Application of Cloud Computing in Genome-scale Bioinformatics Analyses

**Speaker**  
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**Date** 3 May 2016 (Tuesday)  
**Time** 3:00 pm - 4:00 pm  
**Venue** CS Seminar Room, Y6405, 6th Floor Yellow Zone, Academic 1  
City University of Hong Kong  
83 Tat Chee Avenue  
Kowloon Tong

**Abstract**

Next Generation Sequencing (NGS) is transforming the landscape of biomedical research, from disease gene discovery to clinical application of genomic medicine. NGS enables low-cost and high-throughput generation of a large volume of genomic, epigenomic and transcriptomic data. However, we now face unprecedented technical challenges in terms of computational analysis and storage of this vast quantity of data. In the last two years, my laboratory has been utilising cloud computing technology to overcome these challenges. In this talk, I will share my experience in using cloud computing in the following areas:

1. Fast and cost-effective analysis of transcriptomic data
2. Real-time collaborative genomic data exploration and sharing
3. Automated software testing of bioinformatics pipelines

**Biography**

Dr Joshua Ho completed a BSc (Hon 1, Medal) in Biochemistry and Computer Science in 2006 and a PhD in Bioinformatics in 2010, both from the University of Sydney. He then completed an interdisciplinary postdoctoral fellowship at the Harvard Medical School in the United States, where he was subsequently promoted to an Instructor in Medicine. In 2013, he returned to Australia to set up the Bioinformatics and Systems Medicine Laboratory at the Victor Chang Cardiac Research Institute, and has been the Head of the laboratory since then. Dr Ho is also currently an NHMRC & National Heart Foundation Career Development Fellow, and a conjoint senior lecturer at the University of New South Wales. His research focuses on developing fast and reliable bioinformatics methods to identify the genetic causes of inherited heart disease, using a range of cutting-edge approaches such as whole genome sequencing, machine learning, systems biology, cloud computing, and software quality assurance. Dr Ho’s research achievement has been recognised by the 2015 New South Wales Ministerial Award for Rising Stars in Cardiovascular Research, and the Australian Epigenetics Alliance’s Illumina Early Career Research Award.

All are welcome!

In case of questions, please contact Dr K C Wong at Tel: 3442 8618, E-mail: kc.w@cityu.edu.hk, or visit the CS Departmental Seminar Web at http://www.cs.cityu.edu.hk/news/seminars/seminars.html.