

# 44<sup>th</sup> Gregynog Statistical Conference Programme

*The talks will take place in Seminar Room 1 (2<sup>nd</sup> Floor, far end).*

<b>Friday 18 April</b>	16.00	<i>Tea</i>	
	17.00	Prof Don Fraser	Toronto
		<i>Bayes vs frequentist, posterior vs confidence I</i>	
	19.00	<i>Dinner</i>	
	20.15	Postgraduate workshop <i>Bayes vs frequentist, posterior vs confidence</i>	
<b>Saturday 19 April</b>	08.00	<i>Breakfast</i>	
	09.30	Dr Anastasia Papavasiliou	Warwick
		<i>Parameter Estimation for Rough Differential Equations</i>	
	11.00	<i>Coffee</i>	
	11.30	Dr Peter Challenor	Southampton
		<i>The statistics of rapid climate changes</i>	
	13.00	<i>Lunch</i>	
		<i>Afternoon free</i>	
	16.00	<i>Tea</i>	
	17.30	Prof Don Fraser	Toronto
		<i>Bayes vs frequentist, posterior vs confidence II</i>	
	19.00	<i>Dinner</i>	
	20.15	Prof Thomas Richardson	Seattle, visiting Oxford
		<i>Modelau deul ar gyfer annibyniaeth ymylol</i> <i>[Binary models for marginal independence]</i>	
<b>Sunday 20 April</b>	08.00	<i>Breakfast</i>	
	09.30	Dr Ben Diaz	Unilever
		<i>Unilever's Research on Recommender Systems: Leveraging Supermarket Shopping Data</i>	
	11.00	<i>Coffee</i>	
	11.30	Prof Nancy Reid	Toronto
		<i>Asymptotics and Applications</i>	
	13.00	<i>Lunch and finish</i>	

## Abstracts

Prof Thomas Richardson

Seattle, visiting Oxford

*Modelau deuol ar gyfer annibyniaeth ymylol*

*[Binary models for marginal independence]*

Log-linear models are a classical tool for the analysis of contingency tables.

In particular, the subclass of graphical log-linear models provides a general framework for modelling conditional independences. However, with the exception of special structures, marginal independence hypotheses cannot be accommodated by these traditional models. For example, it is not possible to formulate a model for four variables (A,B,X,Y) such that A is independent of B, and X is independent of Y (and no other restrictions are imposed). Focusing on binary variables I will present a new model class that provides a framework for addressing this problem. The approach is graphical and based on bi-directed graphs, which are in the tradition of path diagrams. In many respects the resulting models and associated fitting algorithms are dual to graphical log-linear models.

Dr. M. Benjamin Dias MIMA

*Unilever's Research on Recommender Systems:*

*Leveraging Supermarket Shopping Data*



Unilever

Unilever's mission is to add vitality to life. We currently meet everyday needs for nutrition, hygiene and personal care with brands that help people feel good, look good and get more out of life. We expect delivering Personalised vitality to play an important role in Unilever's future. Therefore we, the Mathematical And Psychological Sciences (MAPS) group, at Unilever Corporate Research have been investigating various personalisation algorithms in order to understand how their performance varies according to different data sets and application scenarios.

Over the past few years, we at MAPS have collaborated with several retailers, including the Swiss online supermarket LeShop ([www.LeShop.ch](http://www.LeShop.ch)), in analysing individual shopping basket (cf. loyalty card) data. As part of these collaborations, we have developed and deployed online personalised retail recommender systems, which serve as a test-bed (cf. our laboratory) in which we can evaluate the performance of our personalisation algorithms.

This presentation will cover the background to our research on recommender systems, discuss our initial results and highlight the novel evaluation strategy we have developed for the purpose of comparing recommender algorithms in terms of their expected live performance using retrospective/historic data. The presentation will also discuss the future challenges that we hope to tackle in our continuing research into recommender systems, and provide an overview of the other areas of research currently being carried out by the MAPS group.

## Speakers

Dr Peter Challenor

Dr Ben Diaz

Prof Don Fraser

Dr Anastasia Papavasiliou

Prof Thomas Richardson

Prof Nancy Reid

Southampton

Unilever

Toronto

Warwick

Seattle, visiting Oxford

Toronto

## Staff

### Aberystwyth

Alan Jones

John Lane

John Gough

### Bangor

Chris Whitaker

Rhiannon Whitaker

### Birmingham

Jen Marsh

### Cardiff

Frank Dunstan

### Southampton

Russell Cheng

### Swansea

Alan Watkins

### Warwick

John Copas

Jane Hutton

Tony Lawrance

Yvo Pokern

John Fenlon

## Students

See Ju Chua

Owen Bodger

Jen Ning Tan

Silvia Liverani

Maria Costa

Mouna Akacha

Piotr Zwiernik

Bryony Hill

Thais Fonseca

Manuela Cattelan

Peter Windridge

Sam Finch

Jennifer Rogers

Flavio Goncalves

Peter Kimani

Nastasiya Grinberg

Fan Zhang

Ola Moraru

Zhe He

Maria Vaquez