europass Curriculum vitae

PERSONAL INFORMATION

Luca Giommi

91/A, street Fanella, Fano, 61032, Italy

luca.giommi3@unibo.it, luca.giommi2@studio.unibo.it

https://lgiommi.github.io

Skype contact luca.g.93

Gender Male | Date of birth 2 August 1993

Nationality Italian

Dichiarazione sostitutiva di certificazione (art. 46 e 47 D.P.R. 445/2000). Il sottoscritto Luca Giommi, consapevole che le dichiarazioni false comportano l'applicazione delle sanzioni penali previste dall'art. 76 del D.P.R. 445/2000, dichiara che le informazioni riportate nel seguente curriculum vitae, corrispondono a verità.

EDUCATION

01/11/2018 – now

Ph.D. Student in Data Science and Computation

Winner of the INFN scholarship

University of Bologna, Bologna (Italy)

23/03/2018

Master degree in Nuclear and Subnuclear Physics (Class n. LM-17 Physics)

University of Bologna, Bologna (Italy)
Vote: 110/110 with honours

Thesis with title: "Prototype of Machine Learning "as a Service" for CMS Physics in Signal vs Background discrimination" (link).

Supervisors: Prof. Daniele Bonacorsi, Doct. Valentin Kuznetsov, Prof. Andrea Castro

25/09/2015

Bachelor's degree in Physics (Class n. L-30 Physics)

University of Bologna, Bologna (Italy)
Vote: 110/110 with honours

Thesis with title: "Predicting CMS datasets popularity with Machine Learning" (link).

Supervisors: Prof. Daniele Bonacorsi, Doct. Valentin Kuznetsov

07/2012

Scientific High School Diploma

High school G. Torelli, Fano (PU)
Vote: 100/100

PARTICIPATION TO PROJECTS AND RESEARCH INSTITUTES

07/02/2019 – today
15/03/2018 – 21/05/2018
27/06/2016 – 23/09/2016

Contract of association at CERN (European Organization for Nuclear Research) as User

02/2019 – today

Member of the CMS collaboration of the LHC accelerator at CERN

01/11/2018 – today
22/05/2017 – 21/05/2018

Contract of association at INFN (Istituto Nazionale di Fisica Nulceare)

01/01/2020 - today

Participation in the activities referred to the CSN-5 “ML_INFN” acronym (“ML_INFN”: end-to-end approach in the usage of Machine Learning for the research activities of INFN), as a member of the operative unit in Bologna (coordinated by Prof. D. Bonacorsi) with focus on: Machine/Deep Learning modelling, Machine Learning as a Service, predictive maintenance at INFN-CNAF.

MEMBER OF COMMITTEES

2020

Member of the Technical Committee of the International Workshop on Predictive Maintenance (IWPM) of the 27^{th} FRUCT Conference with the role of reviewer.

WORK EXPERIENCE

11/2019 – 02/2020

Business consultancy for AlmaCube S.r.l. related to the project Oper CBI

Learning support for the digital transformation issues and support for the groups in the application of the techniques to the challenges. Attendance at Bertinoro for support during the hands-on lectures. 16 hours of lectures.

01/09/2018 – 31/10/2018

Technological Summer Student fellowship program at INFN-CNAF, Bologna.

1-st classified in the selection ranking of the national competition.

The work was focused on log parsing and applying Machine Learning techniques on log content for a Predictive Maintenance solution at the INFN-CNAF computing center. The work continued in the first part of my Ph.D. and was presented to an international conference (see in the publications section).

25/06/2018

Winner of the GARR Scholarship for young graduates

4-th classified in the selection ranking of the national competition (scholarship REFUSED).

27/06/2016 – 23/09/2016

Summer Student at CERN in the EP-SFT department

CERN, Geneva (CH)
Supervisors: Axel Naumann, Danilo Piparo

My project was focused on writing entirely a ROOT class that creates histograms from a TChain and a python script which allows the usage of the class through the command line (link). The name of the class is TSimpleAnalysis and it is integrated in ROOT starting from the 6.08 release. (“TSimpleAnalysis” class link and “rootdrawtree” script link).

EDUCATIONAL ACTIVITIES

Tutoring

A.Y. 2020 / 2021

- FISICA GENERALE T-1 [cod. 27996] - [Sdoppiamento A-K] - [Modulo 1]
  Winner of the call (protocol number 147280 of 24/07/2020, Id 37441) with a contract for the tutor activity in the course of study of Engineering of Electrical Energy.
- FISICA GENERALE T-1 [cod. 27996] - [Sdoppiamento L-Z] - [Modulo 1]
  Winner of the call (protocol number 147280 of 24/07/2020, Id 37442) with a contract for the tutor activity in the course of study of Engineering of Electrical Energy. - REFUSED
- FISICA GENERALE T [cod. 30780]
  Winner of the call (protocol number 147280 of 24/07/2020, Id 37825) with a contract for the tutor activity in the course of study of Engineering of information technology. - REFUSED

A.Y. 2019 / 2020

- FISICA GENERALE T-1 [cod. 27996] - [Sdoppiamento A-K] - [Modulo 1]
  Winner of the call (protocol number 266052 of 29/10/2019, Id 26751) with a contract for the tutor activity in the course of study of Engineering of Electrical Energy.
- FISICA GENERALE T-1 [cod. 27996] - [Sdoppiamento L-Z] - [Modulo 1]
  Winner of the call (protocol number 266052 of 29/10/2019, 26749) with a contract for the tutor activity in the course of study of Engineering of Electrical Energy. - REFUSED
- APPLIED MACHINE LEARNING [cod. 88407]
  Winner of the call (protocol number 2845 of 09/01/2020, Id 28721) with a contract for the tutor activity in the course of study of Bioinformatics.
- SOFTWARE AND COMPUTING FOR NUCLEAR AND SUBNUCLEAR PHYSICS [cod. 87945] - [Modulo 2]
  Winner of the call (protocol number 4612 of 10/01/2020, Id 28949) with a contract for the tutor activity in the course of study of Physics.

Co-supervisor of Master Thesis in Physics

F. Minarini, *Anomaly Detection prototype for log-based Predictive Maintenance at INFN-CNAF Tier-1* (2019). (link)

Outreach activities

European night of researchers 2019 and 2020 (Bologna). Artificial Intelligence for High Energy Physics.

AWARDS AND PRIZES

08/07/2020

Finalist for the FUZZ-IEEE 2020 Best Student Paper Award at IEEE WCCI 2020

The paper *Real-Time Anomaly Detection in Data Centers for Log-based Predictive Maintenance using an Evolving Fuzzy-Rule-Based Approach* has been selected as a finalist for the FUZZ-IEEE 2020 Best Student Paper Award at IEEE WCCI 2020.

20/10/2019

SOSC International School 2019 Diploma

Diploma obtained at the 3^{rd} International School on Open Science Cloud (SOSC 2019) that certifies I passed the final written exam.

05/06/2019

National prize “Giulia Vita Finzi” 2018

Winner of the INFN national competition announcement 20297 for the best INFN master thesis in the computing field (discussed during the period 01/06/2017 – 31/05/2018).

10/09/2012

Giuseppe Occhialini Foundation Scholarship (sixth classified)

“Scuola di Orientamento alle Facoltà Scientifiche”

CERTIFIED ATTENDANCES AT INTERNATIONAL SCHOOLS AND CONFERENCES

2020

- CERN openlab technical workshop (Geneva)
- TensorFlow 2.0 tutorial (CERN, attended remotely because of the Covid-19 situation)
- Mathematical Methods and Models in Machine Learning (Bologna, held remotely because of the Covid-19 situation)
- Machine Learning Town Hall workshop - with an oral contribution (CERN, held remotely because of the Covid-19 situation)

- Summer School Physical Sensing and Processing (Bologna, held remotely because of the Covid-19 situation)
- Technologies and Software of Data Science (120 hours of remote lessons, from the project Data Lab funded by the Emilia-Romagna Region and the European Social Fund)
- 2^{nd} seminar of the PhD in Data Science and Computation (Bologna) with an oral contribution
- 4^{th} IML Machine Learning Workshop (CERN, held remotely) with an oral contribution
- Fast Machine Learning for Science Workshop (Southern Methodist University, held remotely)
- MathWorks webinars on different topics: The Use of MATLAB in Open Science, Using MATLAB with Python Together, Teaching Artificial Intelligence with MATLAB

2019
- International Symposium on Grids & Clouds (ISGC) 2019 (Taipei, Taiwan)
- 3^{rd} IML Machine Learning Workshop, CERN (Geneva)
- Workshop CCR (Commissione Calcolo e Reti INFN) 2019: La Biodola
- LHCb/CERN & Microsoft Azure OpenHack (Trento)
- 3^{rd} International School on Open Science Cloud SOSC 2019 (Bologna)
- 1^{st} seminar of the PhD in Data Science and Computation (Bologna) with the presentation of a poster

2018
- 2^{nd} IML Machine Learning Workshop, CERN (Geneva)
- The Sixth Annual Large Hadron Collider Physics conference LHCP 2018 (Bologna)

2017 Summer School on Machine Learning for High Energy Physics (MLHEP) at Reading, England (organized by the Yandex school of data analysis)

2016 2^{nd} BCD International School on High Energy Physics at Cargese, Corsica (FR)

PUBLICATIONS

Oral/Speaker: 1

L.Giommi, D. Bonacorsi, L. Rinaldi et al, *Towards Predictive Maintenance with Machine Learning at the INFN-CNAF computing centre*. PoS **ISGC2019** (2019), 003. DOI: 10.22323/1.351.0003

Oral/co-author: 7

L. Decker, D. Leite, L. Giommi, D. Bonacorsi, *Real-time anomaly detection in data centers for log-based predictive maintenance using an evolving fuzzy-rule-based approach*. 2020 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Glasgow, United Kingdom, 2020, pp. 1-8. DOI: 10.1109/FUZZ48607.2020.9177762

A. Di Girolamo, F. Legger, L. Giommi et al., *Operational Intelligence for Distributed Computing Systems for Exascale Science*. EPJ Web Conf. **245** (2020), 03017. DOI: 10.1051/epjconf/202024503017

L. Decker de Sousa, L. Giommi et al., *Big Data Analysis for Predictive Maintenance at the INFN-CNAF Data Center using Machine Learning Approaches*. Proceedings, 25th Conference of Open Innovations Association FRUCT 2019, Helsinki, Finland. IEEE p. 448-451. (link)

T. Diotalevi, L. Giommi et al., *Collection and harmonization of system logs and prototypal Analytics services with the Elastic (ELK) suite at the INFN-CNAF computing centre*. PoS **ISGC2019** (2019), 027. DOI: 10.22323/1.351.0027

D. Bonacorsi, V. Kuznetsov, L. Giommi et al., *Progress on Machine and Deep Learning applications in CMS Computing*. PoS **ISGC2018 & FCDD** (2018), 022. DOI: 10.22323/1.327.0022

V. Kuznetsov, T. Li, L. Giommi, D. Bonacorsi, T. Wildish, *Predicting dataset popularity for the CMS Experiment*. J. Phys. Conf. Ser. **762** (2016) no.1, 012048. DOI: 10.1088/1742-6596/762/1/012048

V. Kuznetsov, T. Wildish, D. Bonacorsi, L. Giommi, *Exploring patterns and correlations in CMS Computing operations data with Big Data analytics techniques*. PoS **ISGC2015** (2015), 008. DOI: 10.22323/1.239.0008

Posters: 1 L. Giommi, D. Bonacorsi, V. Kuznetsov, *Prototype of Machine Learning "as a Service" for CMS Physics in Signal vs Background discrimination*. PoS **LHCP2018** (2018), 093. DOI: 10.22323/1.321.0093

e-print: 1 V. Kuznetsov, L. Giommi, D. Bonacorsi, *MLaaS4HEP: Machine Learning as a Service for HEP*. arXiv:2007.14781v2 [hep-ex] (submitted also to the Computing and Software for Big Science journal).

as member of the CMS collaboration: 31 The detailed lists of all my publications as member of the CMS collaboration is in the document attached to this CV.

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

Levels: A1/A2: Basic user – B1/B2: Independent user – C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Computer skills
- Competences on Machine Learning (using scikit-learn, Tensorflow, Keras), learned during the thesis (Bachelor and Master) period, in specific schools of Machine Learning and in the Ph.D.
- Programming languages: Python, C++, R.
- Discrete knowledge of computer architecture, computing systems & infrastructures, cloud storage, containers, cloud automation, network connections, communication protocols, acquisition systems.
- Operative systems: macOS, Windows, Linux.
- Software: Apache Hadoop, PowerBI, MySQL, Docker, LaTex, PhotoShop, LabView.
- ECDL competences (ECDL certificate obtained in 2009): concepts of information technology, using computer and management file, word processing, spreadsheet, database, presentation tools, computer networks.
- Good competence on video editing (Sony Vegas, iMovie).

Other skills
- Made several hours of private lessons
- Attendance to Mathematics and Physics Olympics for several years
- I played basketball agonistically at regional level and volleyball agonistically at national level. Currently I play volleyball at a competitive level.

Driving licence B

Autorizzo il trattamento dei miei dati personali ai sensi dell'art. 13 d.lgs. 30 giugno 2003 n◦196 – "Codice in materia di protezione dei dati personali" e dell'art. 13 GDPR 679/16 – "Regolamento europeo sulla protezione dei dati personali".

Bologna, 11/01/2021