Gabriel Rabanal Bolaños

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EDUCATION

Harvard University — Cambridge, MA
Ph.D. in Physics — Nov 2023

National University of Engineering — Lima, Peru
Bachelor of Science in Physics, GPA: 4.00 — Jan 2016

SKILLS

Programming Languages: Proficient in Python, C/C++; familiar with SQL, HTML, Julia, Wolfram
Data Analysis Tools: Tensorflow, Keras, XGBoost, Pandas, NumPy, SciPy, Seaborn, Scikit-learn, Jupyter
Development Tools: Git, Bash, Regex; experienced with IDEs: Jupyter Notebook, VSCode, Emacs, Sublime
Analytical Techniques: Machine learning, Monte Carlo simulations, frequentist and Bayesian statistics
Languages:

- **Fluent:** Spanish (Native), English
- **Advanced:** French, Akkadian, Sumerian
- **Basic:** Quechua, Mandarin, German

Language Studies: Phonetics, grammar, and scripts across diverse language families

RESEARCH EXPERIENCE

Harvard University and CERN — Cambridge, MA, USA / Geneva, Switzerland
Doctoral Researcher — Sep 2018 — Nov 2023

- Led the development and refinement of machine learning models (Deep Neural Networks and Boosted Decision Trees) to enhance event classification accuracy by three standard deviations
- Designed and implemented robust data validation and automation processes to optimize large-scale data analysis workflows
- Commissioned a muon spectrometer, significantly improving tracking efficiency and resolution
- Mentored a team of undergraduate researchers and served as a Teaching Assistant for physics courses

Yale University — New Haven, CT, USA
Undergraduate Researcher — Jan — Apr 2016

- Conducted detailed analysis of scintillator cell data and Monte Carlo simulations, contributing to the PROSPECT experiment focused on neutrino anomalies.

Peruvian Institute of Nuclear Energy — Lima, Peru
Undergraduate Researcher — Jan — Apr 2015

- Performed calibration and neutron flux density measurements within a nuclear reactor, supporting radiopharmaceutical production.

PUBLICATIONS

- ATLAS Collaboration. VVV *production in proton collisions at* $\sqrt{s} = 13$ *TeV* (forthcoming)
- Rabanal Bolaños, G. on behalf of the ATLAS Collaboration. *Cosmic results with the final Micromegas sectors for the ATLAS Muon upgrade.* In *Proceedings of 40th International Conference on High Energy Physics* — PoS(ICHEP2020), volume 390 (pp. 773-778)
- ATLAS Collaboration. *Evidence for the production of three massive vector bosons with the ATLAS detector.* Phys. Lett. B 798 (2019) 134913. arXiv:1903.10415 [hep-ex]