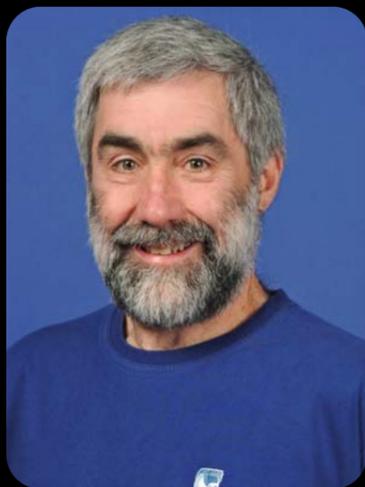




Creator: Francis Danby (1793 - 1861)

## IMS Public Lecture:

# Keeping afloat in a deluge of DNA data



**Speaker:** Professor Terry Speed  
*The Walter and Eliza Hall Institute of Medical Research, Australia*

**Date:** Tuesday, 22 September 2009

**Time:** 6:30pm – 7:30pm

**Venue:** Lecture Theatre 31  
Block S16, Level 3  
Science Drive 1  
National University of Singapore  
Singapore 117543

**Free Admission**

## About the Speaker

Professor Terry Speed is world-renowned for his numerous and important contributions to the applications of statistics to genetics and molecular biology, in particular, to biomolecular sequence analysis, the mapping of genes in experimental crosses and human pedigrees, and the analysis of gene expression data. As a member of the NIH Genome Study Section from 1995 to 1998, he investigated fundamental problems arising from the Human Genome Project. His current research focus is on cancer genomics.

For his many contributions, he has received numerous honors from the world's leading scientific bodies, including the NHMRC Achievement Award for Excellence in Health and Medical Research (2007), the Moyal Medal (2003), the Pitman Medal (2002), fellowship of the Australian Academy of Sciences (2001), and fellowship of the American Association for the Advancement of Science (1990). Professor Speed has served, and continues to serve on a number of scientific advisory boards and editorial boards in biology, statistics and mathematics. He was also the President of the Institute of Mathematical Statistics in 2003-2004 and of the Western North American Region of the International Biometric Society in 1994-1995.

He has held teaching appointments at universities in Sheffield (UK), Perth (Australia), and Berkeley (USA), and has been a research manager in Australia's Commonwealth Scientific and Industrial Research Organization. He is currently the head of the Bioinformatics Division of the Walter & Eliza Hall Institute of Medical Research in Melbourne, Australia.

## Abstract

There have been many advances in science and technology since Watson and Crick's 1953 publication of the structure of DNA, with several leading to novel ways of generating DNA data. In this talk, I'll outline the growth of technologies producing large amounts of DNA data, and talk about the corresponding efforts to store, display, analyze and interpret these data (called bioinformatics). My primary focus will be on DNA sequence data, but I'll also discuss genotyping and gene expression data. Technological themes include multiplexing, miniaturization and Moore's Law, while computational themes include algorithmic time and space requirements, and quick and dirty vs. slow and careful, and creative visualization. The underlying psychological theme is working harder and running faster to stay in the same place in some dimensions, at the same time as advancing dramatically in others.

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