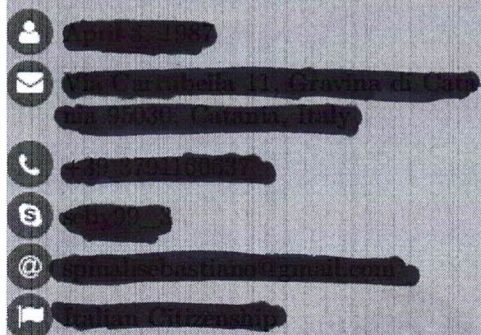




# Sebastiano Spinali

Doctor of Philosophy in Physics



## Social Network

Github Project Page Link

## Languages

Italian English

## Hard Skills

Python, C++, ROOT, LaTeX  
GIT, AWS, MATLAB, Processing  
OriginLab, Labview, CAD, Adobe Photoshop  
Keras, Numpy, Pandas, scikit-learn, matplotlib, UpRoot, Jupyter notebook, Anaconda, Tensorflow, PyTorch, Theano, Caffe

## Soft Skills

Teamwork Problem Solving Communication Skills Sociable and Proactive Active Listening Creativity Work under pressure

Authorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 106 e del GDPR (Regolamento UE 2016/679).

My natural tendency, when facing obstacles, is to consider and weigh all of the different possibilities and consequences. Therefore, I am passionate about analyzing big data as well as implementing data visualization, and addressing solutions. I am a cooperative person who gives his best in teamwork, strong in creating documents as well as communicating with other colleagues. I am capable of assessing a problem, executing the necessary actions, understanding the effect of a decision, and discovering innovative solutions.

## Working Experience

Oct 2022 – June 2023 High School Teacher Emilio Greco Art School, Catania, Italy  
Math and Physics teacher, school link: <https://www.liceoartistico-catania.it/>.

Nov 2021 – June 2022 High School Teacher Boggio Lera High School, Catania, Italy  
Math and Physics Teacher, school link: <https://www.liceoboggiolera.edu.it/>.

Nov 2020 – Apr 2021 Placement Project Lancaster University

- Risk Controlled Trading analysis performed on Python using Machine Learning techniques and Statistical Arbitrage.
- The approach addresses algorithmic trading in StatArb using machine learning to maximize profit and manage risk. It involves three key steps: walk-forward strategy, ranking, and trading.
- Deeply Investigated Machine Learning tools: Linear Regression, Random Forest, Decision Tree, K-nearest Neighbors, Gradient Boosting.

Oct 2018 – Oct 2019 LTA Placement CERN, Meyrin, Switzerland

- Identification and Classification of different interaction vertices using several machine learning tools.
- Track reconstruction and recognition analysis performed with the ATLAS Official Code developed in both C++ and Python languages.
- Deeply Investigated Machine Learning tools: Tensorflow, Keras, sklearn, Random Forest, Pytorch.
- A strong Features Importances analysis performed.

Apr 2016 – Jul 2016 Researcher Università degli Studi di Catania

- Geometrical Acceptance check of the HRS spectrometers for APEX experiment.
- In collaboration with La Sapienza University and Jefferson Laboratory.

## Education

Oct 2017 – Sept 2023 Ph.D. in Particle Physics Lancaster University  
Measuring the CP-properties of the Higgs Boson in the Higgs to two  $\tau$  analysis.

Sept 2011 – Nov 2015 Master of Science in Physics Università degli Studi di Catania  
107/110 First Class Honours | Major: Nuclear and Particle Physics.

Sept 2005 – Mar 2011 Bachelor's Degree Università degli Studi di Catania  
94/110 Upper Second Class Honours | Major: General Physics.



## LISTA PUBBLICAZIONI SPINALI SEBASTIANO

- **Test of the GEM Front Tracker for the SBS Spectrometer at Jlab**  
<https://www.sci-en-tech.com/ICCM2015/PDFs/1241-3973-1-PB.pdf>
- **GEM tracker for high-luminosity experiments at the JLab Hall A**  
<https://www.tandfonline.com/doi/abs/10.1080/10420150.2016.1263633>
- **Dark matter search in a Beam-Dump eXperiment (BDX) at Jefferson Lab**  
-- 2018 update to PR12-16-001  
<https://arxiv.org/abs/1910.03532>
- **Near threshold  $J/\psi$  photoproduction and study of LHCb pentaquarks with CLAS12**  
[https://www.jlab.org/exp\\_prog/proposals/17/E12-12-001A.pdf](https://www.jlab.org/exp_prog/proposals/17/E12-12-001A.pdf)
- **Measuring the CP Properties of the Higgs Boson in Its Decay to  $\tau$  Leptons with the ATLAS Detector**  
<https://www.proquest.com/openview/49c709b8cf828788806c0f1765003e50/1?pq-origsite=gscholar&cbl=2026366&diss=y>