

THE CAMBRIDGE STATISTICS DISCUSSION GROUP

Monday 21st May 2012 7:15 for 7:45

Amgen Ltd,
Cambridge Science Park,
Milton Road,
Cambridge CB4 0WG

The Dimensions of Reproducibility

Darrel Ince
Open University

Abstract: Over the last two decades computers have become more powerful, more robust, smaller and cheaper. Many areas of science would not now be able to function adequately without them. Certainly computers have brought huge benefits to scientific research but, at the same time, they have created problems. A major problem is that it is becoming increasingly difficult to use scientific intuition to evaluate a research result and that much greater trust has to be placed on the correctness of computational products. In this talk I will look at a number of the issues that hinder the reproducibility of scientific research. I will examine a number of case studies including those from omics-based research and from human behaviour, geophysics, medical and harmonic analysis research. Some of the case studies illustrate the problems that researchers face in packaging up materials that support research. Others illustrate potential solutions. I will focus on how deficiencies in hardware, software, data and statistical processing can cause problems in scientific research and the steps that are needed to overcome them. There are lessons here for research organisations, academic journals and individual researchers and I hope to draw them out. There are many issues and problems that need to be addressed including the changing nature of universities, the education of scientists and the lack of adequate tools to assist reproducibility.

Speaker: Darrel Ince is Professor of Computing at the Open University. He has worked in a number of areas in software engineering including the metrication of the software development process and requirements for system security. He is the author of over 120 research articles on software development and 20 books on the same topic. His current work is focussed on chronicling in social work and also on reproducibility. Recently he was a member of the coalition government's review of children's social care.

Directions: Head north on Milton Road. Two traffic lights before the A14 turn left into the Science Park (clearly signposted). Turn left at the roundabout. The meeting takes place at Amgen in the restaurant in building 214 (the ground floor of the middle building on the attached map which is also at <http://imaging.mrc-cbu.cam.ac.uk/statswiki/csdg/amgen>).

Parking is available on site. There will be no admittance after 7-45pm. Arrivals after 7-45pm can gain admittance by contacting the secretary on 07761769436.

If anyone would like complementary transport to the talk venue from Central Cambridge please inform the secretary in advance of the meeting.

Provisional Next Meetings:

9th October - Bob Haining (Geography).

November - Simon Griffin (MRC Epidemiology Unit & CEDAR)

4th February 2013 - Vern Farewell (MRC Biostatistics).

Supper: Some members eat regularly in the University Centre before each meeting at **5-45pm**. Feel free to join them.

Subscriptions: of 1 pound are now due for attending the 2011-2012 session.

Secretary: Peter Watson, MRC Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge CB2 7EF; telephone 01223 355294 Extension 801; E-mail peter.watson@mrc-cbu.cam.ac.uk

Take a look at our website: <http://www.mrc-cbu.cam.ac.uk/people/peter.watson/csdg.html>