



THE STATISTICAL SOCIETY OF AUSTRALIA INC.

New South Wales Branch

**The 10th Annual J. B. Douglas
Postgraduate Awards Day**

2:30pm Wednesday 25th November 2009

University of Technology, Sydney (UTS)

Lecture theatre CB02.04.10

*THE STATISTICAL SOCIETY OF AUSTRALIA
New South Wales Branch Inc.*

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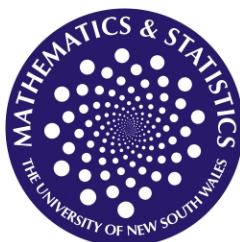
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SSAI (NSW Branch)



Program

2:00pm - 2:30pm	Arrival and refreshments	
2:30pm – 2:40pm	Eric Beh (Newcastle) President, SSAI (NSW Branch)	Welcome
2:40pm – 3:00pm	Julian Inchauspe	Currency Crises: Testing for the Presence of Multiple Equilibria
3:00pm – 3:20pm	Eva Knight	A hedonic indices model with a parsimonious surface from latitude and longitude - for measuring growth of residential house prices.
3:20pm – 3:40pm	Benjamin Dean	Versatile Regression: simple regression with a non-normal error distribution
3:40pm – 4:00pm	Afternoon tea	
4:00pm – 4:20pm	Kevin McGeechan	Retinal vessel calibre and risk for coronary heart disease: an individual participant meta-analysis.
4:20pm – 4:40pm	Wai-Yin Wan	Bayesian analysis of robust Poisson geometric process model using heavy-tailed distributions
4:40pm – 5:00pm	Robert Wells	Correcting Sample Selection Bias using a Nested Logit model: An application to occupational choice in Australia
5:00pm – 5:45pm	Judges' deliberation and award presentation	
5:45pm – 6:30pm	Pre-dinner drinks	
6:30pm – 7:30pm	Guest lecture: Eric Sowe (UNSW)	Academic Statisticians in an Age of Forgetting.
7:30pm – 10:00pm	Annual dinner	

Abstracts

Currency Crises: Testing for the Presence of Multiple Equilibria

Julian Inchauspe

Department of Economics, Macquarie University

This paper proposes a new empirical test for self-fulfilling currency crises. In economic theory, Obstfeld (1996) and Jeanne (1997, 2000) have introduced a model in which multiple rational-expectation levels of interest rate may coexist with a given level of macroeconomic 'fundamentals'. According to this model, a self-fulfilling currency crisis is defined as an expectation shift to a high interest rate equilibrium. The empirical test in this paper is based on catastrophe theory and uses latent variables estimated through a maximum likelihood procedure. The presence of multiple equilibria is then characterised by a backward bending curve between the two latent variables.

Supervisor(s): A/Prof Tony Bryant and Dr Roselyne Joyeux.

A hedonic indices model with a parsimonious surface from latitude and longitude - for measuring growth of residential house prices.

Eva Knight

Discipline of Operations Management and Econometrics, University of Sydney

Measuring House Prices for

- (1) Just the housing stock being transacted at a given time? OR
- (2) The whole housing stock in our economy via the dwelling sold at a given time?

Discuss briefly the various estimations that are used for measuring residential housing price movements. A part of the research is to build a hedonic pricing model with non parametric latitude and longitude effect which is parsimonious. The surface can easily be interpreted as a proxy for unobserved socio-economical variations in the sample. This proxy will allow for a reduction in the natural bias occurring in these types of models due to missing socio-economical/housing characteristics variables.

The objective is to provide a sector based model that appropriately reflects underlying house price movements.

Supervisor(s): Remy Cottet, Richard Gerlach.

Versatile Regression: simple regression with a non-normal error distribution

Benjamin Dean

University of Newcastle

This talk presents a new regression technique, called Versatile Regression, where the error distribution is described by the Generalized Lambda Distribution. The flexibility of this distribution allows the error distribution to be heavy-tailed, skewed or approximately normal. Versatile Regression has been found to perform well on heavy-tailed and skewed data, while also providing a reasonable approximation of Simple Linear Regression. Research has found that Versatile Regression produces accurate parameter estimates.

Supervisor(s): Dr Robert King and Dr Peter Howley.

Retinal vessel calibre and risk for coronary heart disease: an individual participant meta-analysis.

Kevin McGeechan

School of Public Health, The University of Sydney

Retinal vessel calibre may be a novel marker of coronary heart disease (CHD) risk. However, it is unclear whether it has an effect that is independent of traditional CHD disease risk factors and how useful it would be in clinical risk prediction. We combined data from 6 cohort studies that had measured the retinal vessel calibre, traditional CHD risk factors and incident CHD events using stratified proportional hazards models. We measured the change in calibration and discrimination when the retinal vessel calibre was added to a predictive model containing traditional risk factors for CHD. We also measured the proportion of the population who would be reclassified to a different risk category. We found that retinal vessel calibre changes were independently associated with an increased risk for CHD events in women, but not men, but that this increase in risk is unlikely to translate into clinically useful changes in predicted risk.

Supervisor(s): A/Prof Petra Macaskill.

Bayesian analysis of robust Poisson geometric process model using heavy-tailed distributions

Wai-Yin Wan

School of Mathematics and Statistics, University of Sydney

We propose a robust Poisson geometric process model with heavy-tailed distributions to cope with the problem of outliers as it may lead to an overestimation of mean and variance resulting in inaccurate interpretations of the situations. A well-known heavy-tailed distribution namely exponential power distribution with different tail shape and kurtosis is used. It is represented in scale mixture of uniform (SMU) because the hierarchical structure of the SMU representation possesses two prominent advantages: (1) the resulting density contains a mixing parameter which can accommodate the extra-Poisson variation and help to identify the extreme values in outlier diagnosis and (2) the parameter estimation can be simplified by sampling from normal or uniform distribution using Markov Chain Monte Carlo (MCMC) algorithms such as Gibbs sampling. The proposed model is also capable of describing the trend and covariate effects. Simulations and real data analysis are performed to investigate the properties of the model.

Supervisor(s): Jennifer So-Kuen Chan.

Correcting Sample Selection Bias using a Nested Logit model: An application to occupational choice in Australia

Robert Wells

School of Economics and Finance, University of Western Sydney

This presentation discusses the problems and remedies to sample selection bias in occupational choice modelling. Typically within the literature, discrete choice model are estimated on the probability of an employed individual being in a particular occupation; however, these analyses do not represent the full underlying population which also includes the unemployed and those who are outside the labour force. This paper uses a nested logit model to estimate a model that corrects for sample selection bias which is a generalisation of standard techniques. The results indicate that sample selection bias exists and that standard modelling techniques are a misspecification.

Supervisor(s): Raja Junankar and Roger Ham.

Abstract of the Guest Speaker

Academic Statisticians in an Age of Forgetting.

Eric Sowe

Visiting Associate Professor, School of Economics, University of NSW

In July this year Thérèse Rein revealed to us her Forgetting. “All that stuff [media gossip and sniping] goes straight into the Forgetting”, she explained. “I grew up thinking that was completely normal, and that every family had a Forgetting. Till I went to uni.”, said her daughter, Jessica. This particular kind of Forgetting may be somewhat eccentric. But there other kinds, too, which are by no means eccentric: indeed, some say we are living in an age of forgetting. I shall show that there’s some truth in this, and focus on three important issues that appear currently to repose in the Forgetting of the ‘family’ of academic statisticians. Extracting these issues from the Forgetting in order to resolve them usefully – that’s the challenge you’re invited to think about.

Map of UTS and position of Building 2.

