

# Dr. Guillermo Hamity

PhD | Data Engineer | Machine Learning | Quantitative Research

## Contact

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## Languages

English – Native

Spanish – Native

Afrikaans – Basic

French – Beginner

## Professional Skills

Python/C++

Python

Tensorflow

Scipy

Keras

Pandas

Numpy

Jupyter

matplotlib

pytest

valgrind

CMake

Unit Tests

## Machine Learning

ETL

Feature extraction

Decision Trees

Ensembles

Neural Networks

VAEs/GANs

MDNs

Reinforcement

## Technology

AWS

SQL

Git-CI

Docker

Kubernetes

Linux/Server

MongoDB

## Statistics

Hypothesis testing

A/B tests

Likelihood models

Simulation

Stochastic models

## Download My CV

Download my CV via the QR below



## About me

Decade+ in **applied data analysis** with expertise in *code development and deployment, data preparation, distributed computing, machine learning, and hypothesis testing*. Currently leverage ML for stochastic modelling in sports betting markets. Previously a researcher at the *Large Hadron Collider, CERN*. Involved in leading publications and experienced in **collaborative research** and **supervision**, held **leadership** roles within the 3000+ people collaboration, and am an **efficient independent** worker and clear **communicator**.

## WORK EXPERIENCE

### From Jun. 2023 | Quantitative Researcher

PLAYMETECH, London

- Lead the design and deployment of **stochastic models** to predict match and odds in different sports betting markets using a data based approach.
- Develop ML based strategies for sports betting with **Bayesian and Reinforcement** techniques and model their intrinsic risk. Document and communicate strategies transparently.
- Create database processing pipelines from several **SQL and NoSQL** sources.

### 2019–May 2023



### Postdoctoral Research Associate | The University of Edinburgh ATLAS Experiment

Active in all areas of physics **analysis**, incl. data preparation, software development/maintenance, algorithm design/deployment, and statistical interpretation. Responsibilities in **lecturing, supervising** and **leadership**.

- Developed and deployment of software for particle tracking and identification in the ATLAS collaboration software release.
- Delivered algorithms using **neural-networks** for particle identification, as well as develop c++/python analysis tools with **widespread use** in the collaboration.
- Have been an **analysis leader**, involved in ongoing publications, including technical reports. Experienced in paper writing and peer-review in **leading journals** and at international conferences. Convened research teams with regular interaction and group work.
- Lectured machine learning** MSc course with an emphasis on practical application, covering **data preparation, regression, classification, decision trees, feature extraction, and neural-networks** (*DNNs, RNNs, CNNs, VAEs, GANs*)

## EDUCATION

2015–2019



### PhD in High Energy Physics ATLAS Experiment

The University of Sheffield

*Thesis:* Probing the Beyond Standard Model Higgs Sector using ATLAS

2013–2015

### MSc in Physics

Uni of Witwatersrand (ZAR)

2008–2012

### BSc and Honours in Physics

The University of Pretoria (ZAR)

## HIGHLIGHTS

Involved in several publications (full list on request), e.g.

**PhysRevLett.**  
**125.051801**

Search for Heavy Higgs Boson decaying into Two Tau Leptons with the ATLAS Detector Using *pp* collisions at  $\sqrt{s} = 13$  TeV, **2020**, ATLAS  
10.1103/PhysRevLett.125.051801

Attended training courses/schools, e.g.:

- 5th HEP C++ Course and Hands-on Training - Advanced C++**, CERN, 2022
- GitLab CI/CD and Docker Fundamentals — Analysis Preservation**, CERN, 2020
- Fourth Machine Learning in High Energy Physics Summer School 2018**, Oxford, 2018

Presented at several international conferences, e.g.

- 56th Rencontres de Moriond on QCD and High Energy Interactions**, La Thuile, Italy, 2022

and dozens of internal workshops and conferences over the years.

**Full list of publications, talks and schools upon request**