Southampton symposium explores challenges of Data Science

UK and international experts in Data Science gathered at a special symposium organised by the University of Southampton to explore the current challenges in this emerging field.

Over the past few years we have seen an explosion in the amount of data being generated and in the potential to transform our everyday lives. From altering our economic landscape to revolutionising medical diagnostics, the power of these new large datasets is immense. However, their potential cannot be fully harnessed unless new, innovative methods are developed for handling, analysing and extracting knowledge.

The University of Southampton is in an extraordinary position to contribute to this emerging field of Data Science with strong reputations in each of the field's core subject areas – Statistics, Mathematics and Computer Science. For the past decade the University has cultivated and nurtured an interdisciplinary, collaborative and entrepreneurial environment in Data Science.

To ensure its researchers continue to play a key role in Data Science in the UK, the University organised a three-day interdisciplinary Data Science Symposium focusing on the national and international scope of the field.

Symposium organiser Dr Ruben Sanchez-Garcia, Lecturer in Mathematics at Southampton, said: "This recent symposium follows a successful Southampton Data Workshop that we held in September 2014 bringing together Southampton data researchers, practitioners, local businesses and organisations with an interest in data.

"We wanted our new symposium to focus on a more national and international scope and to strengthen interdisciplinary and multi-institutional links in Data Science and Big Data across academia, industry, government and other organisations."

The symposium welcomed high-profile speakers from across the world of Data Science who shared their opinions on the future of Data Science and promoted the importance of cross-fertilisation of ideas between the different Data Science disciplines in both academia and industry.

Approximately 90 delegates gathered at Carey's Manor Hotel, in the New Forest to hear from key speakers including Professor Dame Wendy Hall, Director of the University of Southampton's Web Science Institute; Professor Peter Grindrod, from the University of Oxford and Non-executive Director of The Alun Turing Institute; Professor David Hand, from Imperial College London and former President of the Royal Statistical Society; Professor Gunnar Carlsson, from Stanford University in California and co-founder of big data analytics company Ayasdi; Jane Naylor, from the Office of National Statistics; and Professor Yike Guo, founding Director of the Data Science Institute at Imperial College London.

Dame Wendy spoke about exploring the role of Web Science and determining how the Web evolves as a social-technical network.

She said: "Data science has been carried out for centuries but it is emerging in this decade as an absolutely essential tool for society that pulls together so many different disciplines.

"Southampton is really good at interdisciplinary research and data science cuts across almost the whole of our campus activity. We need to coordinate bringing in the funding and telling each other what we are doing. Southampton is uniquely positioned to do this."

Peter explored the creation of a national strategy. He said: "We need to think about how we create a data science programme across the UK that is looking at issues other countries aren't doing. We need to take this opportunity to be ambitious and create things that wouldn't otherwise happen for the UK."

David explored the role of models in data science. He said: "Data science doesn't just give us answers it also comes with challenges and problems that we have got to overcome. If we ignore or are not aware of these problems, then any conclusions we draw can be misinterpreted. Our ability to build statistical, objective models and the understanding that these lead to, will enhance the human condition."

Gunnar spoke about the impact and importance of mathematics and topology within data science.

He explained: "There is a possibility for a huge development here for mathematics, deciding what needs to be computed and what new things we can compute. We need to explore how we can extend machine learning to make it more understandable, transparent and flexible, so that we can interpret more complex kinds of data.

"The demand for data scientists will continue to grow and these people need to be able to deal with a lot of different methodologies. We are going to be continually confronted with things we haven't seen before and we have to be flexible and think about developing new mathematics and computer science to deal with that."

To find out more about the symposium and Data Science at Southampton visit
www.southampton.ac.uk/datascience/conference2016/index.page