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 mathematical skills in quantitative roles to inform business decisions using advanced analytics.
Key Skills: Data Science, Statistics, Data Analytics, Programming

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 five projects based on the first data coming out of the LHC.

Imperial College London, UK
MSci (First Class 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.

Employment history

Technische Universität Dortmund, Germany
Post-doctoral researcher *Jun 2013 to present*
Experimental particle physics research incorporating data analysis, software development and project coordination. My research involved searching for new fundamental particles by measuring once-in-a-billion signals hidden in background noise. To extract the data, I used in-memory and batch processing workflows to process datasets of trillions of items with sizes of several petabytes. I analysed the data by applying machine learning algorithms to separate signal events from background noise as well as using visualisation software to explore the data. As a result, I have discovered several new effects and written several scientific papers based on my results. Additionally, I have designed, implemented and maintained scientific software in Python and C++ at both user-level and for production systems with hundreds of users. As part of an international collaboration, I have worked in small teams located remotely across the UK, Germany, France and Switzerland. I have managed small teams of researchers and I have coaching skills developed through the supervision of post-graduate students. Communication of my work is a 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. As a convenor of a research working group, I was responsible for around thirty researchers, ranging from students to senior scientific management.

Lead analyst: *arXiv:1406.6482*. Our task was to test two rare signals, one of which had not previously been modelled. As the project lead for a small team, I developed new models to describe the data, implemented all the calculations in a coherent framework and delivered the project. As a result, we achieved a 50% increase in precision for the result and the paper is one of the highest profile results from the LHCb collaboration.

Analyst: *arXiv:1304.6325*. As part of a small team working on one of the top three projects for the LHCb collaboration, I developed and maintained a correction algorithm to translate the recorded, distorted data into the true data. Measurements of the rare signal decay could indicate hidden effects and this algorithm was critical to ensure the accuracy of the final measurement. As a result, we were able to make the world's best measurement with the data available.

Skills

Computing: Python, C++ (proficient), Fortran (intermediate), R, Java (basic)

Frameworks: numpy/scipy/pandas, scikit-learn, ROOT, boost, gsl

Languages: English (native), German (conversational)

OSs & Tools: Windows, Linux, Git, SVN, MS Office, LaTeX, Vim, Tableau

Other: Full, clean UK driving licence

Additional experience

S2DS course, London

Accepted and planned attendance *Aug 2015*

This five week workshop trains and scientists in the commercial tools and techniques needed to be hired into data science roles. The aim of the workshop is to create a pipeline of high quality, commercial data science talent. Lectures in economics, business skills, databases and core programming concepts alongside a four week commercial project as part of a small team.

Growth Intelligence, London

Work experience *June 2015*

One day's work experience with a B2B startup as a data scientist. Worked on natural language processing and named entity estimation for 15000 data sources to extract structured values from a highly unstructured webcrawl. I researched, developed and tested a program containing multiple innovative concepts to form the basis of future development and presented the ideas back to the data science and software development team alongside a software demonstration.

Extract 2015, London

Data science conference *May 2015*

Data science conference in London with talks discussing the latest innovations using data science from companies ranging from startups to established technology businesses.

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 interests are in playing music and cricket which I combine with a passion for city breaks around Europe. I play the trombone to a high standard and have played in orchestras 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.

References

Available on request