Brian Omar Cruz Rodríguez

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Education

2014 – 2022 (expected)	B.S in Theoretical Physics, University of Puerto Rico – Mayagüez Campus

Research Experience

Fall 2019 - present	Experimental particle physics, CMS Experiment Collaboration from CERN, supervised by Dr. Sudhir Malik
January – June 2021	Awarded $5000.00 by IRIS-HEP Fellowship for "Translating analyses into prototype analysis systems" project, mentored by Dr. Jim Pivarski (Computational Physicist at Princeton University)

Research Activities

January - May 2018	Took an introduction to C++ course
January - May 2019	Took a computational physics course in python
June - July 2020	CMS Data Analysis School • Using CMSSW on a bash shell and software tools such as ROOT to analyze CMS open data
July 2020	Virtual outreach workshop to teach python coding to K-12 STEM teachers using Google Colab notebooks • Taught Markdown and LaTeX syntax and basic python to help them play with the code of four provided notebooks: to study the Higgs-to-four-lepton decay analysis using 2011-2012 data from CERN, to calculate the invariant mass, to measure air pressure, and to plot heat maps
August 2020	Virtual C++ / Standard Template Library class given by Glenn Downing, offered by Fermilab • Class about the syntax and semantics of C++ and the Standard Template Library

September 2020	CMS Open Data workshop offered by Fermilab LPC • Workshop to get hands-on experience on scouting CERN's open data and using software tools such as a virtual machine to run an analysis of the data
October 2020	Machine Learning for Science Hackathon Competition participation, by Dr. Sergie Glyzer • Using machine learning and deep learning to detect potential Higgs signal from one of the background processes that mimics it
February 2021	Github CI/CD workshop, by HSF and IRIS-HEP • Continuous Integration and Continuous Delivery/Deployment training using Github Actions to automatically build and test codebases. Virtual Machine Learning Basics for K-12 STEM Teachers workshop • Taught basic python tools using a Google Colab notebook to better understand the taught Machine Learning tools: data wrangling, and linear and multilinear regression.