Dr Alexander Shires

A highly-motivated researcher, I have five years experience as a particle physicist at CERN whilst working at Imperial College London and Technische Universität Dortmund. I am looking to apply my highly developed analytical and problem solving skills to business data and analytical software.

Key Skills Data Science, Statistics, Data Analysis, Programming

Employment history

Jun 2013 to present **Post-doctoral researcher**, *Technische Universität Dortmund*, Germany.
Research position in the experimental particle physics group, incorporating data analysis, software development and project management.
Delivered multiple high profile projects in collaboration with researchers located across Europe in a global, matrix environment. Independently reviewed a critical project at the request of senior management and delivered a thorough review ahead of schedule. As a convener of a research working group, I coordinate research projects internationally and am responsible for around thirty researchers, ranging from students to faculty members. Communication of my work is vital part of it's success and I have strong public presentation skills, developed while leading discussions at a number of top academic institutions across Europe.
Designed, implemented and maintained software, in Python and C++, at both user-level and for production systems with hundreds of users. The quality of the software is critical to record high value data and the output of this is used by the entire collaboration. Regularly implement effective code to deliver results with a scalable and maintainable ethos

Skills

Computing C++, Python, Fortran
OS Linux, Windows
Languages English (native), German (competent)

Frameworks ROOT, boost, gsl, numpy/scipy
Tools SVN, Git, MS Office, LaTeX, Vim

Education

Oct 2009 to Oct 2013 **PhD, High Energy Physics**, *Imperial College London*, UK.
Thesis: *Exploring $b \to s$ electroweak penguins at LHCb*, Supervisor: Prof. Ulrik Egede
Research PhD including an 18 month placement in Geneva to work at CERN. Delivered two projects that are the world's best measurements based on the first data coming out of the LHC. Designed, implemented and maintained software critical for the accuracy and reliability of these results.

Oct 2005 to Jun 2009 **MSci (Hons), Physics With Theoretical Physics**, *Imperial College London*, UK.
First Class degree concentrating on the theoretical aspects of physics, specifically to understand current research into particle physics and cosmology. This course involved specific modules in applied mathematics, statistics and computing dedicated to implementing algorithms for modelling and data analysis.

Aug 2005 **A-levels, GCSEs**, *Hardenhuish School*, Wiltshire, UK.
A-levels: Physics (A), Mathematics (A), Further Mathematics (A), Chemistry (A).
GCSEs: 3 A*, 3 A, 3 B.

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Previous experience

Summer 2008 **Undergraduate research placement**, *Imperial College London*, UK.
The Ganga project has developed front-end software that allows hundreds of researchers to use many distributed computing systems across the world in a coherent format.Developed and integrated autonomous remote testing for the Ganga project and added reporting options to show test failure differences between different versions. Worked with established Python framework as part of a small team of 10 developers to implement my changes.

Summer 2006 & 2007 **Junior engineer**, *Westinghouse Rail Systems*, Wiltshire, UK.
As a scholarship given to the best 3 students from local schools, worked as the sole data analyst for the first live railway trial of a multi-million pound project. Invited back for a second year to develop software in C++ on Windows to test the integration of a new railway track-side communications protocol.

Interests

My main interests are music, cricket along with a passion for city breaks around Europe. I play the trombone to a high standard and have played in orchestra and jazz bands in London, Geneva and Dortmund. When in London, I play regular amateur cricket with a team based in south west London, including matches around south east England and tours abroad.

Publications

D. Das, G. Hiller, M. Jung, and A. Shires, *The $\overline{B} \to \overline{K}\pi\ell\ell$ and $\overline{B}_s \to \overline{K}K\ell\ell$ distributions at low hadronic recoil*, JHEP **09** (2014) 109, arXiv:1406.6681

LHCb collaboration, R. Aaij *et al.*, *Test of lepton universality using $B^+ \to K^+\ell^+\ell^-$ decays*, Phys. Rev. Lett. **113** (2014) 151601, arXiv:1406.6482

LHCb collaboration, R. Aaij *et al.*, *Differential branching fraction and angular analysis of the decay $B^0 \to K^{*0}\mu^+\mu^-$*, JHEP **08** (2013) 131, arXiv:1304.6325

T. Blake, U. Egede, and A. Shires, *The effect of S-wave interference on the $B^0 \to K^{*0}\ell^+\ell^-$ angular observables*, JHEP **03** (2013) 027, arXiv:1210.5279

LHCb collaboration, R. Aaij *et al.*, *Differential branching fraction and angular analysis of the decay $B^0 \to K^{*0}\mu^+\mu^-$*, Phys. Rev. Lett. **108** (2012) 181806, arXiv:1112.3515

Additional author on more than 200 papers as a member of the LHCb collaboration.

Invited Talks

Test of lepton universality using $b \to s\ell^+\ell^-$ decays at LHCb, Collider cross talk, CERN, Sept, 2014

Rare heavy flavour decays at the LHC, Frontiers in Particle Physics, Aspen, Jan, 2014

Additional regular seminars at UK and German institutions

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References

Available on request

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