Phil Symonds

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Personal Profile

A highly versatile physics PhD student with an inquisitive mind and a passion for science and innovation. Eager to use my four years particle physics related programming and analytical experience in ways that can be beneficial in a technological environment.

Experience and Achievements

09/2010 - 03/2014 **European Organization for Nuclear Research (CERN) - STFC funded placement** *Geneva, Switzerland*

- **Analysed** large data sets from the Compact Muon Solenoid (CMS) experiment to study the properties of the top quark
- A framework has been developed using **C++** and **Python** to mine and analyse the data
- **Statistical methods** such as boosted decision trees and multivariate techniques are employed to enhance the signal to background ratio of the data
- Physical information is extracted from the data using maximum likelihood fits
- **Collaborate** with other analysis teams (detector and physics object) to improve data quality algorithms
- Detailed accounts of the analysis have been documented in internal notes
- Results have been **published** in the *Physics Letters B* journal
- **Presented** results at both national (Institute of Physics 2012, Queen Marys University) and international (European Physical Society 2013, Stockholm) particle physics conferences
- Provide **tuition** to less experienced Ph.D. students to help them develop the computational and analytical skills required to succeed
- Involved in various physics **outreach** activities:
  - Wrote an extract on grid computing in the *Understanding the Higgs Boson* booklet
  - Helped develop the particlediscoveries.info website
  - Assisted at the opening event of the London Science Museum's LHC exhibition

07/2009 - 08/2009 **University of Leeds - Nuffield funded summer internship** *Leeds, UK*

- Studied the molecular physics of cryopreservation in living systems
- Performed neutron scattering experiments at RAL to explore hydrogen bonding in aqueous solutions

07/2008 - 08/2008 **University of Leeds - EPSRC funded summer internship** *Leeds, UK*

- Research into drug delivery mechanisms across cell membranes
- Performed electrochemical impedance spectroscopy experiments to determine what molecules work best for drug delivery
- This work was published in the *ChemPhysChem* journal

Education

09/2010 - 03/2014 **Ph.D. in Experimental Particle Physics** *Brunel University, UK*

- Graduate in March 2014
- Attended various particle physics summer schools and lecture courses at world class institutes including UCL, Oxford University and Fermilab
- Participated in an object orientated C++ course at the Rutherford Appleton Laboratory (RAL)

09/2006 - 06/2010 **M.Sc. in Physics with Astrophysics** *University of Leeds, UK*

- Graduated with a first class honours degree
- Awarded a scholarship for A-level results

09/2003 - 06/2005 **A-Levels** *Stanwell School, UK*

- Maths (A), Physics (A) and Psychology (A)

Computing

Languages:
- Experienced in **C++** and **Python** and currently learning **Java**

Software:
- CMSSW and ROOT (particle physics specific written in C++ and Python)

Storage:
- Used CRAB (CMS software) to run over data stored at **worldwide grid** sites and regularly remotely access storage elements

Operating Systems:
- Windows, Mac OS X and Linux: Ubuntu, Fedora

Web development:
- Familiar with **HTML** and looking forward to learning more

Version Control:
- Work in teams using **GitHub** or **SVN**

Scripting:
- Wrote scripts to automate the analysis using **Python**, **pearl** and **bash**

Other:
- Eclipse, Nedit, LaTeX, Microsoft Office

Additional Information

Languages:
- Currently attending an intermediate French course at Brunel University

Travel:
- Organised various trips and excursions including a week long ski trip for over 50 people whilst based at CERN

Sport:
- Elected sports officer of Leeds Physics society for three years running (2007 - 2009)
- Member of cycling and climbing clubs at Brunel University

References

Available on request