



STATISTICAL SOCIETY OF AUSTRALIA INCORPORATED NEWSLETTER

 December 2009
Number 129

Young Statisticians Conference – We’re Young and Significant

Number of delegates: 80 | Number of talks: 43 | Number of survey responses: 37
Overall satisfaction rating, mean (SD): 8.2 (0.88) | Minimum rating: 7 | Maximum rating: 10

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The Young Statisticians Network (YSN) hosted a very successful Young Statisticians Conference (YSC) on the 25th and 26th of September at the University of Technology, Sydney. Besides a number of contributed talks, we had three keynote addresses: Louise Ryan from CSIRO, John Croucher from MGSM and Chris Barnes from AIS; and a careers session.

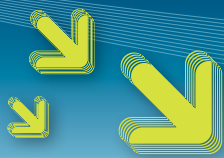
All three of the keynote talks were inspiring. Louise Ryan spoke about her vision for the profession for the future. She challenged us to engage with other scientists and be true collaborators in order for the profession to stay relevant. Too often statisticians are holed away in offices working on the minute details of a problem. More time

needs to be spent communicating with other scientists, educating them about statistics, and working with them to obtain results in a timely manner. Only through increased engagement with the outside community will the profession survive and flourish; without it, the profession may end. The theme of John Croucher’s talk was statistics in the world, how statistics pervades everywhere, and how it can have a real impact on people’s lives. He gave the example of Sally Clark, who was put in jail in the UK on the basis of flawed statistics. Chris Barnes gave a personal account of the rocky road that led him to where he is now. He finished with a Top 10 countdown of the most important things for a successful career (and life).

>>



Kevin Wang



December



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ADVERTISING

Advertising will be carried in the
Newsletter on any matters which
the Editors feel are of interest to the
members of the Society. For details of
advertising rates, etc.

Contact the SSAI Executive Officer at
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DEADLINE FOR NEXT ISSUE:
10 February 2010

Editorial



Alice Richardson.

**By the time this
newsletter reaches
you, Christmas will
be almost upon
us. The Editors
would like to take
this opportunity
to wish all Society
members a happy
Christmas, and a
pleasant New Year.**

We would also like to thank all those
who have contributed to the newsletter,

whether by writing reports, taking photos
or entering competitions. Thank you also
to the organisations who have supported
the activities of the Statistical Society and
its members — your input into successful
Society activities is much appreciated. In
particular, we would like to thank the ABS
for hosting the SSAI office in ABS House in
Canberra.

Alice Richardson *Michael Adena*

Alice Richardson
Editor

Michael Adena
Editor

CONFERENCES AND WORKSHOPS

Advanced Epidemiology and Biostatistics
Summer School,
9-18 December 2009, Brisbane

http://www.sph.uq.edu.au/docs/biostatistics_summer_school_2009.pdf

Workshop: Introduction to Time Series using
R

10-11 December 2009, Adelaide

<http://www.statsoc.org.au/CPD10TimeSeries>

Symposium: Space-time Modelling
14 December 2009, Canberra

<http://www.statsoc.org.au/CPD9Info>

Tenth Biennial Islamic Countries Conference
on Statistical Sciences (ICCS-X)

20-23 December 2009, The American
University in Cairo (AUC), New Cairo, Egypt

http://www.isoss.com.pk/conference/info_conf.php

Statistical Modelling and Inference
Conference to celebrate Murray Aitkin's 70th
birthday

1-4 February 2010, Brisbane

<http://www.aitkinconference.scitech.qut.edu.au/>

ISBA 10th World Meeting / 9th Valencia
International Meeting on Bayesian Statistics
incorporating the ISBA 10 / Valencia 9 Student
Video Competition

3 - 8 June 2010, Benidorm, Spain

<http://www.bayesian.org/events/isba2010/index.html>

ISBIS-2010, International Symposium for
Business & Industrial Statistics

5-9 July 2010, Grand Hotel Bernardin, St.
Bernardin Adriatic Resort & Convention Center,
Portoroz (Portorose), Slovenia

www.action-m.com/isbis2010

International Biometrics Conference

5 - 10 December 2010, Florianopolis, Brazil

<http://www.tibs.org/Interior.aspx>

Australian Statistical Conference 2010

6 - 10 December 2010, Perth, WA

<http://www.promaco.com.au/2010/asc/index.htm>

58th Session of the International Statistical
Institute

21-26 August 2011, Dublin, Ireland

<http://www.isi2011.ie/>

President's Message

Dear Members

I'll begin with financial matters. We are very close to finalising arrangements with the venue where the ASC 2008 Conference was held, and it will be good to have that part of the issue behind us. We are continuing to follow the appropriate court processes to seek a resolution from the conference organising company, but those processes are very slow and drawn out. On a more positive note, our program of fund raising workshops is proceeding very well indeed, and I'm grateful to those presenting the courses, those helping organise them, and those who have sponsored them. We have held a number of courses in different venues around Australia, and the feedback I'm getting is universally good. We have more planned in Adelaide and in Canberra in the near future. The really pleasing thing is that these aren't just raising much needed funds for the Society, they are also providing opportunities to share statistical expertise and knowledge amongst our members, and others who attend. We are beginning the process of developing a program of courses for 2010. While on the topic of finances, I'd like to repeat my thanks to those members who made voluntary donations, and those who have taken out multi-year membership of the society.

In September I had the pleasure of attending the Young Statisticians Conference in Sydney. There was a good turnout of young statisticians, at a very well organised conference. There were some really excellent keynote presentations, and plus a strong program of talks by many of the young statisticians present. I attended the whole conference (albeit stretching the definition of young statistician quite a lot to do so), and was particularly impressed by the quality and content of the presentations, with many fascinating and well explained examples of statistics being applied to real world issues and problems, and many expositions of advances in theory.

The society has been actively representing the profession in recent months. Professor David Steel took on the job of coordinating and putting forward comments from members of the society as part of the ERA

journal ranking exercise. We're hopeful that we will see a sensible result emerge. Professor Neville Weber has agreed to be a member of a small group which will check the correctness of the language used for mathematical and statistical concepts and overall coherence before release of the K-10 Draft National Mathematics Curriculum by the Australian Curriculum Authority around February next year. The AustMS and AMSI were also involved. The teaching of mathematics and statistics in Australia's schools is crucial to the future of our profession, and indeed to Australia.

As I write this, we are now slightly more than twelve months away from our next major conference, ASC 2010 in Freemantle from the 6th to 10th of December 2010. Mark the dates in your 2010 diary now! It's shaping up to be a really excellent conference, with some great keynote speakers, a good program of associated workshops, and of course as always the opportunity to meet and share experiences with professional colleagues in a convivial setting. The executive of the society has begun very early planning for the 2012 conference, which has been tentatively marked down for Adelaide. We'll be giving some thought to, and seeking views about, the style and format of future conferences as we proceed. We have been approached by the IMS about the possibility of holding our 2014 conference jointly with them. We've responded favourably, and are in the very early stages of exploring options for holding the 2014 conference in Sydney.

Finally, it's approaching time when membership renewals fall due for many of us. In the role I've taken on I'm learning a lot about what the society is doing, and the many activities that are under way. It gives me great hope for the future. I strongly encourage you to renew your membership promptly when the reminder notice arrives so we can continue to plan and move forward as a strong vibrant society.

Geoff Lee
President SSAI ■

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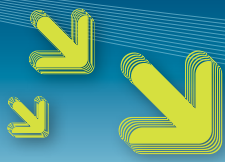
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Young Statisticians Conference Cont.

Young Statisticians Conference – We're Young and Significant

Cover story continued



Penny Sanchez and Louise Ryan

The contributed talks ranged from theoretical to applied. There were also talks on people's personal experiences in the field of statistics. The careers session really opened up some people's eyes to the different fields statistics can lead one into. There was feedback that in future conferences, there should be "mix/mingle" sessions and educational sessions, such as "presentation skills" and "Introduction to Bayesian Analysis".

Congratulations to Mo McKinnon, Samuel Allingham and Chern Ng for receiving the Eli Lilly Australia's Young Statisticians Presentation Award. It is not only how good you are at understanding statistical theories that makes you a good statistician, but how good a communicator you are! Mo, Sam and Chern all demonstrated their excellent communication skills. It is my hope that people learnt from them in order to improve their own presentation skills in the future.

Overall, based on the feedback we received, we are 100% confident that it was a great conference. Being the Chair of the YSN and the YSC organising committee, I would especially like to acknowledge the help of Marie-Louise Rankin, as well as Steve Bush and Richard Hutchinson. Marie-Louise did lots of work behind the scenes, such as getting abstract booklets together and being the point of contact for all the delegates. Steve, being a UTS local, not only took on the task of securing us a venue, also made sure that the transition between presenters' slides was smooth and took care of all the logistics throughout



YSC 09 Delegates

the two days. Richard, my predecessor who helped organise YSC 2007 and the YS session during ASC 2008, took on more of a "consulting" role and provided organisational guidance to the rest of us, as well as projecting a "calm" karma when people were stressed.

Finally, most of the members on the organising committee have been involved with three conferences now – YSC 2007, ASC 2008 and YSC 2009. We believe that it is time for the next generation of young statisticians to take over the reins. I strongly encourage those who have enjoyed the events to start taking a more active role within the Statistical Society and your Branch by helping out at the Branch level, nominating to be on the Branch Council, as well as taking the national YSN to the next level. Like Martin Luther King, I too have a dream. I have a dream that YSC 2011 will attract more statisticians from Australia and New Zealand, and even from other countries. I dream it will be the most successful YSC in history! It can be done with your help!

Kevin Wang
Chair, Young Statisticians' Network



Election of Executive Members

Executive Members



CAMBRIDGE UNIVERSITY PRESS

20% SSAI Member Discount Promotion 2009

Cambridge University Press Australia is pleased to offer an exclusive 20% SSAI member discount off selected statistics titles until December 31, 2009. Please go to:

<http://www.cambridge.org/aus/catalogue/promotion.asp?nav=view&code=ssai9>

to see the available titles.

To apply the discount, simply enter the promotion code SSAI9 when prompted at the checkout stage of your order, and the prices will be automatically updated.

Members are advised that the Executive positions of Vice-President (President Elect), Secretary and Treasurer will become vacant at the Society's Central Council Annual General Meeting in 2010.

The SSAI Rules provide for a Nominating Committee, consisting of the current Executive and the Branch Presidents, to solicit nominations and submit a list of nominees to Central Council. Should an election be required, Central Council will then arrange a ballot of all financial members of the Society.

Members of SSAI are invited to submit nominations for the three positions to be vacated. Nominations must be in writing and signed by the nominator(s), and must be accompanied by a written and signed statement from the nominee accepting the nomination.

Nominations should be submitted to the SSAI President (Geoff Lee) or to a Branch President before 31st January, 2010.

Doug Shaw
Secretary

SOCIETY AWARDS

The Society awards a gold medal, the Pitman Medal, at most once annually, in recognition of outstanding achievement in, and contribution to, the discipline of Statistics. Honorary Life Membership honours outstanding contribution to the profession and the Society, while a Society Service Award may be awarded to a Society member in recognition of sustained and significant service to the Society.

An Awards Committee, chaired by the President of the Society, makes recommendations to the Society's Central Council as to appropriate Award recipients. Pitman Medals and Honorary Life Memberships are usually announced at the Society's Conference.

Members of the Society are encouraged to propose suitable recipients of the Pitman Medal, Honorary Life Membership or a Society Service Award. Suggestions, with brief supporting information, should be emailed to the President, Geoff Lee, as Chair of the Awards Committee.

Doug Shaw
Secretary

MASA
James Spuire Brewhouse
Model Assisted Statistics and Applications
An International Journal

Editor-in-Chief: Sarjinder Singh
Guest Editor 2009: Stan Lipovetsky
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Notice to all SSAI Members

During the school holiday period of December 2009 and January 2010 the SSAI Office will be closed as follows:

Wednesday, 23 December 2009 until Sunday, 3 January 2010

Friday, 15 January 2010 until Monday, 1 February 2010.

Office hours in the weeks of 4 January 2010 and 11 January 2010 will be Mondays and Thursdays, from 9am-6pm.

Symposium: Space-time Modelling

Presented by Professor Noel Cressie (The Ohio State University)

Monday, 14 December 2009, Canberra

An opportunity to hear a world renowned expert in the field.

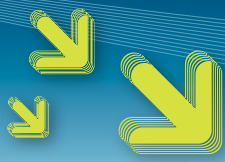
An event aimed at statisticians, quantitative researchers, PhD and masters students.

For more information and to register, please go to

<http://www.statsoc.org.au/CPD9Info>

The SSAI would like to thank CSIRO for sponsoring this event.





Australian Statistical Conference 2010



Platinum sponsor



Professor Noel Cressie

The CSIRO will sponsor Professor Noel Cressie as a plenary speaker at ASC2010 as a part of their support for the conference.

It is very appropriate that Noel will be speaking

at ASC2010 because, not only is he a "Fremantle boy", but his work in spatial and environmental statistics is of direct relevance to the mining boom in Western Australia, to agriculture, and to environmental questions that face us all.

Noel is Professor of Statistics, Distinguished Professor of Mathematical and Physical Sciences, Ohio State University, and Director of the Program in Spatial Statistics and Environmental Statistics (SSES) at that university.

Despite his high international profile in statistics, Noel has always kept his links with the Australian statistics scene. After graduating from the University of Western Australia with a first class honours in mathematics, he received the M.A. and Ph.D. degrees from Princeton University in 1973 and 1975 respectively. Noel returned to Australia to work at Flinders University of South Australia from 1976-1983 first as Lecturer and then as Senior Lecturer. From 1983 to 1998 he was Professor of Statistics and then Distinguished Professor in Liberal Arts and Sciences at Iowa State.

Noel has authored over 200 refereed articles and two books, including the highly influential *Statistics for Spatial Data*, published by Wiley. He is an elected Fellow of both the American Statistical Association and the Institute for Mathematical Statistics. He has supervised over twenty PhD students, mostly in spatial statistics, and is an editor for numerous journals.

Noel's connections to Fremantle where ASC2010 will be held are indelibly forged

by the fact that he was born and raised in Fremantle where he attended the local John Curtin High School. He has since created an impeccable CV which can be viewed at <http://www.stat.osu.edu/~ncressie/Cressie-CV.pdf>. We are very fortunate to have Noel as a plenary speaker and look forward to his participation in ASC2010..

Brenton R Clarke

Chair of the Program Committee ASC2010

Fremantle walking tours

The City of Fremantle has made it easy for visitors to experience the city by creating Fremantle Trails, a series of **trails and walks** around Fremantle's central business district between the Fishing Boat Harbour and Victoria Quay (Fremantle Harbour). The Trails are designed to guide you on a personalised tour via downloadable maps, signs, street art and landscaping. Each Trail takes between 2 and 4 hours to walk.

Discover at your own pace the many cultural, historical facets and layers of this unique and vibrant city. Ten separate walks each covering a different aspect of the city and each with its own map have been developed: Discovery Trail, Maritime Heritage Trail, Art and Culture Trail, Writers Walk, Retail and Fashion Trail, Hotels and Breweries Walk, C.Y. O'Connor Trail, Waterfront Trail, Manjaree Heritage Trail and Convict Trail. Maps and details can be found at <http://www.fremantlewa.com.au/pages/fremantle-walking-trails/>.



Fremantle Maritime Museum

Maritime Heritage Trail

This 1-2 hour trail gives you an insight into the unique maritime heritage of Fremantle and Western Australia. This is a fascinating trail which takes you from the Fishing Boat Harbour to the Maritime Museum which opened to the public in 2002 to tell the public stories of early explorers, trade routes, naval defence and migration. Adjacent to the museum is HMAS Ovens, an Oberon class submarine that serves as a living memorial to submariners who gave their lives while serving during WWII. Outside the museum you will also find the Welcome Walls which pay tribute to the immigrants from many lands and cultures who have contributed to the development of Western Australia. The Maritime Heritage Trail also includes the Maritime Museum Shipwreck Gallery and the South Mole lighthouse from where you can get a great view of Fremantle and the Port itself.



C.Y. O'Connor Memorial at South Beach

C.Y. O'Connor Trail

Charles Yelverton O'Connor (1843-1902) was the legendary civil engineer who conceived and built the water pipeline between Perth and Kalgoorlie at the beginning of the twentieth century. Fremantle harbour is still much the same in appearance and basic design as when he designed it in 1892. There is an O'Connor Memorial in the water at South Beach in Fremantle that marks the place where O'Connor, as a result of public criticism of his pipeline, dismantled from his horse and killed himself.

Jane Speijers

Chair of the Organizing Committee ASC2010 ●

Modern Bayesian Methods

1st February, 2010

Queensland University of Technology, Brisbane

Presented by Professor Murray Aitkin

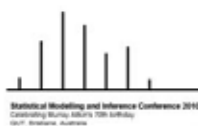
Session 1: Basic Bayes inference: model, likelihood, prior, posterior, parameter inference. Simple binomial proportion and normal mean examples. Bayesian computation, posterior simulations. Two-level balanced normal model: posteriors for the mean and variance components.

Session 2: Non-nested model comparisons. The Cox Poisson-geometric example. Difficulties with frequentist likelihood ratios and Bayes factors. Nested model comparisons. Frequentist likelihood ratio test and Bayes factors.

Session 3: Posterior distribution of the likelihood and likelihood ratio for non-nested models. Posterior simulations. The deviance difference and its asymptotic posterior distribution for non-nested models. Empirical posterior distributions by simulation. Cox example. Posterior distributions of the likelihood ratio and deviance difference for nested models. The Bayesian t-test.

Session 4: Complex models. Posteriors for small-area estimation. Mixture models. The role of MCMC. Example: the number of normal mixture components in the galaxy data.

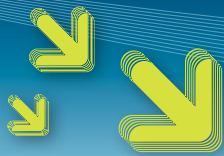
The course is based on the book by Murray Aitkin in preparation for Chapman and Hall/CRC: "Statistical Inference: an Integrated Bayesian/Likelihood Approach", to appear 2010.



Admission is free

email: smic2010@qut.edu.au

www.aitkinconference.scitech.qut.edu.au



**Queensland University of Technology,
Brisbane**

2nd–4th February, 2010



Statistical Modeling and Inference Conference: celebrating Murray Aitkin's 70th birthday

This conference celebrates Professor Murray Aitkin's 70th birthday and is also a celebration of statistical modelling and inference: the current and future state, as well as Murray's involvement and contributions to these fields.

We will be joined by the following keynote speakers

1. Professor Steve Fienberg
2. Professor Nan Laird
3. Professor Geoff McLachlan
4. Professor Kerrie Mengersen
5. Professor Sophia Rabe-Hesketh
6. Professor Donald Rubin
7. Dr Louise Ryan
8. Professor Sue Wilson

Web: www.aitkinconference.scitech.qut.edu.au

E-mail: smic2010@qut.edu.au

Registration fee's:
Early Student \$250
Early Regular \$395
Late \$500

Registration: <http://www.statsoc.org.au/CPD5>

Survey and Management

Section Report ITSEW09/RRC09



REPORT NICK FISHER

I'm not sure what possessed me to bound in from the wings of the Auditorium at the ISI General Assembly, waving a war club, to present my annual report as President of ISBIS (International Society for Business and Industrial Statistics). Perhaps it was the fact that my son-in-law is an aboriginal elder, so I've learned something about paying respect to the traditional owners of the land. Or perhaps I had a senior moment. Or perhaps something else again.

In any event, before the General Assembly took place, I approached Dr Jairo Arrow, one of the chief organisers of the ISI Session who is also a Zulu, to ask whether this would be an acceptable thing to do as far as Zulus were concerned. He not only encouraged me to do it, but also facilitated the whole episode. Afterwards, he sent me a message saying that "Your Zulu outfit was original and added more flavour to the conference. It was greatly appreciated. Cultural diversity is a common thread of what we do here in South Africa."

Nick Fisher 



Photograph by Hallgrímur Snorrason (thanks, H.), shirt and tie by David's of Hong Kong (the airconditioning was sub-artic.

This (northern) summer I attended workshops at different corners of Europe but both with congenial settings. My determination to attend the (third) International Total Survey Error Workshop was a consequence of a plenary exchange last July in the much grander setting of the European Quality in Official Statistics Conference in Rome. The issue was the relevance of cognitive study in the interview process, when collection vulnerability had moved well beyond the original concerns with bias from interviewer variation. I was invited to the workshop (along with the whole hall) to contribute to the debate in a slightly less formal setting.

The thought of presenting (albeit to an exotic audience) was a useful avenue for building credibility in our own random sample survey program, and bleeding us in the methods world. Despite its portentous title the Swedish workshop was an exercise in studied informality just the place to test our own highly applied explorations in survey error.

It turns out that ITSEW is a reinvention of the original annual nonresponse workshops series commencing in 1990 out of which had grown the much grander EQOS series. I attended the 4th nonresponse workshop when it had some of the dimensions that ITSEW has now – essentially a retreat for official practitioners and interested academics to rescue official survey practice from the mire of declining response and increasing interference affecting the Neymanian frequentist paradigm. Attendance led directly to improved support for the ABS social survey program, and provided enough inspiration not to abandon the idea of seeing surveys through complex interplay between on the spot investigation (allowed hardly at all in a busy office); learning from experiences elsewhere; and watching the transformation from a design based to model assisted to model based and Bayesian contaminated methods in survey inference and design. In fact the workshop was popular among people who

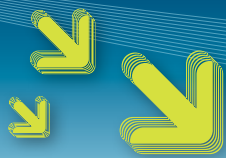
were not satisfied with the reach of existing methods, meeting evolving demands for survey-derived or hybrid sourced official information, but had no dedicated time to research.

The landscape radically altered with successive expansions of the European Union, which led directly to new scenarios dictating requirements for cross jurisdictional collections, and comparative, timely and authoritative indicators across a large number of collection systems. This official pressure on existing nationally based collection systems exposed the isolation in which methods research agendas were framed, but allowed the free exchange climate of these informal workshops to unfold into cross collection methods development programs attracting generous funding and appropriate time scales for the programmed research.

The informality of the early workshops was not sustainable, and they were overtaken by more inclusive more collection-centred conferences – the first in Copenhagen in 2000 and subsequently in Slovenia, Mainz, Cardiff and then Rome. The Rome conference had the full backing of the Italian national collection agency in its role as a good European citizen, advancing the quality of European level official statistics.

In 1994 the story had been the dramatic decline in household survey response in countries with longer traditions in centralized survey taking (Sweden, the Netherlands, the UK, France); the failure of traditional census methods in these countries (because of citizen resistance); and the investment in the theory of surveys typified by the *Journal of Official Statistics* (Statistics Sweden), *Survey Methods* (Statistics Canada) and the Survey Methods Section of the ASA. The University of Michigan in particular had become a centre for the study of survey error, originating the doctrine of total survey error under the leadership of Bob Groves, following on pioneering work by Canell and others.

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Reports
December 2009

Survey and Management Selection Report cont.

ITSEW09/RRC09

Workshop Field Work:

a) Church boats* prior to an ITSEW expedition on Lake Siljan, central Sweden (Professor Lyberg, co-convenor in red shirt)

b) The Lorelei myth** explained by an RRC participant mid-cruise

* communal rowing boats used to get to church in the next village (15km around the lake)

** the archetypal attractive female luring sailors to their doom from this rock above the Rhine, recounted by Heinrich Heine in a popular poem of the same name, beginning - I don't why it is that I am so sad - a fairy tale from the old times I cannot get out of my head..That the Lorelei has done.



Groves was a leading light in the first workshop series, along with Wim de Heer (Statistics Netherlands) and Lars Lyberg (Statistics Sweden). Susan Linacre had initially attended early sessions, and was lead author for a joint contribution I presented at the fourth, my personal introduction to this do-it-yourself research community (continuing participation was contingent on contributing to a shared research agenda). While this may seem superfluous to academic methodologists, it made sense to institutional (or consultant) practitioners whose methods were devised or dictated ad seriatim in production environment as a spur to more analytical solutions.

Nonresponse (and attendant other failures of design) put in jeopardy the standard tools for policy feeding, person-, family- or household- based, economic and social collection. The focus provided by the workshops presented an opportunity to pull apart the components of error in survey estimates, moving boldly into nonsampling error - the bane of the Hansen survey theory on which Australian practice was based (largely through the influence of Ken Foreman).

ITSEW convened by some of the personalities associated with the early workshops - notably Lyberg and the Michigan school of total survey error created by Groves and Couper. It is a venue to explore this idea, without the

complication of quality frameworks, giving full weight to cognitive studies, unlike the impetus in official methods studies where the emphasis is more on source and mode.

Attending ITSEW09 were 'survey methodologists', that is, people working exclusively with the components of error in surveys; and 'survey practitioners', that is, people who put surveys together. This split was evident early in the workshop in the framing of debate around error and away from adjustment. This decoupling was illustrated in presentations of research projects centred on explaining bias, and those built around (optimally) bias proofing designs.

Contributions had been invited on the theme of abuse of the total survey error concept. This proved a useful way of focusing discussion and a nudge towards making total survey error serve as a guiding principle for practitioners. One presentation advertised the Statistics Sweden users' guide, acknowledging that survey enterprise involved deliberate instructions backed by flexible and informed constructive theory. But the general flavour was more elemental: what effect does interviewer tone (or accent) have on responsiveness and truthfulness of responses.

Our presentation - on errors from survey governance structures: how do you write quality into contracts? - had larger echoes in papers on coordinated survey standards

(Westat's involvement in the international literacy study; the EU-SILC experience; the ESS). There was also room for a range of graduate papers on weighting, variance estimation (two imaginative approaches) and an account of coverage/listing problems with the US Census from a methods and an official angle. The latter follows the discovery of a likely net overcount, against all previous expectation. The anchoring papers were from Paul Biemer (convener) and NRW veteran Clyde Tucker (US BLS). In between was a flowering of results about process that left me no step closer to the question framed at Rome: how to convey authority responsibly in reporting survey results?

Where ITSEW had split the audience, the RRC09 was an unabashed showcase for small area estimation (estimation more generally) of most published and still active authors covering a remarkably long span. The invited speaker list was a celebration of the longevity of the Fay/ Herriott model (the 30th anniversary of its publication) in the persons of those influential at that time of first publication (Fay, Morris, Ghosh and JNK Rao) and their students (Lahiri, Jie). Chambers, Lehtonen and Pfeffermann were by comparison more influenced by the agency context in which much SAE work applies. This broadened the subject sufficiently without losing coherence, easing the tensions between classical (Rao) and Bayesian (Morris) adherents.



Attending were methods people from the German and Austrian agencies and staff and students from universities of Trier and Stuttgart. The depth of their work became evident in the poster session mid way through the work shop, showing clear benefits of the Eurostat investment in projects around European scale estimation issues. The moving spirit in this conference was Ralf Munnich, who is director of the framework project for small area statistics, successor of Euredit, and professor at Trier. One poster that caught my eye described a critical evaluation (long overdue) of the World Bank methodology as applied to small area indicators in poor countries in Central America. This surely needs more publicity.

Like ITSEW the RRC benefited from a focused subject and informal format, had a breathtaking setting and high standard of organization. It was not just arranging a platform for Robert Fay (allowing him inter alia to give credit to his late collaborator Roger Herriott, the survey practitioner component to this methods-practice team) and his contemporaries, but ensuring that a discussion across a range of established opinion in the field took place.

Showing off our versatility (or foolhardiness) we put in a poster on repeated measures for improving estimation accuracy – another spinoff from the FAHCSIA's RSS [Department of Families, Housing, Community Services and Indigenous Affairs] that may just be on the horizon for next year's small area conference. It had small resonance, not surprising in a gathering celebrating history and vitality of pioneering work, but raising a couple of eyebrows for the future.

What messages have I come away from these workshops? It is always useful to see where advance is being made (or not made). Surveys are under siege with rising cost; shifting emphasis; greater quality assurance; and a more enlightened user community able to articulate requirements better coupled with contested policy arenas. In the past surveys had stood alone as cornerstone source for official social statistics series and as major contributor to economic series. The shift to linked mode collections has happened in tandem with the emphasis on quality in official statistics, whether in the collection design and execution or in the storage and handling of administrative and other non-

survey sources. This is challenging from both methods and practice viewpoints, and should engage both communities.

Revaluing the achievements of statisticians, working independently of government, builds foundations for inference on which the utility of the product material rests. This applies both the apparatus of population surveys as much as to the techniques in extending inference from populations to subdomains, where demand remains strong. This fluidity should embolden those working in government to confidently push for higher standards of statistical rigour in the management and use of statistical data (and meta data), now more popularly referred to as 'evidence'.

Stephen Horn 



Up coming Meeting

SSAI at Joint Statistical Meeting in 2010



Ian Marschner



Mark Griffin



Niels Becker



Val Gebski

Earlier this year members of the SSAI submitted an application to organise an Invited Session at the Joint Statistical Meeting in Vancouver in 2010. In October this year we received notification that our bid was successful, and we warmly congratulate Niels Becker, Val Gebski, Mark Griffin and Ian Marschner on this application.

We have entitled this session "Biostatistical Innovations in the Australasian Region". The first talk will be given by Prof Niels Becker. Niels will be speaking on statistical challenges in preparing for and responding to a pandemic, and will illustrate this with applications to data on the H1N1 2009

pandemic. The second talk will be given by Prof Val Gebski. Val will be speaking on challenges in the conduct of clinical trials in the Australasian Region, and will present novel statistical methods for examining a multi-national study (some 18,000 patients over 46 countries) of fibrinolytic therapy. The third talk will be given by Prof Ian Marschner. Ian will be speaking on statistical considerations in cost-effectiveness assessments of new medicines in Australia, and will explore novel statistical approaches for using surrogate outcomes and indirect treatment comparisons in these approval submissions. Mark Griffin is the organiser of this JSM session.

JSM is one of the largest statistical conferences in the world with over 6000 delegates each year and is jointly organised by seven statistical societies (including the American Statistical Association). There are also six sessions at the conference where other societies can compete for an opportunity to organise an invited session. The SSAI has submitted a successful bid to organise an invited session for JSM 2010.

Measuring Australia's Labour Force Efficiency: Past, Present and Future.

ACT Branch
Philip Kokic and Frank Yu



Each alternate year between ASC conferences the Foreman lecture is organised by the Canberra branch of SSAI. This year's Foreman lecturer was Frank Yu, Head of Statistical Services Branch in the Methodology Division, ABS. Frank gratefully acknowledged the support of his ABS colleagues, Phil Bell and James Chipperfield, as his presentation drew on work they had undertaken.

The lecture is named after the late Ken Foreman, the former First Assistant Statistician of ABS methodology area, who worked at ABS from 1952 to 1984. Frank began his presentation with an overview of Ken Foreman's major contributions to ABS, noting Ken's emphasis on methodological rigour in developing solutions to practical issues, and adopting a total quality approach to statistical design.

Frank's main presentation was about the Australian Labour Force Survey (LFS), which was one of the main

surveys established by Ken. The LFS is a large scale monthly household survey aimed at measuring employment and unemployment. The sample currently consists of about 30 000 households, and it is designed to give accurate estimates for monitoring changes in the labour market for regions, states and territories and the whole of Australia.

The LFS has a rotating panel design such that in each month approximately one eighth of the sample is replaced while the remaining seven-eighths are re-enumerated. In this lecture Frank gave a quick overview of efforts being made by ABS researchers to improve the sampling efficiency of the survey. Ideas investigated for reducing the costs of the survey include the use of a form of composite estimation (Bell, Survey Methodology, 2001), aligning rotational design to appropriate time series measures (McLaren and Steel, Survey Methodology, 2000), and a form of balanced sampling (Deville & Tille, Biometrika, 2004) to utilise the detailed census information that will be available for mesh blocks (which are small geographic clusters of approximately 50 households each).

Frank explained that the composite estimation approach works by stacking all data collected in the LFS over a 7 month period, then using a form of best linear unbiased estimation (Yansaneh and Fuller, Survey Methodology, 1998), combined with calibration estimation. A linear model is assumed for the rotation group estimates in the 7 month moving window, with the correlation matrix estimated by a model that is consistent with the multistage sample design.

The rotation methods that have been investigated as an alternative to the current 8-month in approach, is a 1 month in, then 2-month out rotation scheme and a 2-in, 2-out rotation scheme. Frank presented some simulation results that indicated the alternative rotation schemes could substantially improve the precision of trend estimates and quarterly estimates of level and movement produced from the LFS.

However, there is some concern about the non-sampling impacts such a change may have, so these alternative methods are still under investigation.

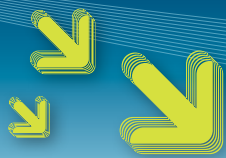
Frank also outlined the cube sampling methodology (balanced sampling) approach mentioned above. Some of its advantages include its ability to produce 'robust' weights, its ability to achieve balancing for many auxiliary variables, and the reduced variance of estimates produced from this sampling scheme compared to the multistage sampling approach currently employed in the LFS. However, it is hard to control rotation with this approach.

During the discussion, Ken Brewer drew attention to Ken Foreman's contribution to the Statistical Society of Australia through his campaign for the confederation of branch councils to form a single corporation for the profession.

Philip Kokic and Frank Yu ■



Frank Yu



NSW Branch
Boris Choy

The YSC 2009

The YSC2009 was attended by more than 80 young statisticians and was a great successful event in October 2009. The NSW Branch proudly supported one young statistician and five student members to attend the Conference by paying the registration fees on their behalf. Amongst these six sponsored delegates, four of them gave a presentation in the conference and the other two wrote for this issue of SSAI Newsletter (see below).

Chern Ng, a young statistician recently graduated from the Australian National University, gave an interesting talk on "Me, statistics and the rest of the world" and won the third prize of Eli Lilly Australia's Young Statisticians Presentation Award.

Dianne Hindmarsh of the University of Wollongong spoke on "The NSW population health survey and small area estimation and analysis". Wai-Yin Wan and Nuttanan Wichitaksorn, both from the University of Sydney, gave two Bayesian talks using heavy-tailed distributions and the titles were "Bayesian analysis of robust Poisson geometric process model using heavy-tailed distributions" and "Bayesian analysis of Tobit model with non-Gaussian error: The case of asymmetric Laplace distribution", respectively. Leo Chow of Macquarie University and Joanna Wang from the University of Sydney shared their personal feeling after attending the conference.

From Miss Joanna J.J. Wang, School of Mathematics and Statistics, University of Sydney. "I attended the YSC2009 and I found it to be a valuable and rewarding experience. This conference gave me the opportunity to get exposed to new research methods and ideas in various fields of statistical applications, including medical, financial, health, sports and other areas where statistics is applied. The careers

sessions were particularly inspiring, with the information and personal experiences presented by the speakers, and we developed a deeper understanding of where statistics can lead us. Presenters from industry as well as academia talked about the advantages of working these fields. The conference also provided the platform on which young statisticians like myself can communicate and exchange ideas in research.

Overall, I found the conference to be an enjoyable experience and I certainly look forward in attending the YSC in the future."

From Leo K.L. Chow, Department of Statistics, Macquarie University. "The YSC2009 was my first conference in statistics that I had ever attended. Not knowing quite what to expect initially, I managed to pull myself together and attended the two day conference to see what it was all about.

To my surprise, there was an interestingly wide variety of topics presented ranging from the more theoretically focused to more applied topics. With a good mix of topics presented, I believe this event will steer young statisticians of today like myself into the right and bright direction of how the field of statistics will be in the future. Dr. Louise Ryan, one of the keynote speakers, gave a very interesting talk on calling the statisticians of tomorrow to be more flexible and to collaborate with experts from other fields; otherwise the statistician profession will face the consequences of being "eaten up" by the professions of these other fields.

I would like to congratulate the first prize winner Imogene McKinnon from the Australian Bureau of Statistics (ABS) on her talk on an emerging discipline called Statistical Communications. I find her talk very fascinating indeed, about the existence

of a communication gap between statistics practitioners and the general public and how the ABS is trying to bridge this gap.

Not forgetting, on Friday evening, a conference dinner was held at the James Squire Brewhouse at the King Street Wharf, Sydney. We had a wonderful three course meal (the cheesecake and lemon tart was absolutely lovely!) and I had a great time mingling with the other participants.

Overall, I thought that the YSC2009 was a great experience that I could bring with me as a young statistician. I would like to thank the conference organising committee for organising one of the best conferences that I had ever attended. I would also like to thank the society for sponsoring me to the event.

Congratulation to these young statisticians! The Branch will continue to support the young statisticians of the NSW Branch to attend workshops and conferences held in Australia.

Boris Choy ■

Queensland Branch Events

QLD Branch
Miranda Mortlock



AUGUST

The recent short course on an Introduction to Bayesian Statistics, or 'Bayes for Beginners', was attended by 24 students, researchers and practitioners from multiple discipline areas across Australia. The course was developed and conducted by Professor Kerrie Mengersen at the Centre for Data Analysis, Modelling & Computation, QUT. The group was great, with very positive, motivated participants who all seemed to enjoy and actively participate in the course. In addition to Bayesian modelling using WinBUGs, they also explored Bayesian Networks, built MCMC algorithms in Excel and R, and touched on elicitation of expert information as priors for Bayesian analysis. Many of them (said that they) are now inspired to pursue Bayesian approaches in their research and practice!

Special thanks for the success of the course goes to SSAI (especially Marie-Louise) for general organisation, Sue Barrett and Murthy Mittinty from QUT for local organisation, the School of Land and Food at the University of Queensland for provision of a room for the course, and the School admin staff for their kindness and helpfulness throughout the course ■



Greg Waite from the Organisational Performance and Strategy, Department of Communities, Qld Government led the September workshop

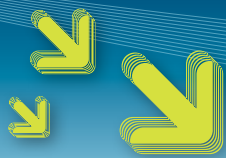
SEPTEMBER

The September meeting was held at QUT and the society trialled a new interactive workshop format. The title was "Use of a data set for in depth analysis of an administrative dataset for informing evidence based policy....." Greg Waite from the Organisational Performance and Strategy, Department of Communities, Qld Government led the workshop – where an exciting data set was introduced and various approaches to analysis were considered. The participants assisted in suggesting novel ways of analysing the data. This was a hands-on practical application of scoping

of methods for a real social problem. This data set had a depth of information awaiting the right analysis and summary to inform policy. The meeting was informal and we talked around the table while enjoying the cheese and wine. We look forward to new ideas and new networks by piloting new styles of meeting. ■



Paul Jackway talked on contemporary image analysis at the October meeting.



QLD Branch
Miranda Mortlock

Queensland Branch Events cont.

OCTOBER

Dr Paul Jackway of CSIRO entertained twenty members and guests with a lively talk on contemporary image analysis at the October meeting at UQ, St Lucia. He conveyed some of the breadth of contemporary image analysis without getting too bogged down in the detail. Instead, Paul encouraged statisticians and others to forget about numbers, algorithms and theorems for an hour and to look at the big picture(s). From the vantage point of nearly two decades in the field of computer image analysis, Paul enthusiastically talked about some of the things he has found to be "cool" over that time including: Watersheds, Granulometries, Snakes, Mathematical Morphology, Scale-Space, Top-hats, Texture Measures, Zero-crossings, Histograms and Edges. The starting point was the difference between a picture and an array of numbers.

Paul studied electronics at RMIT in the early 1980's followed by applied statistics, also at RMIT, in the later part of that decade. In 1991 he moved to Brisbane to undertake graduate studies at QUT in mathematics and computer image analysis and was awarded a PhD in 1995. Following his PhD submission, Paul obtained a research fellowship in the Cooperative Research Centre for Sensor Signal and Information Processing (CSSIP) based at the University of Queensland. For the next eight years at CSSIP, Paul led a research group working on automated cytology focusing on the automation of Pap smear cytology for cervical cancer screening. In 2002 Paul accepted a Principal Research Scientist position in the Quantitative Image Analysis group within the Mathematical and Information Sciences Division of the CSIRO ■.



Course participants at QUT-Kelvin Grove

EARLY NOVEMBER

Dr Adrian Barnett (QUT) developed and led two one day introductory courses on R at QUT, Kelvin Grove on November 6 and 9. The courses, which consisted of half lectures and half practical sessions, were generally well received by the 35 participants and most plan to use R in the future. Dr Peter Baker (UQ) provided a session on the R Commander GUI package and Dr Cameron Hurst (QUT) ably assisted participants with course practical sessions. Adrian Barnett is a senior research fellow at Queensland University of Technology, Australia. He has 15 years experience in medical statistics and in teaching statistics. He is an author on two books: "An Introduction to Generalised Linear Models" and "Analysing Seasonal Health Data". The proceeds went to SSAI ■.

South Australian Branch News

SA Branch
David Hirst



June Meeting: Statistical Models for Valuing Residential Properties on a Large Scale



Alun Pope

The speaker at the June meeting of the South Australian branch was Dr Alun Pope from Rismark International, a Sydney company that conducts research in real estate and produces

national house price indices (the RP Data-Rismark indices). Alun presented a talk on automated statistical methods for valuing residential properties. The aim of valuation methods is to predict the selling price of a property, which can assist with making decisions about offering loans and mortgage insurance for the property. This has become more important recently following the role of these decisions in the Global Financial Crisis.

Traditionally, valuation methods have involved a human valuer visiting the property, which can take advantage of the valuer's knowledge of the local market, and identify characteristics of the property that could only be seen on site. However, this method has the disadvantages of being expensive, subjective and difficult to apply to large portfolios of properties. Therefore, automated valuation methods (AVMs) have been developed, which use information from computer databases of real estate transactions and advertisements. The database utilised by Rismark International for this purpose is maintained by RP Data Limited, Australia's largest property information company, and contains records for over 31 million properties.

The AVMs described by Alun use statistical models to predict the selling price, based on various characteristics of the property and its location. Typical factors in these models include the size and number of bedrooms in the property, and the previous selling prices of other properties nearby. The model needs to incorporate some spatial dependence due to the higher prices of properties in some suburbs, and also has to account for inflation in prices over time. The main model used by Rismark International is a generalised additive model with a nonparametric spline-based spatial smoother. This model is stratified by location, time and property type, and fitted using a robust estimator to protect it from the influence of outliers.

The accuracy of the model can be checked by testing it on a sample of properties that have previously been sold, and comparing the predicted prices from the model with the actual selling prices of the properties. Although the model can be computationally intensive, particularly when interactions are included, it is feasible to implement using R. Alun illustrated the accuracy of the model by applying it to data on the selling price of houses in Sydney. The model without smoothing showed clear spatial patterns in the residuals, so the spatial effects had to be included in the model. Prices of nearby similar properties were also used.

Finally, Alun described how AVMs can be adapted to consider the selling price of a group of properties, such as a bank's loan portfolio. Automated methods are the only practical method of predicting the value of such portfolios, and can be performed as often as the value is required. The value of each property in the portfolio is estimated separately by the automated model, and then the distribution of these values can be used to construct a single index measure, such as a robust mean, for the total value of the portfolio.

Dr David Hirst 



SA Branch

E.A Cornish Memorial Lecture



E.A. Cornish's daughter, Barbra Brentzell

The 5th E.A. Cornish lecture was held by the South Australian branch on October 28. This lecture is part of a series of biennial public lectures that are named to commemorate Alfred Cornish who was a leading figure in the early years of the statistical profession in Adelaide. Dr Louise Ryan, head of CSIRO Mathematics, Information and Statistics (CMIS), and a prominent figure for her work in cancer and environmental health research, was our invited speaker.

Dr Ryan's talk, "Data, data, everywhere!", was largely about the challenges and opportunities that we statisticians currently face in our profession in light of the massive volumes of data that are being routinely produced in many areas of science. As an introduction Louise highlighted the evolution of the CMIS, beginning with CSIRO's first statistician (perhaps arguably 'mathematician' at the time) who was Betty Allen in 1930. Louise then proceeded to aptly discuss Alfred Cornish's history with CSIRO and how the naming of CMIS has evolved over time.

Louise highlighted the challenge that statisticians always face, namely achieving that fine balance between theory and methodology versus the application of statistics. When working in collaborative teams, we also face the challenge of clearly articulating what we are doing so that our collaborators understand the value that we add. These ideas resonated with the

audience, many of whom face this balance everyday.

Another challenge for statisticians is coming to grips with new fields such as bioinformatics which are evolving in response to changing science. Rather than feeling that such people are 'moving into our territory', statisticians need to embrace these new fields as new opportunities for collaboration. Louise began discussing how new genomics technologies can easily and cheaply generate massive amounts of data. In a clinical study involving a few hundred patients, for example, hundreds of thousands of genetic markers can be measured on each subject. "High dimensional data analysis" has emerged as an active area of statistical methodology and there are many opportunities for statisticians to get involved.

Louise illustrated some of the visualization technologies that are currently being used in the biological fields to measure high dimensional data; for example, heat maps to measure inactivity in children, spatio-temporal surface maps to characterize environmental data collected from sensor networks or from satellite images. All these new technologies create further challenges not only statistically but computationally when so much data is collected. Louise reinforced the need for statisticians to collaborate more with computer scientists and ICT experts to create solutions for computationally intense statistical analyses.

One example, from her own research, was analysing the spatio-temporal rates of heart disease and their association with social disadvantage. The technical challenge was managing the large volume of data (31 million observations) associated with having age and gender-specific daily data from approximately 600 postcodes in NSW. Louise and her colleagues developed a new algorithm for fitting Poisson regression models with spatial correlation. Not only was this a technically interesting project, but the practical findings were interesting as well. As an aside, Louise showed the Google Flutrends website which uses search technology to predict



Louise Ryan

epidemiological events. Google was recently able to use their word searches relating to flu in America to predict flu trends. You can see the results of this model on www.google.org/flutrends.

Louise wrapped up the meeting by emphasising that as statisticians, we should be flourishing with so many interesting challenges around us. But, we need to be creative and innovative in order to deal with the huge levels of data that are now being collected in so many application areas.

The talk was well attended and generated a lot of discussion amongst Louise and the attendees about how we communicate statistics to non-statisticians and the importance for us to lead collaborative work. Louise really hit on the pertinent issues that statisticians currently face which made for a very interesting and inspiring talk and we would like to thank her on behalf of the South Australian branch. ●

E.A Cornish Memorial Prize

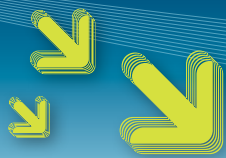
SA Branch



On Thursday 6th August 2009 Paul Sutcliffe represented the Statistical Society as a guest at the Faculty of Engineering, Computer and Mathematical Sciences, Adelaide University, 2008 prize giving night held at the South Australian Museum.

A sum of money was given to the University to establish a prize in commemoration of Edmund Alfred Cornish, Foundation Professor of Mathematical Sciences in the University from January 1960 to 1964. The continued sponsorship of the Prize has been made possible by the Statistical Society of Australia.

The prize is awarded to the student placed highest in order of merit amongst candidates who pass with distinction in the year's work including Level II Statistics courses totalling 6 units and proceeding to undertake at least 10 units of Level III Statistics in the following year. Paul was pleased to present this year's award to Mr Anthony Russo. ■



VIC Branch

Victoria Branch News

The Victorian Branch has had a strong year of seminars during 2009, culminating in the annual Belz lecture, presented by Professor John Carlin. The report on his lecture is being held over until the February newsletter, due to the amount of material we have to report this time (reports from the July, August and September meetings).

First, we wish to pay tribute to Geoff Laslett for his contribution over many years of service to the Society.

SSAI Service Award for Geoff Laslett

Geoff Laslett has been awarded a SSAI Service Award for outstanding service to the Society over many years. He has taken on many SSAI and Victorian Branch roles since joining the Society, always fulfilling his duties to the highest standard.

Geoff has been a member of the Statistical Society of Australia since 1975. He first became a Victorian Branch Council member in 1991 for one year and then served from 1995 to 2008 inclusive, a current record of 15 years as a Victorian Branch Councillor.

Geoff was the Victorian Branch President from March 1997 to March 1999 and then Past President to March 2000. His main innovation as President was to change the way in which Victorian Branch Presidents were elected. Prior to 1997, the President was elected for two years and then served as Past President for two years. New Presidents would find themselves suddenly thrust into the role with little time for preparation. Geoff enlisted the aid of his Branch Council in drafting a change to the Branch Constitution. He proposed that the incoming President be elected as Vice-President for one year, President for two years, and Past President for one year, giving the President-elect time to consider what he or she would like to achieve during his or her incumbency. The change to the Constitution was passed at the 1999 Annual General Meeting.



*Geoff Laslett.
A recent portrait by Red Hill artist
Jillian Holmes-Smith*

From March 2004 to June 2008 Geoff volunteered to be the Victorian Branch Treasurer. He reorganized the financial records to make them more intelligible, and decided to place more of the Branch reserves into a high interest (but still 100% safe) Term Deposit, thus generating several hundred extra dollars each year for Branch activities. From 2002 to 2008 Geoff was the Branch Editor of the SSAI Newsletter. He solicited and edited the monthly Branch talk summaries, writing many himself, and also prepared the occasional Victorian Branch News segments.

In 1988 Geoff accepted an invitation to be the inaugural Book Review Editor for the Australian Journal of Statistics. Prior to that, book reviews had been handled directly by the Editor. To avoid publishing reviews in vastly different formats, Geoff drew up a set of guidelines for reviewers, including suggestions on style, length and content. He specifically asked reviewers to recommend whether books should be purchased by individuals or libraries, or neither. Geoff also served as an Associate Editor of the Australian and New Zealand Journal of Statistics from 1998 to 2000.

Geoff served on the organising committees of the Australian Statistical Society Conferences in 1982 and 2008. In 1982 he and Noel Cressie organised a theme on Statistics in the Earth Sciences. They enticed André Journel, of Stanford University, to be a keynote speaker, so that André could explain the then new and mysterious topic of geostatistics to a highly sceptical Australian statistical profession. In 2008 he, with Bronwyn Harch and Petra Kuhnert, shaped the Environmental Statistics component of the conference program. In addition, Geoff has, over many years, been the principal organiser or co-organiser of numerous Victorian Branch workshops on a variety of statistical topics.

Geoff has been very concerned about the preservation of Victorian Branch history. The premier event on the Branch calendar is the annual Belz Lecture established in 1969, honouring Maurice Belz, the Foundation Professor of Statistics at the University of Melbourne. When Geoff discovered that there was no readily accessible list of Belz Lecture titles, he set about remedying the situation. It took several weeks of detective work. It involved first discovering the existence of and then trawling through papers deposited in the University of Melbourne archives by former Branch members Betty Laby and Jock Mackenzie. Geoff's introduction to the Belz Lecture, written on behalf of the Branch Council, and the full list of speakers and titles may be found on the History page of the Victorian Branch website. Geoff was the driving force behind a special Belz Lecture and Dinner held in 1997 to celebrate the 100-year anniversary of the birth of E.J.G. Pitman, the pioneering Tasmanian statistician after whom the SSAI's highest honour, the Pitman medal, is named. The Lecture, presented by Bruce Brown, attracted an audience of about 100 people. Geoff himself presented the Belz Lecture in 2000, on the role of statistics in resolving a controversy in Australian archaeology. With Geoff Bruton, a former Branch secretary, Geoff compiled a complete list of all Victorian Branch Councils (including office holders) back to 1964, the year the Branch

Victoria Branch News cont.

VIC Branch



was founded. The list had to be cobbled together from several sources, so the task was far from trivial. Apart from its intrinsic interest, the list is useful for the preparation of Service Award cases and is now available on the Victorian Branch History page.

Geoff richly deserves his Service Award. He has contributed so much to the Victorian Branch of the SSAI for so long it would be difficult to state everything in a short article such as this one. Every member of the Victorian Branch Council was extremely eager to see him receive this award. This was only a small gesture of our appreciation and recognition of his wide ranging contributions.

Geoff was presented with his SSAI Service Award on the occasion of his 60th birthday.

Mervyn Silvapulle

Helping Teachers and Students Become StatSmart (July)

The July seminar was jointly presented by Professor Jane Watson and Associate Professor Rosemary Callingham, both from the University of Tasmania. Their presentation focused on the ARC Linkage project, StatSmart, led by them in collaboration with the Australian Bureau of Statistics, Key Curriculum Press (distributors of TinkerPlots software), and the Baker Centre for School Mathematics in Adelaide.

Jane began with a brief introduction to the statistical literacy project StatSmart, and its aims for students to become critical thinkers. One of the main technologies that the project uses is the Tinkerplots software. Jane demonstrated this, using an example that students have worked on, which was motivated by a media report that "the colour of your eyes could determine your achievements in life". Year 10 students were required to investigate this report further, and conduct their own experiment (on reaction time) for comparison. This experiment was also conducted by students at a number of schools, with data available



Rosemary Callingham (left) and Jane Watson

via the ABS Census@School data, so large sample sizes could be obtained for analysis purposes. Jane showed us the features of Tinkerplots, especially its ease of data handling and informal inference by middle school students.

Rosemary then spoke about the use of surveys to see what is actually happening in the classroom. Currently they have three student cohorts, and three surveys

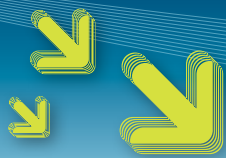
are administered - initially, after 6 months then after a further 12 months. Teacher profiles are also done annually. Rosemary presented some of the early results from Rasch analysis of the survey responses. Indications are that there has been an improvement in teachers' knowledge for teaching statistics and in their students' statistical literacy understanding.

Issues arising when estimating the effects of lifestyle factors on disease outcomes (August)

The August seminar was presented by Professor Andrew Forbes, head of the Biostatistics Unit in the Department of Epidemiology and Preventive Medicine at Monash University.

Andrew began his presentation by noting that, as an applied biostatistician working in the epidemiology area, the quick two minute corridor question can sometimes turn into a detailed investigation. The example he used related to a query concerning how best to assess the effects of physical activity and body size on disease outcomes.

Andrew first discussed what it means for an exposure to cause an outcome and whether it is possible for a non-randomised study of exposure/treatment to be made to look like a randomised control trial. Andrew then spoke about using propensity scoring as a method for doing this. The "propensity score" is the probability of receiving a "treatment" as a function of various covariates. A model (e.g. logistic regression) is fitted to predict the treatment. If the model is "correct", and all systematic variation has been accounted for, then among subjects with the same propensity score, the treatment assignment is random.



VIC Branch

Victoria Branch News cont.



Andrew Forbes

Furthermore, he noted that irrespective of correctness of the model, subjects in treatment and control groups with similarly propensity scores will tend to be similar on all covariates in the model for the score. Andrew spoke about a number of common propensity methods and also demonstrated the use of causal directed acyclic graphs to show pathways and direct and indirect association between variables.

Andrew showed the results of some small simulation studies as well as analysis from the longitudinal Framingham Heart Study, which collected risk factors biennially for over 5000 participants over 40 years. Physical activity measurements were collected at 3 time points. In order to estimate "lifetime" effect of physical activity, Andrew used a standard time dependent Cox model, noting that the time dependent confounders are a problem, as well as a marginal structural model. There was little difference between the two models in the estimated effects of physical activity on

mortality from cardiovascular disease.

However, a number of aspects needed further investigation, in particular the impact of missing data. Andrew noted there are a number of approaches that could be used for missing data and he showed the results from using the different approaches – the appropriate approach to use depends on the relationships between any unmeasured predictors, the missing variable and the outcome. Andrew suggested that drawing causal diagrams and including missing data mechanisms can be insightful.

Andrew's investigation showed that the impact of lifestyle factors on disease is complex to address, and there is plenty more work to be done, with new methods appearing regularly. Andrew concluded his presentation by stating that a two minute question is a myth! ■

Young Statisticians Present ... (September)

In our last regular monthly seminar for the year, members and guests were treated to presentations from three talented statistics students. The first to present was Mithilesh Dronavalli, a 5th year medical student who detoured to undertake honours and postgraduate studies in biostatistics. Mithilesh presented on methodological issues encountered in integrating (cardiovascular) datasets, work undertaken as part of his honours research.

Mithilesh integrated two clinical trial datasets in order to investigate the interaction of ACE inhibitor therapy and biochemical markers values on clinical endpoints. ACE (angiotensin-converting enzyme) inhibitors are a group of pharmaceuticals that are used primarily in treatment of hypertension and congestive

heart failure. ACE is thought to play a role in a number of illnesses including cardiovascular diseases, diabetes, renal failure and maybe even Alzheimer's disease.

One dataset was small (120 patients) with details of the biochemical markers but no clinical endpoints; the other dataset was large (almost 7000 patients) and had clinical endpoints but no biomarkers. By integrating these datasets, biochemical marker values could be predicted for the larger dataset, allowing the cardiovascular relevance and interaction with ACE inhibitor treatment to be indirectly assessed in a highly cost-effective manner.

Mithilesh's method was to: a) make linear multiple regression models from variables common to both datasets for the biochemical markers; b) predict biochemical values from these models for patients in the larger dataset and break values into quartiles; c) use recurrent event survival analysis; and d) calculate hazard ratios for the quartiles of biochemical markers for treatment, placebo, overall and treatment/placebo. Mithilesh had a number of ideas for other datasets that could be integrated (such as randomised and non-randomised studies) and improving future analyses (such as the use of bootstrapping).

The next speaker was David Lazaridis. David has a Bachelor of Science with honours in statistics, and is currently doing a PhD. David's presentation was drawn from a case study for predicting tree mortality using remotely sensed vegetation indices and penalized regression techniques for prediction.

David noted that our forests are important and we need to be able to make timely predictions of tree mortality to guide forest management decisions. Currently aerial surveillance is used to measure aspects of tree mortality, but this is expensive, infrequent and requires

Victoria Branch News cont.

VIC Branch




experienced personnel. Another option is to use Moderate-Resolution Imaging Spectroradiometer satellite images, which can survey the Earth every two days. Derived change metrics can then be used to predict tree mortality.

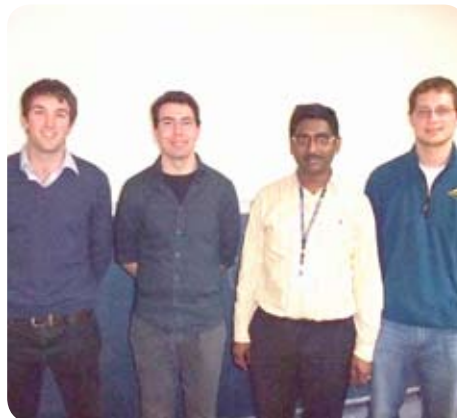
However, the high dimensionality and collinearity inherent in such data are of concern. Standard regression techniques perform poorly, so David investigated shrinkage regression techniques such as ridge regression, LASSO and partial least squares, which yield more robust predictions. He also suggested efficient strategies that could be used to select optimal models such as 0.632+ bootstrap and generalized cross validation. The techniques were used to predict insect-induced tree mortality severity for a *Pinus radiata* plantation in southern New South Wales and David showed that ridge regression and LASSO performed particularly well.

The final presenter was Davis McCarthy, who is an Honours student in Statistics at the University of Melbourne. Davis spoke about accounting for biological variation in digital gene expression experiments.

Davis first explained digital gene expression, which is the number of times a particular gene is seen in an RNA sample. Because genes are differentially expressed in different cells under different conditions, understanding this differential expression improves our biological knowledge and can help fight disease.


The number of counts for a gene gives an excellent indication of the true expression level of that gene in the biological sample, but assessing which genes are differentially expressed between experimental groups remains a difficult problem. Challenges include the small samples typical of biological experiments and trying to assess

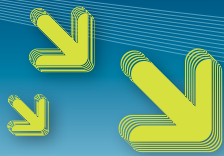
differential expression for tens of thousands of genes simultaneously. Davis overviewed a number of statistical models for the digital gene expression data, and decided that a negative binomial model could account for more variation than the more commonly used Poisson model .



Pictured above from left are: Davis McCarthy, David Lazaridis, Mithilesh Dronavalli and Karl Jackson (Young Statisticians representative on Victorian Branch Council and coordinator of this seminar)

SSAI (Vic Branch) Council Member List

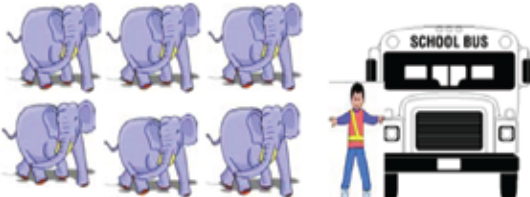
As mentioned in the report on Geoff Laslett's Service Award, Geoff Laslett and Geoff Bruton compiled a list of Victorian Branch Council members since 1964. This is now available on the Victorian Branch History page. While the two Geoff's made every effort to ensure the list is correct, if you know of any corrections, please contact Brian Phillips, bphillips@swin.edu.au .



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Back page 



The screenshot shows the SSAI website homepage. At the top left is the SSAI logo and 'Statistical Society of Australia Inc.'. To the right is a 'MEMBER LOGIN AREA' with fields for 'Username' and 'Password', and buttons for 'LOGIN' and 'RECOVER PASSWORD'. A woman in a dark jacket is featured on the right side of the page. The main content area includes a navigation menu on the left with links like 'HOME', 'ABOUT US', 'MEMBERSHIP', 'BRANCHES', 'EVENTS', 'PROFESSIONAL ACCREDITATION', 'YOUNG STATISTICIANS', 'PUBLICATIONS', 'RESOURCES', and 'CONTACT US'. Below the menu is a search bar and a 'DOWNLOAD CURRENT NEWSLETTER' button. The central text describes the society's role. Below this is an 'UPCOMING EVENTS' section with a table of events and a 'VIEW ALL EVENTS' button. At the bottom, there are three columns: 'MEMBERSHIP BENEFITS', 'YOUNG STATISTICIANS', and 'ARE YOU ACCREDITED?', each with a small image and a 'BECOME ACCREDITED' button. A footer contains navigation links and copyright information.

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