Emil Haines

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A highly self-motivated PhD student with three years experience working for international particle physics experiments. Proficient in software development and data analysis using Python and C++ with experience using modern machine learning techniques and frameworks. Hoping to transfer the skills I have acquired in research to a role within the data science industry.

Education

- **University College London**
  PhD in Particle Physics *October 2020 - present*
  - STFC funded research project working on the detection of exotic long-lived particles as a member of the ATLAS experiment, under the supervision of Professor Andreas Korn
  - Participated in postgraduate courses in Machine Learning for Big Data, to further my practical understanding of modern machine learning tools and techniques and database technologies (SQL), and Statistical Analysis
  - Assisted in teaching and marking of an undergraduate laboratory course as a PGTA
- **University of Bristol**
  MSci in Physics *September 2016 - June 2020*
  - Graduated with first class honours, with an overall mark of 77%
  - Awarded commendation for master's project entitled 'Deep Learning for event classification at LUX-ZEPLIN', for which I used Tensorflow to develop a physically-inspired autoencoder for waveform analysis that outperformed benchmark techniques for detecting weakly interacting massive particles
  - Consistently achieved high marks in computational and mathematical units, including: 91 in Methods of Theoretical Physics, 84 in Advanced Quantum Physics and 83 in Quantum Information Theory and Computational Physics

Experience

- **ATLAS Experiment, CERN**
  PhD Researcher *May 2021 - present*
  - Qualified author for ATLAS, a leading, international particle physics experiment based at CERN
  - Developing and maintaining an analysis framework (C++ and Python), version controlled with git, incorporating signal selection algorithms for the study of exotic decays of the Higgs Boson to long-lived particles
  - Experience analysing petabyte-scale datasets produced via particle collisions at the Large Hadron Collider and interpreting results using advanced statistical techniques
  - Completed a one year attachment at CERN (October 2021 - September 2022), during which I undertook shifts as an on-call expert and regularly presented research to fellow students and academics
- **Graphcore**
  Silicon Engineer Intern *July - September 2019*
  - 10 week paid internship in the Silicon Verification team
  - Data analytics and visualisation using Python, JavaScript and SQL
  - Presented work to the CEO, CTO and VPs of the company, as well as fellow interns

Other Experience and Interests

- Undertook part-time roles during my undergraduate degree including: teaching Maths, English and Science to primary, GCSE and A-level students and working in hospitality at the Clifton Pavilion in Bristol Zoo
- Enjoy playing football, running, volunteering at music festivals and am currently teaching myself to play drums