Dr Alexander Shires

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A highly-motivated professional data scientist, I have five years experience as a researcher at Imperial College London, CERN and Technische Universität Dortmund. I am looking to apply my analytical and problem solving skills to inform business decisions using advanced predictive analytics.
Key Skills: Data Science, Statistics, Data Analysis, Programming

Employment history

Technische Universität Dortmund, Germany
Post-doctoral researcher *Jun 2013 to present*
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 senior scientific mangement. 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.
I have designed, implemented and maintained scientific 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: Python, C++ (proficient), R, Fortran, SQL (basic)
Frameworks: numpy/scipy, scikit-learn, Neurobayes, ROOT, boost, gsl
Languages: English (native), German (conversational)
OSs & Tools: Linux, Windows, SVN, Git, MS Office, LaTeX, Vim

Education

Imperial College London, UK
PhD, High Energy Physics *Oct 2009 to Oct 2013*
Research PhD including an 18 month placement in Geneva to work at CERN. I worked in a small team of researchers to deliver two projects based on the first data coming out of the LHC. These stand as the world's best measurements and have been presented widely at international conferences. I designed, implemented and maintained software critical for the accuracy and reliability of these results.

Imperial College London, UK
MSci (Hons), Physics With Theoretical Physics *Oct 2005 to Jun 2009*
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.

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

Previous experience

Imperial College London, UK

Undergraduate research placement *Summer 2008*

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.

Westinghouse Rail Systems, Wiltshire, UK

Junior engineer *Summer 2006 & 2007*

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

Projects delivered as either lead analyst or with a significant contribution to the team.

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

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

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

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

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