Eshwen Bhal

PhD student

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Education

University of Bristol

Bristol, United Kingdom

Doctor of Philosophy in Physics — *Sep. 2016 – Present*

- Thesis title: **Hadronic Dark Matter Searches at CMS at 13 TeV** — *Under supervision of H. Flächer. Expected submission in April 2020*
- **Postgraduate student representative** for the particle physics group, 2019–20 — *Role in the Student-Staff Liaison Committee for the School of Physics*
- **CERN**, Geneva, Switzerland — *Long term attachment, Oct. 2017 – Mar. 2019*

University of Exeter

Exeter, United Kingdom

Master of Physics with Honours in Physics with Astrophysics. Award: First Class (77 %) — *Sep. 2012 – Jul. 2016*

- Dissertation title: **Simulations of Exoplanet Light Curves** — *Under supervision of T. Harries*
- Recipient of a **Dean's Commendation**, 2016 — *In recognition of outstanding achievement at the fourth stage of my degree*
- Recipient of a **Physics Award**, 2015 — *Being one of the three students with the highest marks at the third stage of my degree*
- Recipient of a **Dean's Commendation**, 2014 — *In recognition of outstanding achievement at the second stage of my degree*
- Recipient of a **Physics Award**, 2013 — *Being one of the three students with the highest marks at the first stage of my degree*
- Recipient of a **Dean's Commendation**, 2013 — *In recognition of outstanding achievement at the first stage of my degree*

Monmouth Comprehensive School

Monmouth, United Kingdom

Secondary school qualifications — *Sep. 2005 – Aug. 2012*

- **A Level**, 2011–12 — *Biology (A*), Mathematics (A*), Physics (B), Chemistry (AS Level) (B)*
- **Open University**, 2012 — *Introducing Astronomy (10 credit course)*
- **GCSE**, 2010 — *10 including English Language and Mathematics at grades A* (4) to A (6)*
- **WJEC Key Skill**, 2010 — *Communication (Level 2)*

Skills

Data analysis

- The primary focus of my PhD concerns statistical analysis of large (multi-terabyte) datasets collected by the CMS experiment from the Large Hadron Collider.
- Developed analysis software in Python and C++, using modern data science tools and distributed computing.
- Visualisation with ROOT and matplotlib. Formal presentations of results with LaTeX.

Collaboration

- Belonging to several working groups of around a dozen people as well as a wider collaboration of over 4,000 people.

Problem solving

- Predominant component of a physics degree. As an undergraduate, conducted more traditional pen-and-paper problem solving in many topics. As a PhD student, wrote code to solve physics problems numerically and perform data analysis.

Multitasking

- Often working on multiple projects at once with different working groups during PhD.

Organisation

- Coordinating different aspects of analyses in my PhD, meticulously documenting programming instructions and procedures of analysis components.

Experience

University of Bristol

Bristol, United Kingdom

Computing Demonstrator — *Oct. 2019 – Present*

- Teaching third year undergraduate students Python and its applications for numerically solving physics problems. Also involves formal marking of assignments and providing feedback.

University of Bristol *Bristol, United Kingdom*

Mathematics Tutor *Jan. 2017 – May 2017*

- Taught mathematics for physicists to first year undergraduate students. Also involved formal marking of problem sheets, discussions with the students, and teaching concepts for subsequent assignments.