Newsletter

Department of Mathematics and Statistics

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

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This Newsletter:

> Change is the Law of Life. Those who look only to the past or the present are certain to miss the future.
>
> *J.F. Kennedy*

CONGRATULATIONS ROBIN TURNER!

Congratulations to Robin Turner for successfully defending her PhD, research which adds significantly to understanding a possible biological basis for clinical depression. Robin's unique mix of physics, mathematics and statistical modelling meant we worked outside the conventions. Robin presented her seminar "SPM & ICA linking brain function with personality and depression" on 25th August to a large crowd from math, physics, CSMHS, BioEngineering and Psychology. Robin now works as a statistical consultant at the Wellington School of Medicine, and hopes to link work there with her depression constructs. Well done!

Irene Hudson

PAPER SUBMITTED

A. Dress and M. Steel, *Mapping edge sets to splits in trees: the path index and parsimony to Annals of Combinatorics*.

DEPARTMENT SEMINARS

Monday 13th September, Room MSCS446, 4.10pm
Professor Dan Velleman, Amherst College, Massachusetts
Title: *Taylor series by nonstandard analysis*

COMMENTS FROM JOINT STATISTICAL MEETING

Narasimha Mittinty recently attended the large Joint Statistical Meetings (JSM) 2004 conference in Toronto. This conference is attended by over 4000 people and was a wonderful opportunity for Murthy after winning the student paper award. He writes:

A JOURNEY FROM SOUTHERN HEMISPHERE TO NORTHERN HEMISPHERE.

It was very exiting to land in Canada on a warm summer evening. No jackets or Jumpers just a T-shirt. Ho, alas! I am faraway from the cold and cloudy days of Christchurch, New Zealand, at least for a while. I was in Canada to attend the Joint Statistical Meetings (JSM) Toronto, Canada. The conference started on 7th of August, nice sunny and bright Sunday, not many sessions and not many participants what would you expect! Anyone must be insane to attend the conference on a wonderful day like this after traveling all the way from various parts of the world, but no, most of the participants including me very keen on the workshops (termed as Continuing Education, as usual Americans need to be different). It was great to be at the workshop no repentance, Prof. Jon Rao (said he is going to entertain us with his lecture, lecture! Entertainment! Whatever) but, believe me he is a wonderful teacher, this lasted for two days and it was great.

Thanks to the department and Survey Research Methods Section (SRMS) of American Statistical Association for providing me this wonderful chance to attend the workshop. Conference started and as usual, there were very good sessions and invited talks by some of the wonderful and great experts in the field of applied and pure statistics. There were 4000 participants, nice to see a large gathering of people (Indians like to see large gatherings, we are huge in number and we like big crowds). Attending workshops and sessions is this all we did? No there was some entertainment, like student mixer (free food!), that sounds nice, isn't it? As usual huge turnout, conference ball, some trips to the city of Toronto etc.

Well not going more into the details, I come to my presentation. My presentation was on 10th of August, in the student award winners session (Award! Where is it? Please see below for the photograph), what award is it? Student paper competition award given by the SRMS and the Government Statistics, this award provided me the travel assistance.

Thanks to my supervisors Dr. Easaw Chacko and Mr. Richard Penny for their encouragement and motivation in writing this paper for the competition. It was wonderful to present my paper "***Imputation by propensity matching***" along with the other four award winners from US and U.K, and in front of a gathering of 30 people, who showed a great interest in our session and also were working in this area. Thanks are due to the department people who participated in the department seminars and provided me with some encouraging suggestions for the development of the paper. The paper was received well and in return I was asked for the copies of my slides.

This wonderful tour in total would be incomplete if I don't mention my visit to Niagara Falls. This was one wonderful moment on its own apart from the conference. As, well said by a great man that all journeys have to come to an end, this wonderful journey of mine ended on 19th of August, with my arrival into the land of "Lord of the Rings" (***the middle earth***).

Narasimha Mittinty

DEPARTMENT RESEARCH FUNDS

Congratulations to the following who have been awarded grants towards conference expenses:

- Marco Reale is presenting at the COMPSTAT 2004 conference. His talk is entitled "*Directed acyclic graphs for vector autoregressions".*
- In December, Neil Watson will be attending the NZMS Colloquium in Dunedin.
- Dominic Lee will be at the AMSI Summer Symposium in Bioinformatics being held in Canberra in December. He will also be at the 2nd IMS_ISBA Joint Meeting and Satellite Meeting in Italy in January 2005.
- Chicago is the setting for the Computational Environmetrics Conference in October for Jennifer Brown. The presentation is *Estimating NZ's Kyoto carbon credits using Monte Carlo simulations.*

A TRIGONOMETRICAL RECURRENCE EQUATION

Some linear recurrence equations have explicit forms involving sines and cosines of multiples of an angle. While doing some computations for an example, for which I only needed the sines, I was using the equations:

$$\sin(n+1)x = \cos x \sin(nx) + \sin x \cos(nx)$$

$$\cos(n+1)x = \cos x \cos(nx) - \sin x \sin(nx).$$

It occurred to me that as we have here two simultaneous linear recurrence equations we ought to be able to eliminate all reference to cosines of multiple angles, at the cost of gettting a second order recurrence equation instead of two first order. And so it proved.

$$\sin(n+2)x = 2\cos x \sin(n+1)x - \sin(nx)$$

And correspondingly,

$$\cos(n+2)x = 2\cos x \cos(n+1)x - \cos(nx).$$

Both are very convenient for tabulating sines and cosines of multiple angles.

These are new to me, but could easily be 400 years old. In fact, slightly differently expressed they could be over a thousand years old. Now tell me what course you teach them in.

David Robinson

View towards the Mathematics and Statistics building

Monday 16th August 2004

THE LOW-DOWN ON THE BARN DANCE

This years MATH254 barn dance was another rip-roaring success. Well over 50 students and staff do-si-doed the night away at Ilam school. Stu Bougen, the usual accordian player, and caller Bill were joined by a late arrival on the mandolin and the harmonica solo, by Yu-An Chen, was a winner.

Willows were stripped, wellies were tapped and there were more checked shirts and dungarees than is right and proper for a Tuesday evening. A fine evening and thanks to Bill and others for taking the time to organize it all.

Alex James

NEWS FROM THE PHYSICAL SCIENCES LIBRARY

The Library has received some special funding from the Tertiary Education Commission's Innovation and Development Fund which has enabled it to purchase more Science Direct backfiles to add to our collection.

Mathematics backfile comprises 38 Journals, the oldest title goes back to 1826, and includes the top titles: Topology, Theoretical Computer Science, Journal of Computational and Applied Mathematics and Journal of the Franklin Institute. All titles have been catalogued and are now accessible from the Library Catalogue. For more information on disciplines and titles included please go to... http://library.canterbury.ac.nz/news/scidirbackfiles.shtml

Adam Cath, Information Librarian, Physical Sciences Library

DEPARTMENT VISITORS

Current Visitors	Name of Organisation	From	To	Room	Ext No
Tetsuo Kobayashi	**College of Engineering, Nihon University, Japan**	**24 Aug 2004**	**29 Aug 2004**	**501**	**8676**
Dr Carmela **Cappelli**	**University of Naples "Federico II"**	**1-Sep-04**	**10-Oct-04**	**720**	**8337**
Visitors due to arrive	**Name of Organisation**	**From**	**To**	**Room**	**Ext No**
Dr Chris **Glasbey**	**Biomathematics & Statistics Scotland**	**18-Sep-04**	**16-Oct-04**	**607**	**8875**
Prof. John **Chapman**	**University of Oxford**	**25-Sep-04**	**30-Nov-04**	**501**	**8376**