- CMS Collaboration, *"Observation of the $\chi_{b1}(3P)$ and $\chi_{b2}(3P)$ and measurment of their masses"* Phys.Rev.Lett. **121** (2018) 141801

- Author of **98 publications** as member of the CMS collaboration

Personal skills and competences

Main Language	Italian
Other Languages	
English	————————————————————————————————————
Certificate	Certificate of Proficiency in **English** - Cambrige ESOL Level 3 Certificate
Final Grade	63/100 (**C**)
Computer Science Comptences	- **Programming Languages:** CUDA, C, C++, Python, HTML 5, PHP, MySQL - **Tools**: OrCAD PSpice, MatLab, Mathematica, ROOT, RooFit, GooFit, LabView, Tensorflow, Keras,

Talks and Proceedings at Conferences and Workshops	
Jan 2016	17th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT), Valparaíso (Chile), 18-22 January 2016 - Oral presentation by Alexis Pompili with title "***GPUs for statistical data analysis in HEP: a performance study of GooFit on GPUs vs. RooFit on CPUs***," - *Proceedings:* A. Di Florio et al., *J.Phys.Conf.Ser.* **762** (2016) no.1, 012044
July 2016	Invitation to INFN CCR (Commisione Calcolo e Reti) meeting within the *"Giulia Vita Finzi award mini-symposium"* session, Presidenza INFN, Rome, 5th July 2016 - Oral presentation with title: ***"GPUs for Statistical Data Analysis in HEP: a performance study of GooFit on GPUs vs RooFit on CPUs "*** [https://agenda.infn.it/ conferenceDisplay.py?confId=11320]
September 2016	XIIth Quark Confinement and the Hadron Spectrum" conference, Thessaloniki (Greece), 28 Aug- 4 Sep 2016 - Oral presentation by Leonardo Cristella with title "***Statistical significance estimation of a signal within the GooFit framework on GPUs***" - *Proceedings:* A. Di Florio et al., *EPJ Web Conf.* **137** (2017) 11005
October 2016	The 22nd International Conference on Computing in High Energy and Nuclear Physics, CHEP 2016, San Francisco, 10-14 Oct 2016 - Presentation of the selected poster with title: ***"Performance studies of GooFit on GPUs versus RooFit on CPUs while estimating the statistical significance of a new physical signal"*** - *Proceedings:* A. Di Florio et al., *J.Phys.Conf.Ser.* **898** (2017) no.7, 072036
August 2017	18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017 - Oral presentation by Felice Pantaleo with title: ***"Convolutional Neural Network for Track Seed Filtering at the CMS High-Level Trigger"*** [https://indico.cern.ch/event/567550/contributions/2638698/]. Proceedings in peer review.
August 2017	18th International workshop on Advanced Computing and Analysis Techniques in physics research (ACAT)", Seattle (US), 21-25 Aug 2017 - Oral presentation by Alexis Pompili with title: ***"Performance studies of GooFit on GPUs versus RooFit on CPUs while estimating the global statistical significance of a new physical signal"*** [https:// indico.cern.ch/event/567550/contributions/2629709/]. Proceedings in peer review.
April 2018	IFAE2018: IFAE2018: XVII Incontri di fisica delle alte energie, Milano (Italy), 4-6 Apr 2018 - Oral presentation with title : "***Reti Neurali Convoluzionali per il seeding nella ricostruzione delle tracce a CMS, applicazioni e prospettive"***. *Proceedings in peer review.*
April 2018	IML2018: 2nd IML Machine Learning Workshop, CERN, Geneva (Switzerland), 9-12 Apr 2018. Invited talk : ***"Convolutional Neural Network for Track Seed Filtering at the CMS HLT"*** [https://indico.cern.ch/event/668017/contributions/2947009/*]*
July 2018	The 23nd International Conference on Computing in High Energy and Nuclear Physics, CHEP 2018, Sofia, 9-13 Jul 2018 - Oral presentation with title: ***"Track Seed Filtering using Convolutional Neural Network at the CMS High Level Trigger"*** [https://indico.cern.ch/event/587955/contributions/2937548/]. Proceedings in preparation.
June 2018	The 6th Annual Conference on Large Hadron Collider Physics, LHCP 2018, Bologna, 4-9 Jun 2018 - Oral presentation with title: ***"Heavy Flavour production at ATLAS and CMS"*** [https://indico.cern.ch/event/681549/contributions/2936174/. Proceedings in peer review.
July 2018	The 23nd International Conference on Computing in High Energy and Nuclear Physics, CHEP 2018, Sofia, 9-13 Jul 2018 - Presentation of the selected poster with title: ***"Patatrack, Accelerated Pixel Tracks at the CMS HLT"*** [https://indico.cern.ch/event/ 587955/contributions/2935801/]. Proceedings in preparation.
August 2018	XIIIth Quark Confinement and the Hadron Spectrum (QCHS)", Maynooth University (Ireland), 31 Jul - 6 Aug 2018 - Oral presentation with title: "***Estimation of global statistical significance of a new signal within the GooFit framework on GPUs."*** [https://indico.cern.ch/event/648004/contributions/3008557/]. Proceedings in preparation.