

Guilherme Ruiz Ferreira, PhD

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Skills

Data & Tools Linux • Networking • Docker • Git • SQL • InfluxDB • COMSOL
Programming Python • C/C++ • Java • Swift • ROOT • Mathematica • \LaTeX • HTML/CSS • VBA
Electronics Arduino • Microcontrollers • Nuclear Instrumentation • Data Acquisition Systems
Academic Data Analysis • Scientific Research • Technical Writing • Teaching/Tutoring
Aviation Private Pilot License (PPL), ~ 100 flight hours

Work History

- 2021 – 2025 **Doctoral Researcher**, University of Manchester — UK
- Developed and tested detector readout and instrumentation concepts.
 - Performed experimental measurements and simulation-based signal reconstruction.
 - Applied statistical analyses and maintained data-processing pipelines.
 - Co-authored peer-reviewed publications and presented at international conferences.
- 2020 – 2021 **Network Control Manager**, Amazon Logistics — London, UK
- Modelled warehouse operations and resolved connectivity issues (Excel, VBA, SQL).
 - Automated reporting and data workflows (Python, SQL, Excel).
 - Developed internal web tools and operational dashboards (HTML/CSS).
 - Delivered timely, actionable insights in a fast-paced environment.
- 2014 – 2016 **Undergraduate Researcher**, University of São Paulo — Brazil
- Contributed to detector construction and testing for a major collider upgrade.
 - Presented research at an international scientific symposium (SIICUSP).
 - Participated in collaborative data taking and analysis.

Education

- 2021 – 2025 **PhD in Particle Physics**
University of Manchester (UoM) — UK
- 2018 – 2021 **MSc in Physics** — Grade: Distinction
University College London (UCL) — UK
- 2013 – 2018 **BSc in Physics with Astronomy** — Grade: 7/10
University of São Paulo (USP) — Brazil

Selected Publications

- 1 'Cosmic Ray Measurements Using Charge and Light Readout in a Pixelated Liquid Argon Time Projection Chamber'. In: *arXiv e-prints* (Dec. 2025). DOI: [10.48550/arXiv.2512.10830](https://doi.org/10.48550/arXiv.2512.10830).
- 2 'Opportunities and challenges to study solar neutrinos with a Q-Pix pixel readout'. In: *Phys. Rev. D* 112 (9 Nov. 2025). DOI: [10.1103/xq7l-lv7j](https://doi.org/10.1103/xq7l-lv7j).
- 3 'First demonstration of a combined light and charge pixel readout on the anode plane of a LArTPC'. In: *Journal of Instrumentation* 19.11 (Nov. 2024). DOI: [10.1088/1748-0221/19/11/p11010](https://doi.org/10.1088/1748-0221/19/11/p11010).
- 4 'Distinguishing circumstellar from stellar photometric variability in Eta Carinae'. In: *Monthly Notices of the Royal Astronomical Society* 484.1 (Jan. 2019). DOI: [10.1093/mnras/stz067](https://doi.org/10.1093/mnras/stz067).