Ricardo José Mota Peres

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Education

2013–2016 **Bachelor's Degree in Physics**, *University of Coimbra*, Portugal, Weighted average – 17.125/20.

2016–2018 **Master's Degree in Physics**, *University of Coimbra*, Portugal, Weighted average – 17.9/20. Branch of Particle and Nuclear Physics

2018–2023 (April) **Physics researcher + PhD Student**, *University of Zürich*, Switzerland, Astroparticle Physics group of Prof. Laura Baudis..

During my research work as a PhD student in astroparticle physics I had the opportunity to work on a world-leading international Physics collaboration (XENON Dark Matter Project). The collaborative, high-paced, and competitive environment was a good addition to the self-oriented and learning aspects of a PhD program. I am highly trained in **data analysis**, **data visualization** and **software development** with Python in a **big data environment**, have strong **statistics** bases, both frequentist and bayesian, have effective and audience-oriented **communication skills** of technical and scientific subjects, and am **teamwork-focused**.

Technical Skills

Software development **Python (>2.7, 3.x), C++.**
I have achieved a high level in the Python language and development with Python, which I used for various analysis during my PhD studies and to program a custom data processing, management and plotting package (PyLArS), applying vectorisation and optimization with **numpy**, just in time (JIT) computation with **numba**, data management with **pandas**, process-based parallelism with **multiprocessing**, testing with **pytest+hypothesis** and documentation building with **pdocs3**.

Data Analysis **Python, MsExcel.**
Data analysis was one of the core tasks during my 6+ years of scientific research and became one of my passions. Concretely, I am proficient in data selection, handling and storage with **pandas** and **numpy**, creating scripts and packages in a optimized and simplified way to be used for other members of the team. My experience with statistical analysis and inference is mostly with **scipy**, **iminuit** and custom scripts. For quick and simple data taking and analysis I tend to also use Excel-like applications for their efficiency.

Data Visualization **Python, MsPowerpoint, Ilustrator.**
As a researcher in a experimental and quantitative field I greatly developed my skills in data presentation in previous years, both for expert and public audiences. Most of my work follows my Python expertise and uses **matplotlib/pyplot**, or, for more complex and interactive solutions, **plotly** and **bokeh**.

Data management **Python, SQL, NoSQL(MongoDB).**
I had contact with localized and distributed data storage management and processing (with slurm). For Python-based data handling I have a lot of practice with the **pandas**, **numpy** and Python-native methods. For big data, I got to use NoSQL (MongoDB) and Rucio within the XENON data pipeline. I completed an introductory course of SQL as a complement to my work skills.

Other **Git (GitHub), Bash, Gimp, LaTeX.**

Soft Skills and Interests

I have strong **communication** and **public speaking** skills, as presenting and discussing is something I truly enjoy. I regularly conduct lab tours and outreach events to both experts and general public audiences, culminating in wining the Audience Award at the 3 Minute Thesis competition of UZH. Parallel to my academia and outreach work, I have been involved with associative work since 2013, not only as a member and violinist of university orchestras (TAUC/OAUC in Coimbra, UOPolyphonia in Zurich) but with high-ranking positions on their Boards (Treasurer at TAUC and U.Polyphonia, President at TAUC, General Coordinator at OAUC). These experiences trained me in **direct team management**, **funding searching**, **goal-oriented organization**, and **constructive argumentation skills** that I take to my day-to-day work.

Languages

- **Portuguese** (Mother tongue)
- **English** (Highly Proficient)
- **German** (Basic, A2)