

*ASEARC: Applied Statistics
Education and Research
Collaboration*

**Institutional Research Profile:
University of Newcastle**

Research Conference

December 10 & 11, 2007

University of Western Sydney Campbelltown
Campus

David Allingham: ARC Centre for Complex Dynamic Systems and Control

Kim Colyvas: Manager of the Statistical Support Service

Peter Howley

Robert King

Trevor Moffiet: ARC Centre for Complex Dynamic Systems and Control

Darfiana Nur

John Rayner

Paul Rippon

Elizabeth Stojanovski

Maureen Townley-Jones

Name	Program	Topic	Supervisors
Ben Dean	MPhil	Modelling with the Generalised Lambda Distribution	Robert KING Peter HOWLEY
Kingsley Ezeh	MSc	Statistical Techniques for Improving Health Care	Peter HOWLEY Robert KING
Paul Fahey	PhD	Analysis of Performance Data for Universities and Hospitals	Peter HOWLEY John RAYNER
Phillip Lane	PhD	Delivery of Social Services in an Restructuring Region	Robert KING Philip O'NEILL
Trevor Moffiet	PhD	Bivariate Relationship Modelling on Bounded Spaces with Application to the Estimation of Forest Foliage Cover By Landsat Satellite ETMT Sensor	Kerrie Mengersen Robert KING
Paul Rippon	PhD	Innovative Application of Statistical Methods to Process Control	Kerrie Mengersen John RAYNER

ARC Centre for
Complex Dynamic Systems & Control



The ARC Centre for Complex Dynamic Systems and Control (CDSC) is funded by the Australian Research Council and linked to the Schools of Electrical Engineering and Computer Science; Mathematical and Physical Sciences at the University of Newcastle; and, School of Mathematical Sciences at the Queensland University of Technology.

Programmes

Control System Design

Mathematical Systems

Bayesian Learning - Queensland Univ. of Technology Node

Statistical Inference and Modelling

Programme Leader: John Rayner - Univ. of Newcastle Node

Deputy Leader: Robert King

Signal Processing

Industrial Control and Optimisation

Distributed Sensing and Control

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Allingham and Colyvas

David Allingham: Half engineering, half statistics; the operational bridge between the two. Projects this year include

- use of approximate Bayesian computation for model selection;
- using generalised linear distributions for illustration;
- sensitivity analysis for hidden Markov model of DNA segmentation and
- use of approximate Bayesian computation for DNA segmentation analysis.

Kim Colyvas: Manager of the Statistical Support Service (SSS);
see

<http://www.newcastle.edu.au/faculty-old/science-it/sss/index.htm>

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Howley and King

Peter Howley:

- primary focus Bayesian hierarchical modeling and its application to foster quality improvement activity in health care;
- broader interests in applications of Statistics in health, industry, business, finance, management and education.

Robert King:

- has two successful ARC Linkage grants (~\$K350), both with NSW Premiers Department;
- primary interest approximate Bayesian computation for flexible distributions with Kerrie Mengersen & David Allingham.

Trevor Moffiet:

Metallurgist ex BHP and OneSteel. Currently finishing a statistics PhD on the satellite remote sensing of forest foliage cover by Landsat ETM+ sensor.

- Main statistical interest is the modelling of relationships of interdependency on bounded spaces.
- Main personal interest is applied problem solving and problem solving facilitation within an industrial/manufacturing process improvement context.

Nur

Darfiana Nur: Main interests are

- nonlinear time series analysis and modelling
- Markov chain Monte Carlo convergence and
- DNA sequence modelling.

Currently working on

- (vi) Bayesian Hidden Markov models for DNA sequence segmentation modelling (with Mengersen (QUT), Rousseau (Paris Uni), McVinish (QUT), Allingham (UoN) and Yan-Xia Lin (UoW)).
- (vii) Adaptive and efficient estimation of Smooth Threshold Autoregressive models with GARCH errors (collaboration with Yan-Xia Lin (UoW)).

John Rayner: Main interests are

- Smooth Tests of Goodness of Fit (assessment of statistical models)
- Nonparametric Analysis of Experimental Designs.

Currently focusing on a second edition of 1989 monograph.

Paul Rippon: Working on PhD in Smooth Tests of Goodness of Fit.

Elizabeth Stojanovski: Longitudinal modelling and Bayesian, biostatistical and health applications.

Maureen Townley-Jones:

- primary focus categorical data analysis including correspondence analysis;
- broader interests in applications of Statistics in human nutrition, environmental life-science, health, business, finance, and education.