

18th Gregynog Statistical Conference (1982) - Participants

SPEAKERS

Professor A. Agresti (University of Florida/Imperial College)
Professor J.B. Copas (University of Birmingham)
Dr. P.T. Davies (Shell Research Limited)
Dr. G.H. Freeman (National Vegetable Research Station)
Dr. L.R. Foulds (University of Canterbury/Royal Holloway College)
Mr. Jonah Jones (Gregynog Arts Fellow)
Dr. B. Jorgensen (Odense University/Imperial College)
Professor P.A.W. Lewis (Naval Postgraduate School, Monterey/University of Birmingham)
Professor T. Schweder (University of Tromso/University of Bath)

ABERYSTWYTH

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Mr. M. Cain
Dr. I.G. Evans
Mr. P.H. Jackson
Mr. D.A. Jones
Dr. J.A. Lane
Ms. S.G. Lutkins
Dr. R.J. Owen
Dr. J. Reeves
Dr. A. Ragab

STUDENTS

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Ms. D. Howel
Mr. M. Jantan
Mr. A. Habbab
Ms M. Jenkins
Ms. S. Al-Said
Mr. A. Jones
Mr. S. Hag el Siddig

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Mr. C. Matis

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Professor F. Downton
Professor H.E. Daniels
Dr. P.V. Bertrand
Dr. P. Davies

Mr. R.L. Holder
Mr. D.M. Grove
Dr. M.J. Faddy
Dr. A.J. Lawrence
Mr. A.J. Girling

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Mr. C.T. Gray

CARDIFF

STUDENTS

Mr. D. Foster
Mr. R. Parsons

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Mr. B. Evans

STUDENTS

Mr. G. Jones
Mr. Z. Hussain

18th GREGYNOG STATISTICAL CONFERENCE, 1982

PROGRAMME

FRIDAY 13.00 Lunch
23rd April 14.15 Professor A. Agresti (University of Florida, U.S.A. visiting Imperial College, London). *A survey of strategies for modelling cross-classifications having ordinal variables.*
16.00 Tea
17.30 Dr. G.H. Freeman (National Vegetable Research Station, Wellesbourne). *Variations on a Latin theme.*
19.00 Dinner
20.15 Dr. L.R. Foulds (University of Canterbury, New Zealand, visiting Royal Holloway College, London). *Minimal phylogenetic trees from protein sequence data.*

Paul Jackson

Michael Cain

SATURDAY 8.30 Breakfast
24th April 9.30 Dr. P.T. Davies (Shell Research Ltd., Thornton Research Centre), *Coal/oil flow ratios; an example of statistical analysis of correlated observations.*
11.00 Coffee
11.30 Professor Tore Schweder (University of Tromsø, Norway, visiting Bath University). *The method of correspondence analysis, applications to archaeology.*
13.00 Lunch

Frank Downton

John Hassall

----- AFTERNOON FREE -----
(Walks etc.)

16.00 Tea
19.00 Dinner
20.15 Mr. Jonah Jones (Gregynog Arts Fellow), will talk about his work as a sculptor, writer and film maker.

SUNDAY 8.30 Breakfast
25th April 9.30 Professor J.B. Copas (University of Birmingham). *Models, data dependence and prediction.*
11.00 Coffee
11.30 Dr. B. Jørgensen (Odense University, Denmark, visiting Imperial College, London). *Maximum likelihood estimation and large sample inference for generalised linear and non-linear regression models.*
13.00 Lunch
14.15 Professor P.A.W. Lewis (Naval Postgraduate School, Monterey, U.S.A. visiting Birmingham University). *The use of transformations in simulation output analysis.*
16.00 Tea

Gwyn Evans

Tony Lawrence

L.R. Foulds

Operations Research
University of Canterbury,
New Zealand

The problem of determining minimal evolutionary trees from protein sequence data is discussed in relation to graph theory. Such a determination from reasonably large data sets is hampered by the large amount of computation presently required. Some new techniques are presented which enable researchers to analyse such trees on larger data sets than have been so far possible. The basic principle involved is to split the problem into a number of smaller problems which are more easily handled. The methods are applied to give protein sequences on the same eleven species and the theory of evolution is strongly supported. Enumerative techniques are applied to count the number of possible trees for a given number of species and to study the asymptotic behaviour of trees of this number.

Of interest to: Molecular Biology, Evolution, Statistics, Combinatorics

by Bent Jørgensen

Department of Mathematics, Odense University, Denmark

Summary

The class of generalized linear models is extended to allow for correlated observations, nonlinear models and error distributions not of the exponential family form. The extended class of models include a number of important examples, particularly of the composite transformational type. A class of hypotheses for transformation models, generalizing the linear models, is defined. Large-sample inference and maximum likelihood estimation for the extended class of generalized linear models is discussed, and a relation between maximum likelihood estimation and least squares estimation is established for general likelihood functions. It is shown that many of the models of the extended class of generalized linear models can be fitted on GLIM.

Key words: Fisher's scoring method. Gauss-Newton method; Generalized linear models; G-linear models; GLIM; Least squares; Newton-Raphson; Non-linear models; Transformation models.