James Shinner

Particle Physics PhD | Researcher & Programmer

+447795325163 | jamesdshinner@gmail.com | jamesdshinner.github.io

Geneva, Switzerland | London, UK   References available on request

EDUCATION

PhD, Elementary Particle Physics

Royal Holloway, University of London

09/2018 - Ongoing

- Investigating a novel technique to use the top quark to measure the asymmetry between matter and antimatter.
- Working with terabyte-scale datasets from simulations and particle collisions.
- Using state-of-the-art statistical techniques to perform data analysis, including regression and classification machine learning algorithms such as boosted decision trees and neural networks.
- Contributing to academic paper, targeting publication in an international physics journal in 2021.

MSci, Natural Sciences (Maths & Physics)

Durham University, 1st Class Honours

09/2014 - 06/2018

- Achieved a mark of 88 (top quartile) in Mathematical Finance module.
- Final dissertation on 'Machine Learning for Higgs Boson Measurement'.
- Wrote a from-scratch Python implementation of the AdaBoost algorithm, with comparable performance to scikit-learn. Achieved 90%+ correct classification of signal and background.
- Extra-curricular activities: Captain of University College Boat Club, member of the Durham University Chess Society, winner of the inter-collegiate University Challenge quiz competition.

EXPERIENCE

Doctoral Researcher

CERN   01/2020 - Ongoing   Geneva, Switzerland

- Long term attachment at CERN while conducting PhD research.
- Working as part of the ATLAS Collaboration, a large international team.
- Involved in experimental operations of the ATLAS trigger system.
- Redesigned the trigger configuration database, achieving speed-up of 100-1000x in editing and loading configurations.

Graduate Teaching Assistant

Royal Holloway, University of London   09/2018 - Ongoing   London, UK

- Leading tutorial classes on linear algebra, probability, and statistics.
- Marking for courses in mathematics and general relativity.

Research Intern

Durham University   07/2017 - 09/2017   Durham, UK

- Summer internship using physics simulations to model the behaviour of glyphosate, a commonly used herbicide.

Mathematics Analyst Intern

NMi Metrology & Gaming   07/2016 - 08/2016   Bangor, UK

- Applied probability and statistics to test the expected return of physical/online slot machines for regulation and licensing purposes.

SUMMARY

I am well-versed in mathematics, statistics, and machine learning, and have extensive experience with Python and SQL, as well as some familiarity with C++.

I am currently completing a PhD in Particle Physics at Royal Holloway, University of London, working on the ATLAS experiment of the Large Hadron Collider at CERN. This has given me experience applying analytical techniques to some of the world's largest datasets.

I am looking to apply these skills to tackle interesting problems involving machine learning and big data in the fields of technology and finance.

SKILLS

Technical

Python   SQL   Pandas   Oracle

Scikit-learn   TensorFlow   Git

CI/CD   Linux

Research

Statistics   Machine Learning

Academic Writing   Conference Speaking

Collaboration   Modelling

LANGUAGES

English	Native	●●●●●
German	Intermediate (B1)	●●●○○
French	Beginner (A1)	●○○○○

FIND ME ONLINE

LinkedIn
linkedin.com/in/jamesshinner

GitHub
github.com/jamesdshinner

GitLab
gitlab.cern.ch/jshinner