

# Alina Isobel Hagan



## Education:

**2020-2024** PhD, Lancaster University, ATLAS Experiment.

- Particle Physics, Supervised by Vato Kartvelishvili.
- Analysis Contact for Extracting Gluon TMDs from  $J/\psi + \gamma$  in  $pp$ .

**2015-2020** MSc, University of Glasgow.

- First Class Masters in Physics.
- Masters project;
  - Measurement of  $b$ -jet substructure observables.
  - Exploration of novel overlap removal methods and Soft-Drop jet cleaning.

## Experience:

**2022** ATLAS Collaboration

- BLS Trigger group.
- Authorship qualification project supervised by Adam Barton and Pavel Renicek.
- Updating ATLAS BLS Trigger Validation package and tools to Run 3 framework, expanding available tools and modernisations.

**2019** University of Glasgow.

- Nuclear and Hadron Physics research group.
- Supervised by Dr Simon Gardner.
- Applying GNNs for shower recognition at the Crystal Ball detector.
  - Utilising Graph Neural Network layers from 1902.07987 and a YOLO-style approach to identify, separate and reconstruct overlapping showers.

## Talks:

**2023** Beauty 2023

- New Heavy Flavour states in ATLAS

**2023** Beauty 2023

- $B$ -Hadron reconstruction in early ATLAS Run 3 data

**2023** Quarkonia as Tools 2023

- Inclusive quarkonium production - experimental overview.

**2022** ATLAS UK Annual Meeting 2022

- Precision physics with quarkonia.

**2022** Quarkonia as Tools 2022

- Quarkonium and TMDs in  $pp$  - past and future measurements.

## Academic Interests:

**Quarkonium Physics.**

- $J/\psi$ , Di- $J/\psi$ ,  $J/\psi + \gamma$ ,  $\Upsilon$  studies.
- TMD extraction.

## Projects:

**2022** terminal\_rendering

- A simplified implementation of a rendering engine, with minimal dependencies, designed to work on any unicode compatible terminal.

**2023** Rocket Project

- Designing and building an 'L0' rocket, F class motor, carbon fibre body, basic avionics. Preliminary exploration before an L1 attempt.

**2023** PCB Design

- Designing and building small form-factor neopixel-based smart LED boards for use with raspberry pi or arduino, and more.

## Other:

**Skills** C++, Python, ROOT, CMake, Vim, Git, LaTeX, Laser cutter operation, 3D printing, Arduino and RP2040 programming.

**Personal Information** Age - 25, Gender - Female, Nationality - Scottish.

**Hobbies** Photography, running, hobby programming, mechanical keyboards, video games, building rockets, programming microcontrollers.