

Matteo Barbetti

MASTER STUDENT IN PARTICLE PHYSICS

Personal information

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<i>Birth-place:</i>	Terni (Italy)	<i>Address:</i>	Via Vittorio Emanuele II, 193
<i>Birth-date:</i>	1994-05-06		Firenze (FI) – 50134, Italy

I have completed the Master degree in *Particle Physics* at the University of Florence in June 2020. I have developed a *curriculum* of studies oriented to Physics Data Analysis with a strong focus on modern Computing Technologies, including in my study program the classes of *Algorithms and Data Structures* and *Machine Learning* from the Master course in Computing Engineering.

In September 2017 I discussed a Bachelor Thesis focused on Data Analysis work in High Energy Physics: the study of the decays of *charmonium* states into purely hadronic final states as reconstructed with the LHCb experiment at CERN. A scholarship funded by the University of Florence offered to me the opportunity of carrying out part of the activities at CERN.

In June 2020 I discussed a Master Thesis focused on the development of deep generative models to simulate the high-level response of the Particle Identification system of the LHCb detector. The trained models were then integrated within a new simulation framework designed to outperform the traditional simulation programs, taking full advantage of modern softwares for parallel computing and exploiting efficiently hardware accelerators. A fellowship funded by INFN has offered me the opportunity of passing three months at CERN, and forging new relationships within a stimulant and international environment.

I am a member of AISF, the Italian Association of Physics Students, which promotes and stimulates expanding the professional networks of its members in a national and international context. I held the position of President of the Florence Local Committee until May 2019; now I am the National Secretary of AISF.

Education

<i>Laurea Magistrale in Fisica (MSc)</i>	Università degli Studi di Firenze Graduation on June 2020 with score 110/110 <i>cum laude</i> “ <i>Techniques for parametric simulation with deep neural networks and implementation for the LHCb experiment at CERN and its future upgrades</i> ” Thesis Advisor: Lucio Anderlini	2017 – 2020
<i>Laurea Triennale in Fisica (BSc)</i>	Università degli Studi di Firenze Graduation on September 2017 with score 110/110 “ <i>Study of the charmonium resonances in $B^+ \rightarrow p\bar{p}K^+$ and $B^+ \rightarrow p\bar{p}\gamma K^+$ decays with the LHCb experiment at CERN</i> ” Thesis Advisor: Lucio Anderlini	2013 – 2017
<i>Previous education</i>	Liceo Scientifico G. Galilei di Terni Graduation on July 2013 with score 100/100 <i>cum laude</i>	2008 – 2013

Professional experience

Sep. 2019 – Dec. 2019	<u>INFN fellowship</u>	Istituto Nazionale di Fisica Nucleare <i>Scholarship funded by the National Institute for Nuclear Physics (INFN) for spending three months at CERN.</i>
Nov. 2018 – present	<u>Teaching assistant</u>	Università degli Studi di Firenze <i>Support to teaching activities and Physics laboratories.</i>
June 2018 – Oct. 2018	<u>Student assistant</u>	Università degli Studi di Firenze <i>Welcome and orientation service for Science students.</i>
Sep. 2016 – present	<u>Maths and Physics reps teacher</u>	<i>Private lessons for high-school and university students.</i>
Sep. 2016 – Dec. 2016	<u>Science Library assistant</u>	Università degli Studi di Firenze <i>Support to Science Library workers and book arrangement.</i>
March 2011 – Aug. 2013	<u>Basketball officer</u>	Federazione Italiana Pallacanestro <i>Referee assistant during basketball matches.</i>

Involvement in Italian Association of Physics Students (AISF)

Oct. 2019 – present	<u>Secretary of the Italian Association of Physics Students</u>	<i>Member of the Executive Committee that organizes and coordinates the Italian Local Committees.</i>
Nov. 2018 – May 2019	<u>President of the Florence Local Committee</u>	<i>Organization of events and representative for about 40 members.</i>
May 2018 – present	<u>Member of the Editorial Board of <i>Sistemi di Riferimento</i></u>	<i>Vulgarization activity to valorise Italian Physics Departments.</i>
Dec. 2017 – Nov. 2018	<u>Deputy-President of the Florence Local Committee</u>	<i>Support to events organization and Local Committee coordination.</i>

In compliance with the art. 46 and 47 of D.P.R. 445/2000 and further modifications, and aware of the consequences of making false statements, falsehood of acts and use of false facts, punishable by the law according to art. 76 D.P.R. n. 445/2000 and art. 496 of the Italian Penal Code, under my own responsibility, I declare that the information and facts in this document are truthful.

Firenze, 2020-07-09

Matteo Barbetti

