# Curriculum Vitæ



bfonta
bruno-alves

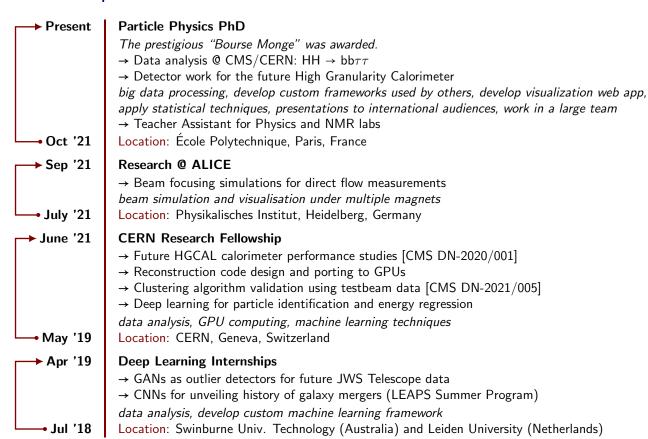
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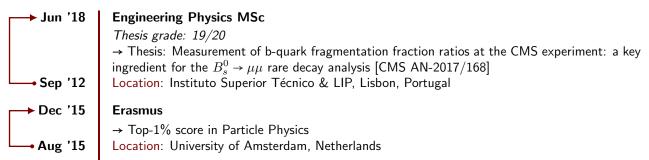
- Physics engineer with extensive experience in computing, scientific software and data processing
- Teaching experience in multiple settings
- Event organizer and Science outreach

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## ■ Research Experience



### Education



#### Publications

2022

20th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT21)

→ **B. Alves**, F. Pantaleo, and M. Rovere. Clustering in the Heterogeneous Reconstruction Chain of the CMS HGCAL Detector, in press

2021

25th International Conference on Computing in High-Energy and Nuclear Physics (vCHEP2021)

 $\rightarrow$  **B. Alves**, A. Bocci, M. Kortelainen, F. Pantaleo, and M. Rovere. Heterogeneous techniques for rescaling energy deposits in the cms phase-2 endcap calorimeter. *EPJ Web Conf.*, 251:04017, 2021. doi:  $10.1051/\mathrm{epjconf}/202125104017$ . URL https://doi.org/10.1051/epjconf/202125104017

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#### Skills

**Teaching** 

Teacher assistant @ École Polytechnique Paris: 1st and 3rd year University students

AfterSchool: teach "Algorithms 1" as a volunteer to school students Maths teacher: Red Cross volunteer, extremely challenging environment

Student co-supervision: "Search for rare  $W \to \pi \gamma$  and  $W \to \pi \pi \pi$  in top events" [report]

Supervision of students working on HGCAL GPU-related efforts at CERN

Languages

Portuguese/Italian (native), English (fluent), French (advanced), German (intermediate)

Communication

Excellent communication skills: organization of international events, participation in workshops, presentations in international meetings, conferences, posters and schools.

- · Secretary of the CMS Young Scientist Committee and head organizer of its Job Matching Event
- · Science outreach in Lisbon, Vienna, Melbourne and Paris in Portuguese, English and French
- Shifts at CERN: up to 2 weeks continuous commitment to ensure proper experiment functioning

Computing

Almost ten years' experience using Linux. Thorough understanding of Python/C/C++/CUDA framework development for international collaborations. Very familiar with data science, visualization and statistics packages, machine learning and GPU computing. Enthusiast for new algorithms and data structures. Daily usage of code versioning and workflow management tools.

# ■ Schools, Conferences, additional Internships

2023	Poster Talk at CMS Week:	"Current studies on the	e CMS run2 $HH  o bb au au$	resonant analysis"
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**2022** Conference Talk at QCD@LHC2022: "Techniques for SMEFT Fit"

Invited Reviewer for the ACAT21 Conference

2021 Workshop Talk at PyHEP21: Data Visualization with Bokeh

Presentation @ 11th CMS Induction Course: "GPU's: the future of CMS software"

2020 Posters@LHCC (CERN): Performance studies in HGCAL

2019 Efficient Scientific Computing School (Bertinoro, Italy): Poster presentation

CERN OpenLab courses: Parallelism & Efficient Programing

2017 Universitat Wien: lab work at the Particle Accelerator Mass Spectrometry Laboratory (VERA)

2016 CERN Summer Student Programme

- $\rightarrow$  Search for the  $B_c(2S)$  meson at CMS [report]
- $\rightarrow$  " $\rho$  factor" studies for prompt  $J/\psi$  and  $\psi(2S)$  polarization measurements.