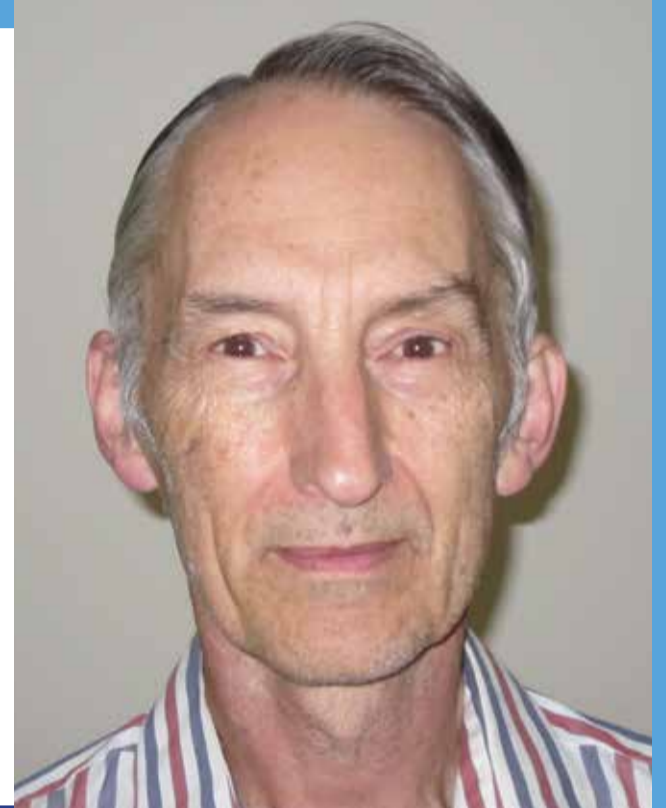




Department of Computer Science and Department of Mathematics Distinguished Lecture Series 2014/15

Some Mysteries of Multiplication, and How to Generate Random Factored Integers



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2:30 - 4:00pm | February 6, 2015 | Friday

RRS905, Sir Run Run Shaw Building, Ho Sin Hang Campus, HKBU

Abstract

Let $M(n)$ be the number of distinct entries in the multiplication table for integers smaller than n . The order of magnitude of $M(n)$ was established in a series of papers by various authors, starting with Erdős (1950) and ending with Ford (2008), but an asymptotic formula for $M(n)$ is still unknown. After describing some of the history of $M(n)$ I will consider algorithms for computing $M(n)$ exactly for moderate values of n , and Monte Carlo algorithms for estimating $M(n)$ accurately for large n . This leads to consideration of algorithms, due to Bach (1985–88) and Kalai (2003), for generating random factored integers – integers r that are uniformly distributed in a given interval, together with the complete prime factorisation of r . This is joint work with Carl Pomerance.

Biography

In 1978, Richard Brent was appointed Foundation Professor of Computer Science at ANU, and in 1985, he became Professor and Head of the Computer Sciences Laboratory in the Research School of Physical Sciences at ANU. In 1998, he moved to Oxford as Statutory Professor of Computing Science and Fellow of St Hugh's College. In March 2005, he returned to ANU to take up a 5-year position as an ARC Federation Fellow in the Mathematical Sciences Institute (MSI) and the Research School of Information Sciences and Engineering. In March 2010, he became a Distinguished Professor with a joint appointment in MSI and the School of Computer Science. Since Sept. 2011, he has been an Emeritus Professor at ANU and a Conjoint Professor at the University of Newcastle. He is a Fellow of the ACM, IEEE, SIAM, the Australian Academy of Science, and various other professional bodies.



Enquiry

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