Dwayne SPITERI, PhD

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An 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, he has experience with data analysis, statistical modelling, and building simulations. Now he is looking for a role where he can gather industry experience with a view to pivoting into a career where tackling interesting and novel real-world problems go hand-in-hand with creating the best solutions for clients.

Relevant Work Experience

Research Associate - ScotGrid, University of Glasgow **Aug 2022 - Present**

- 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 aims to be 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 using data collected by the ATLAS detector between 2015 and 2018 to make 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.

Other Notable Activities

- Won a prize for outstanding contribution to the HEP Summer School in 2017.
- Written and edited several successful grant applications.
- Co-Organised the YETI2018 conference in Durham for 89 participants from over 10 countries.
- Completed over 50 8-hour shifts in the ATLAS control room in Tier-1 and Tier-2 shift work monitoring the Inner Detector and its auxiliary systems.
- Presented my work nationally at the HEP Summer School in 2017, the ATLAS UK conference in 2017, 2018 and 2019. Was also scheduled to do so for the IoP 2020 conference in Bristol.
- Presented group project work at the MCNet and CLASHEP international conferences.
- 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.

Interests

- I play badminton and squash 2-3 times a week, and boulder bi-monthly.
- My favourite hikes: Aiguillette des Houches, France and Kloof Corner Ridge, South Africa.
- I enjoy tabletop games such as bridge and chess and I have a variety of board games.

References

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