1988

TWENTY-FOURTH GREGYNOG STATISTICAL CONFERENCE

P R O G R A M M E

FRIDAY 22 April	13.00	Lunch
	14.15	Dr Adrienne Kemp (St Andrews University) Rapid Estimation for Discrete Distributions
	15.45	Tea
	16.15	Dr Alun Thomas (Bath University) An Algorithm for Drawing Pedigrees
	19.00	Dinner
SATURDAY 23 April	08.30	Breakfast
	09.30	Professor Warren Esty (Montana, USA/ Oxford University) Estimation for the Unindexed Multinomial Distribution
	11.00	Coffee
	11.30	Professor D Kemp (St Andrews University) Poisson Generation with Varying Parameters
	13.00	Lunch
----------AFTERNOON FREE (Walks, etc)----------		
	16.00	Tea
	17.45	Professor John Rice (California, USA/ Bath University) Stochastic Problems in the Analysis of Ionic Currents across Cell Membranes
	19.00	Dinner
SUNDAY 24 April	08.30	Breakfast
	09.30	Dr Nick Logothetis (GEC Research) Radical Changes that Make Sense: The Need for the "Taguchi-method"
	11.00	Coffee
	11.30	Dr Allan Seheult (Durham University) Experimental Design in Off-line Quality Control
	13.00	Lunch
	14.15	Professor Michael Stephens (Simon Fraser University, Canada /Birkbeck College) Tests of Fit Based on Probability Plots, with some Comparisons
	15.30	Tea

ABSTRACTS

Rapid estimation for discrete distributions

A W (FREDA) KEMP - University of St Andrews

Abstract. Certain standard rapid estimation methods for discrete distributions will be reviewed and placed in the context of empirical probability generating function (epgf) estimation procedures. New approaches to the construction of rapid estimation methods will be described. These are based on the use of the epgf and its derivatives, on mathematical approximations to the maximum-likelihood equations, and on bounds for the maximum-likelihood estimators. A number of discrete distributions will be considered in depth.

Poisson Generation with Varying Parameter

C DAVID KEMP - University of St Andrews

SUMMARY. The talk deals with the problem of generated Poisson random variables when the parameter λ may vary from call to call. Existing methods will be reviewed, and a new algorithm will be described. This is based on a unidirectional search from the mode; the modal probability and, when required, the modal cumulative probability are calculated by simple and rapid, yet extremely accurate, asymptotic approximations. Comparative timings for a FORTRAN 77 implementation will be presented - these show that the algorithm dominates the current state-of-the-art algorithms for $\lambda < 700$.

Radical Changes that make Sense: The Need for the "Taguchi-Method"

NICKOLAS LOGOTHETIS, Senior Statistician, Technical Directorate,
General Electric Company plc, Hirst Research Centre.

The talk will give an overview of Taguchi's contributions to off-line quality control for quality improvement and cost minimization and will outline the changes needed to take place within the Industry, to ensure a proper implementation of the technique. Successful applications within GEC will also be reported.

Tests of Fit Based on Probability Plots

MICHAEL A. STEPHENS, Simon Fraser University, Canada and Birkbeck College, London

Probability plots have been a time-honoured way to assess whether a sample of values X comes from a given distribution. The ordered X-values are plotted against constants so that, if the null hypothesis is true, the resulting points should appear to lie on a straight line. This has often been judged by eye, but in 1965 Shapiro and Wilk introduced a statistic to measure the straight line fit, particularly for testing normality. This statistic has proved very effective, but the procedure has been shown to be inconsistent if applied to a test for exponentiality.

The talk will consist of
(a) a review of methods for measuring the straight line fit,
(b) a suggestion as to why the Shapiro-Wilk W is so effective for testing normality,
(c) recent work to show that the procedure will be inconsistent for almost all other distributions, for some alternatives,
(d) some comparisons with other techniques for testing fit.

TWENTY-FOURTH GREGYNOG STATISTICAL CONFERENCE 1988 - PARTICIPANTS

SPEAKERS

Professor Warren Esty	(University of Montana, USA/ Oxford University)
Dr Adrienne Kemp	(St Andrews University)
Professor David Kemp	(St Andrews University)
Dr Nick Logothetis	(GEC Research)
Professor John Rice	(University of California, USA/ Bath University)
Dr Allan Seheult	(Durham University)
Professor Michael Stephens	(Simon Fraser University, Canada/ Birkbeck College)
Dr Alun Thomas	(Bath University)

ABERYSTWYTH

Staff	Students	
Mr P H Jackson	Mr I H A Al-Iathary	Mr D E Jones
Dr J G Basterfield	Mr N H K Al-Yasiri	Mr A R K Rahi
Dr I G Evans	Mr B M Assas	Mr S M Yahya
Mr D A Jones	Mr P R Ceuppens	
Dr J A Lane	Mr Z M Chaudhry	
Miss S G Lutkins	Miss M A A Ismail	
Dr R J Owen	Mr A M Jamil	

BANGOR

Staff	Students	
Dr J Y Kassab	Miss W Al-Khareef	Mr A Mathi
Mr G C Morris	Mr M Al-Shamary	

BIRMINGHAM

Staff		Students
Professor A J Lawrance	Mr R Holder	Mr S Dugdale
Professor H E Daniels	Mrs A Mayo	Mr S Ul Haque
Dr P V Bertrand	Mr Luo Ping	
Dr P Davies	Dr D M G Wishart	
Dr D M Grove		

SWANSEA

Staff	Students
Professor A G Hawkes	Mr R Green
Dr A Jalali-Naini	Mr D Letzelter
Dr A M Sykes	Mr Salahuddin
Dr A J Watkins	Mr C Taylor

UWIST

Staff	Students
Professor J D Griffiths	Miss T Davenport
Dr R C H Cheng	Mr W Holland
Mr B E Evans	Mr G Jones
Mr T C Iles	Miss K M Thornton
Dr J E Williams	Miss K Wheeler