

# Curriculum Vitae

Dwayne SPITERI

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After completing my doctorate on the ATLAS experiment, I am looking for a research position that requires some level of data analysis, statistical modelling, and simulation work. Preferably this would be on a different experiment such that I can obtain new skills and diversify my knowledge-base.

## Education

University of Glasgow (2016 - 2020) : PhD in Experimental Particle Physics [Thesis - Higgs boson studies: associated production with a vector boson and decay into b-quarks using the ATLAS Run-2 dataset.](#)

University of Birmingham (2012 - 2016) : MSci Physics with Particle Physics and Cosmology - 1st Class

## Research Experience

### Internship with FLC at Deutsches Elektronen Synchotron (DESY) (July 2015 - September 2015)

- Worked in a clean room laboratory testing the electronic properties of silicon sensors for a DESY-based prototype.
- Wrote C++ code to interpret data taken from the laboratory and fit it to various curves.
- Gave several presentations describing my work and wrote a 17 page report summarising my findings.

### Tracking Combined Performance Group (July 2017 - November 2018)

- Investigated track objects created as a result of incorrect combinations of hits made in the Inner Detector (fake tracks) of the ATLAS detector.
- Parametrised the differences between Monte Carlo modelling of track objects and tracks reconstructed from data.
- Derived recommendations for the uncertainty on the number of fake tracks found in Monte Carlo simulations for the entire ATLAS collaboration.

### VHbb Analyses Member (March 2018 - May 2020)

- Member of two analysis teams using data collected by the ATLAS detector between 2015 and 2018 to observe the Higgs boson decay to  $b$ -quarks via associated Vector Boson production (VHbb).
- Contributed to a shared data analysis software framework based in C++ with Python wrapper scripts.
- Developed the event selection for the analyses by testing alternative trigger regimes and implementing the ones that increased the analysis sensitivity.
- Investigated and corrected unexpected fluctuations in a statistical fit model containing thousands of nuisance parameters.
- Produced the following publications:
  - [Observation of  \$H \rightarrow b\bar{b}\$  decays and  \$VH\$  production with the ATLAS detector.](#)
  - [Measurement of  \$H \rightarrow b\bar{b}\$  as a function of the vector-boson transverse momentum in 13 TeV  \$pp\$  collisions with the ATLAS detector.](#)
  - [Measurements of  \$WH\$  and  \$ZH\$  production in the  \$H \rightarrow b\bar{b}\$  decay channel in  \$pp\$  collisions at 13 TeV with the ATLAS detector.](#)
  - [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.](#)

## Public Engagement Experience

### Co-ordinator for ATLAS Virtual Visit Programme (January 2017 - March 2019)

- 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.
- Talked with students from many differing education levels and ages about the ATLAS experiment, CERN, and the life of a scientist.
- Explaining physics concepts in talks using a variety of perspectives to deepen understanding or teach advanced concepts.

### Pint Of Science Festival Organiser (November 2016 - March 2020)

- A worldwide science festival bringing researchers to a local pub/café /space to share scientific discoveries.
- Organised events for the Glasgow branch of the festival in 2017 (Creative Reactions), 2019 (Our Society) and 2020 (Planet Earth).
- Led a team of four people to create themed events over three nights for around 90-120 members of the public.

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

- Liaised with volunteers at the University of Edinburgh and Glasgow to create a joint experience.
- 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 long event.

## Technical Skills

### Computer languages (proficient)

- MATLAB, Python and C++, git.
- Taught undergraduates in Python and MATLAB courses.

### Computer languages (familiar)

- SQL

### Hardware (familiar)

- basic electronics, clean room procedures and equipment, handling low-level radioactive substances.

## Interests and Accolades

- Completed the University of Birmingham Personal Skills Award (PSA) Advanced (2015). Short-listed for PSA Student of the Year.
- Completed CMI-accredited Level 3 Project Management Course (2019).
- SISA Level 1 Accreditation Glasgow Business School (2020).
- Interests include badminton, bridge, board games, bouldering, chess, snowboarding.

## References

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