

THIRTY-FIRST GREGYNOG STATISTICAL CONFERENCE PROGRAMME

All talks will take place in Seminar Room 1 (Floor 2, far end)

Friday

21 April

13.00 *Lunch*

14.15 Professor Paul Newbold (Nottingham University)

Unit Autoregressive Roots and Structural Breaks I

15.45 *Tea*

16.15 Professor Henry Wynn (City University)

Some Computational Geometry in Statistics

19.00 *Dinner*

Saturday

22 April

08.30 *Breakfast*

09.30 Dr Peter Ceuppens (Toxicol Labs)

Statistical Modelling in Pharmaceutical Data

11.00 *Coffee*

11.30 Professor Paul Newbold

Unit Roots II

13.00 *Lunch*

Afternoon free (walks, etc.)

16.00 *Tea*

19.00 *Dinner*

20.00 Professor Barry Quinn (Goldsmith's College, London)

Statistical Problems in the Analysis of Underwater Sound

Sunday

23 April

08.30 *Breakfast*

09.30 Professor Frank Critchley (Birmingham University)

A Look at Influence Analysis

11.00 *Coffee*

11.30 Professor Richard Lockhart (Simon Fraser Univ. and Oxford)

Goodness of Fit and the Box Cox Transformation

13.00 *Lunch*

14.00 Professor Paul Newbold

Unit Roots III

15.30 *Tea*

ABSTRACTS

Professor Richard Lockhart (Simon Fraser University, visiting Oxford)

Goodness of Fit and the Box Cox Transformation

There has been considerable controversy over the 1964 suggestion of Box and Cox that estimation of the transformation parameter in their model can be ignored when making inferences for the regression parameters in the model. The suggestion was attacked by Bickel and Doksum who made asymptotic calculations to show that the variance of estimates could be greatly inflated over the usual linear model formulae. In reply data dependent parameter definitions have been proposed by Hinkley and Runger and others to justify the original suggestion. In this talk we discuss asymptotic calculations made under different conditions from those of Bickel and Doksum which lead to somewhat different large sample expansions. We pinpoint the major source of variance inflation and show that this source vanishes if standardized regression coefficients are considered. Our asymptotics give guidance as to the extent of variance inflation likely. Finally, the asymptotics permit tests of the hypothesis of normal errors in the transformation model which have an advantage not enjoyed by the Bickel and Doksum calculations, namely the approximations depend continuously on the estimated parameter values.

Professor Henry Wynn (City University)

Some Computational Geometry in Statistics

If one constructs a Venn diagram in the plane with four circles, at most fourteen elementary regions can be constructed. For spheres in d -dimensions the maximum number of spheres that can be placed so that all elementary regions are non-empty is $d+1$. This shows an elementary connection between complexity issues in geometry and elementary statistics or probability. Such geometric considerations also control the “depth” required in classical inclusion/exclusion identities, and are related to so-called independence number.

The above body of ideas is closely related to issues of Vapnik Chernovenkis dimension which is a key idea in the study of empirical processes and more recently in computational learning and neural nets.

The talk will attempt to tie these ideas together and to give them the label of “computational geometry in statistics”. Skeleton notes will be provided.

GREGYNOG STATISTICS CONFERENCE 1995 - PARTICIPANTS
SPEAKERS

Dr Peter Ceuppens (Toxicol Laboratories)
Professor Frank Critchley (Birmingham University)
Professor Richard Lockhart (Simon Fraser University visiting Oxford) + wife + 2 children
Professor Paul Newbold (Nottingham University)
Professor Barry Quinn (Goldsmith's College, London)
Professor Henry Wynn (City University)

STAFF

STUDENTS

ABERYSTWYTH

Mr D A Jones
Dr J A Lane
Miss S G Lutkins
Dr R J Owen
Professor D V Lindley
Dr H H Lowelllyn (Fri)

Miss H Chandler
~~Dr E J Raeburn~~
Mr M Aslam

BANGOR

Dr J Y Kassab
Mr C J Whitaker

Mr A Radhi
Mr M Helan
Mr A El-Bouzedi

BIRMINGHAM

Dr P V Bertrand
Mr R L Holder
Dr R A Atkinson
~~Professor A J Lawrance~~
Mr A J Girling
Professor H. Daniels

Dr D Q Wang
Dr G Lu
Mr G Heslop
Mr I Rahmatullah

NOTTINGHAM-TRENT

Professor N Davies

SWANSEA

Dr J du Preez
Dr J Pemberton
Dr M Kelbert
Dr A D Mayer
Dr A Watkins
Professor A Hawkes

Mr A Merlushkin
~~Mr J Radcliffe~~
Mr S James
Mr P Heatley

UNIVERSITY OF WALES COLLEGE OF
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Dr F Dunstan
Dr Rosamund Wilson

Miss Caryl Stokes

WARWICK

Professor J B Copas
Dr H G Li

Mr A Fario
~~Mr Heydari~~
Mr R Puch-Solis
Mr A Karkum-Gargoum
Mr L Rodriguez-Carvajal