EFRÉN RODRÍGUEZ RODRÍGUEZ

ELECTRONIC PHYSICIST

CONTACT

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PROGRAMMING

- Python
- WinCC
- VHDL
- C ++
- LabVIEW
- Fortran

LANGUAGES

🔖 English
(Intermediate, B2)

🔖 German
(Beginner, A1.1)

🔖 Galician
(Native, Celga4)

🔖 Spanish
(Native)

PERSONAL PRESENTATION

PhD student in Nuclear and Particle Physics at the Galician Institute of High Energy Physics (IGFAE), specializing in vertex detectors for particle accelerators. With over four years of experience, I have contributed to the LHCb's vertex detector and the Timepix4 Telescope, which achieved a 90 ps track resolution. This advancement significantly enhances the accuracy and performance needed for high-energy physics detectors development. My expertise in electronics for physics experiments and passion for research fuel my commitment to making impactful discoveries in high energy physics.

WORKING EXPERIENCE

Senior Research Support Technician
IGFAE - USC | Sep. 2019 - Present

ASIC characterization and sensor technologies for silicon particle detectors, including programming control applications and FPGAs. High-speed data transmission lines construction, characterization systems design, and development of X-ray irradiation systems for radioactive aging of electronic systems. Commissioning for the improved VELO detector of the LHCb experiment at CERN and characterization and development of the Timepix4 Telescope for silicon detector research.

Invited Researcher
Nikhef | Jun. 2022 - May 2023

Characterization Timepix4 ASIC for readout of silicon detectors, and development of the advanced Timepix4 Telescope for silicon detector research. Participating in six testbeam campaigns and performing the timing analysis for the telescope, pivotal for detector performance and capabilities.

Invited Researcher
CERN | Aug. 2021 - Dec 2021

Commissioning of the improved VELO detector for the LHCb experiment at CERN. Development and characterization of 3D column silicon sensors through testbeam campaigns with high energy particles.

Internship employee
IGFAE - USC | Jun. 2018 - Jun. 2019

3D mapping and characterization of an X-ray beam, simulating the radiation conditions of the LHCb experiment at CERN. Analysis of the deterioration in silicon sensors due to ionizing radiation.

EDUCATION

PhD in Nuclear and Particle Physics
University of Santiago de Compostela | Sep. 2020 - Sep 2024

Physics Master's Degree
University of Santiago de Compostela | Sep. 2019 - Sep. 2020

- Mention in Nuclear and Particle Physics

Physics Degree
University of Santiago de Compostela | 2019

COURSES AND SEMINARS

INF-303: Python IT Specialist certification Nov. 2023
Pearson

Applied Machine Learning Using Python Jun. 2022
Smart Mind

4th HEP C++ Course and Hands-on Training Apr. 2022
Software Institute for Data Intensive Sciences

The 39th RD50 Workshop - Radiation hard semiconductor devices for very high luminosity collider (Geneva, Switzerland) Nov. 2021
CERN

Data Science: Workflow and Programming Principles (Santiago de Compostela, Spain) Nov. 2021
University of Santiago de Compostela

Introduction to thermography, use and management of Flir A400 (Santiago de Compostela, Spain) Apr. 2021
Álava Ingenieros

Course online on semiconductor radiation detectors (Barcelona, Spain) Apr. 2021
Barcelona Techno Week - University of Barcelona

GitHub CI+CD Introductory Course and Hands-on Training Feb. 2021
HEP Software Foundation and IRIS-HEP

Quantum Computation and High Performance Computing 2019 Workshop
CiTiUs - University of Santiago de Compostela

VHDL language and design flow (Leuven, Belgium) Sep. 2019
IMEC academy