Dwayne SPITERI, PhD

Hamburg, DE +447964871575 dwayne_spiteri94@hotmail.co.uk in/dwayne-spiteri

I am enthusiastic individual who enjoys problem solving, with the ability to work effectively both on solo projects and on collaborative group-based efforts. As a post-doctoral researcher, I have experience with data analysis, statistical modelling, and building simulations. Now I am looking for a role where I can gather experience in the energy industry with a view to pivoting into a career where tackling interesting and novel real-world problems go hand-in-hand with making modern living more sustainable and green.

Relevant Work Experience

Project Scientist - Deutches Elektronen Synchrotron (DESY) **Oct 2024 - Present**

- Developing a simulation in Python and Julia of the local computing site containing three computing clusters at DESY to test different ways of running the computing centre.
- Managing a team in charge of creating policy to make the DESY computing ecosystem more sustainable.

Research Associate - ScotGrid, University of Glasgow **Aug 2022 - Apr 2024**

- Managing a Tier-2 grid computing site for Worldwide LHC Computing Grid specialising in inventory management, data-centre restructuring and liaising with experimental clients about the use of novel ARM compute resources.
- Co-created a suite of tests to investigate possible energy efficiency savings by running High-Energy-Physics jobs on ARM CPU chips rather than x86 ones. Work was presented at 26th Annual CHEP in 2023.
- Created a Simulation of the local computing site in Glasgow in Python. The aim of which is to test different ways of running computing resources impacts potential carbon usage at a UK grid computing site. This work was presented at the HEPIX Spring 2024 Workshop in April.

Research Associate - ATLAS experiment, University of Glasgow **Aug 2021 - Aug 2022**

- Supervisor for an analysis measuring the substructure of top quark decays by reconstructing them as large jet objects and measuring variables sensitive to the internal energy flow of the jet.
- Designed future-proof RIVET Routine from no prior experience to emulate analysis logic and used it to perform studies on the analysis to improve it and diagnose problems.
- Contact Editor for the paper for this analysis currently available on arXiv and currently in minor revision for publication in PRL.
  - Measurement of jet substructure in boosted $t\bar{t}$ events with the ATLAS detector using 140 fb^{-1} of 13 TeV pp collisions
- Developer of the Athena Framework. Phasing in additional functionality to the Fast Digitisation output for the ATLAS Inner Detector as a member of the Fast Chain Software Group.

PhD Candidate - ATLAS experiment, University of Glasgow
VHbb Analyses Member **Mar 2018 - May 2020**

- Member of two analysis teams that made the first observation and measurements of the Higgs boson decay to b-quarks via associated Vector Boson production (VHbb).
- Contributed to and maintained a shared data analysis software framework written in C++ with Python wrapper scripts.
- Developed and optimised the event selection for the analyses by testing alternative trigger regimes and implementing the ones that increased the sensitivity of the analysis.
- Investigated and corrected unexpected fluctuations in a statistical fit model containing thousands of nuisance parameters.
- Contributed to the following publications:
  - Observation of $H \to b\bar{b}$ decays and VH production with the ATLAS detector. [Phys. Lett B786, p59-86, (2018)]
  - Measurement of $H \to b\bar{b}$ as a function of the vector-boson transverse momentum in 13 TeV pp collisions with the ATLAS detector [J. High Energ. Phys, vol. 141, (2019)].
  - Measurements of WH and ZH production in the $H \to b\bar{b}$ decay channel in pp collisions at 13 TeV with the ATLAS detector. [Eur.Phys.J.C 81 (2021) 2, 178]
  - Measurement of the associated production of a Higgs boson decaying into b-quarks with a vector boson at high transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. [Phys.Lett.B 816 (2021) 136204]

Public Engagement Experience

Co-ordinator for ATLAS Virtual Visit Programme **January 2018 - March 2020**

- Managed a team of Volunteers at the CERN lab in Geneva delivering video conferences to schools and the general public on behalf of the ATLAS collaboration.
- Worked together with a number of UK schools to tailor-make an outreach experience to work for a variety of schoolchildren.
- Talked with people from many differing education levels and ages about particle physics concepts, the ATLAS experiment, CERN, and the life of a modern scientist.
- Explained advanced physics concepts in talks using a variety of perspectives to deepen understanding or teach complicated concepts.
- Represented British scientists in liaisons with government committees.

Institute of Physics (IoP) Festival of Physics **May 2019 - October 2019**

- Liaised with personnel at the University of Edinburgh and the University of Glasgow to create a large joint proposal for the event.
- Constructed an immersive exhibit explaining the history of particle physics with several physical demonstrations of particle detection experiments past and present, interactions with individual detector components, and a live link to the CERN lab.
- Managed volunteers, obtained funding, organised deliveries of components, liaised with event organisers, and oversaw the arrangement of exhibit at the venue for the three-day event.

Education

PhD in Experimental Particle Physics, University of Glasgow **Oct 2016 - Jan 2021**
Based at CERN, Geneva from Jul 2017 - Dec 2018.

MSci Physics with Particle Physics and Cosmology, University of Birmingham **Sep 2012 - Jul 2016**
1st Class Honours Degree
Physics Teaching in Schools 75% | Inference from Scientific Data 82% | Astroparticle Cosmology 94%

Technical Skills

Computing languages (knowledgeable)

- Bash, C++, MATLAB, Python (taught undergraduates in Python and MATLAB courses)

Computing languages (familiar)

- HT Condor, SQL

Software (knowledgeable)

- git (gitHub, gitLab), Keynote, LaTeX, Linux, MacOS, Microsoft Office (Excel, Powerpoint, Word), Sublime Text Editor, VSCode.

Software (familiar)

- Ansible, Argus, Ceph, Graphana, Prometheus

Other Notable Activities

- Won a prize for outstanding contribution to the HEP Summer School in 2017.
- Co-Organised the YETI2018 conference in Durham for 89 participants from over 10 countries.
- Represented the delegation of British scientists at CERN's inauguration ceremony.
- Taught in undergraduate computing and scientific laboratories. Conducted pedagogical research on a Millikan experiment set-up to try and improve students learning experiences. Produced two reports based on students' findings.
- Helped to develop the James McCune Smith scholarship offered by the University of Glasgow to incentivise Black British students to seek PhD positions, and am now on its Steering Board.
- Seminar Program Organiser for the Particle Physics Department.

References

Available upon request.