








Bernardo GAMEIRO

NUCLEAR PHYSICIST

About Me

I'm a Nuclear Physics student with an interest in Computation. I like to learn new things and spend time on my own projects. I'm curious about Accelerating Data Analysis based on Heterogeneous Computing in the context of Nuclear Sciences & its Applications.

Online

BGameiro.me 
contact@bgameiro.me 
BGameiro 
BGameiro 
BGameiro2000 

Languages

Portuguese • NATIVE
English • C2 (CPE+TOEFL)
Spanish • LEARNING

Skills

Hard Skills

Physics • Engineering
Informatics • Computation
Automation • Spreadsheets

Soft Skills

Adaptability • Critical Thinking
Problem Solving • Teamwork
Willingness to learn
Commitment • Dedication
Independent Work

Affiliations

UV • PhD Student
HYMNS • Member
EPS • Member
IOP • Member
IOP • Committee Member
IEEE • Student Member
NPSS • Student Member
n_TOF • Member

Formal Education

Doctorate in Physics

INSTITUTO DE FÍSICA CORPUSCULAR, UV-CSIC

2023–2028

- Neutron capture cross-sections of $^{146}\text{Nd}(n,\gamma)$
 - First capture measurement to cover the Resolved Resonance Region (RRR).
 - Using the neutron TOF technique at n_TOF-EAR2.
 - Using activation in either HISPANO-S-CNA or n_TOF-NEAR.
- Development of the i-TED Compton camera
 - Background suppression techniques based on Compton imaging.
 - Optimization of computing methods for real time processing & imaging

Master of Science in Nuclear Physics

NUCPHYS CONSORTIUM

2021–2023

- Erasmus Mundus Joint Master Degree (EMJMD) in 3 countries.
- Path: Experiments, instrumentation and large accelerators.
- Graduate School "Normandy Nuclear Physics" Scholarship.
- International program, benefiting from the expertise of each partner institution.
- Great focus on simulations, data analysis, experiment design and instrumentation.

Bachelor of Science in Engineering Physics

FACULDADE DE CIÊNCIAS DA UNIVERSIDADE DE LISBOA

2018–2021

- Rich background in Physics, Mathematics and Engineering.
- Great focus on numerical methods, experimentation and real-world applications.
- Fostered my interest for nuclear, experimental and computational physics.

Minor in Informatics

FACULDADE DE CIÊNCIAS DA UNIVERSIDADE DE LISBOA

2020–2022

- Enrolled in this project oriented degree with the intent of expanding my programming skills.
- Classes: Programming II, Web Technologies, Computer Networks, Operating Systems and Intelligent Systems.
- Skills: programming practices, teamwork, parallelization, version control.

Experience

Master Thesis in Imaging for Background Suppression

HYMNS PROJECT, INSTITUTO DE FÍSICA CORPUSCULAR, UV-CSIC

2023

- Gamma imaging using the multi i-TED detector.
- Background suppression techniques based on Compton imaging.
- Applications in Nuclear Astrophysics research, Nuclear Security and Medical Imaging.

Research Internship in Detector Characterization

NEUTRONS FOR SCIENCE, GRAND ACCÉLÉRATEUR NATIONAL D'IONS LOURDS

2022-2023

- Characterization of a neutron detector (liquid scintillator and photomultiplier).
- For use in continuous mixed fields.

Graduate Schools

Summer School in Experimental Nuclear Astrophysics

ISTITUTO NAZIONALE DI FISICA NUCLEARE - LABORATORI NAZIONALI DEL SUD

2024

Graduate School in Neutron Resonance Analysis

JOINT RESEARCH CENTRE - EUROPEAN COMMISSION, GEEL

2024

Winter School in Nuclear Physics

N_TOF COLLABORATION, CERN

2024

Graduate School in Computing Challenges

UNIVERSIDAD DE OVIEDO

2023

Summer School in Small Modular Reactors

POLITECNICO DI MILANO

2022

Summer School in Ionizing Radiation

CENTRO DE CIÊNCIAS E TECNOLOGIAS NUCLEARES, UNIVERSIDADE DE LISBOA

2020

Projects & Experience

Instructor of oneAPI

CERTIFIED BY INTEL

Since 2023

- Instructor for Heterogeneous Computing with SYCL.
- Certified to instruct in:
 - oneAPI C++ SYCL Essentials
 - Machine Learning Using oneAPI
 - CUDA* to C++ SYCL Migration
 - MLOps Essentials

HomeLab Network

PERSONAL PROJECT

Since 2017

- Administration of computer network with enterprise and consumer hardware.
- Used for running simulations for physics classes and hosting services.
- Network consisting of multiple Linux devices: a router, a NAS, four servers, and a cluster.
- Skills: server administration, computer networking, system maintenance, parallelization, Docker, VMs, VPN.

Further Education

Entrepreneurship Competencies

UVEMPREN

2025

- Series of seminars followed by final project.

Scientific Entrepreneurship

UCAM HITECH

2024

- Series of seminars followed by individual tutoring.
- Covered topics such as: entrepreneurship, product development, market research, marketing, intellectual property, investment growth, business plan, team management.

Image Processing

HELMHOLTZ IMAGING

2023

- Series of seminars: Six Main Tasks in Image Processing.
- Provided valuable knowledge about image processing techniques.
- Took this course to learn about techniques that could be used with the imaging detector i-TED used in my Master Thesis.

Advanced Data Science Specialization

IBM, COURSERA

Ongoing

- Finished 3 out of 4 courses of this project-based online course.
- Provided many insights into Spark and best practices of Data Science and Big Data.
- Took this course to expand previous knowledge into the context of Big Data & scalability.

How to Manage a Remote Team

GITLAB, COURSERA

2021

- Insightful regarding international collaborations and transition to remote teams.
- Project-based online course.

Python in High Performance Computing

PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE, FUTURELEARN

2020

- Overview of multiple practical ways of improving the performance of Python programs.
- Identifying bottlenecks, performance analysis, NumPy, interfacing with compiled code, parallelization, MPI.

OSS Development, Linux and Git Specialization

THE LINUX FOUNDATION, COURSERA

2020

- Open Source Software Development Methods, Linux for Developers, Linux Tools for Developers and Using Git for Distributed Development.
- Positively impacted my experience regarding development of projects.

Research Summary

I've experience in neutron and gamma-ray detector optimization for neutron time-of-flight experiments, due to participation in projects developed in GANIL, IFIC, and CERN's n_TOF. I'm also skilled in the application of effective computation principles to data analysis.

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Physics

Nuclear Techniques
Imaging • Detectors
Computational • Experimental

Informatics

Scientific Computing
Data • Simulations
HPC • Distributed • Parallel
Heterogeneous Computing
Hardware Accelerators

Informatics

Programming

Python • PyData • DuckDB
C++ • ROOT • SYCL
Bash • HTML/CSS/JS

Platforms

GitLab
Linux • Archlinux
Self-Hosted • unRAID

Technologies

LaTeX • Pandoc • GoHugo
Git • CI/CD • Docker
Solidworks • EAGLE

Event Staff

NFEF FFA 2021
Physis Congress 2020

Relevant Coursework

Experimental Nuclear Physics
Nuclear Experiment Design
Radiation Physics (& Lab)
Radiation Detectors
Nuclear Astrophysics
Monte Carlo
Machine Learning

Volunteering

unRAID • CA MAINTAINER
AUR • MAINTAINER
ESO • TRANSLATOR
iFixIt • TRANSLATOR
ICNF • TREE PLANTING
BlueMaxima • ARCHIVIST



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