

# NEWSLETTER

March 2006

Operational Research Society of New Zealand, Inc.  
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Newsletter publication dates are March, June, September, and December. Submissions deadline is the 15th of the month for the following month's issue. Send submissions by email to the Newsletter editor, Matthias Ehr Gott, [newsletter@orsnz.org.nz](mailto:newsletter@orsnz.org.nz). Acceptable formats are plain text, word, or graphic formats jpg, tiff, and gif. PDF or postscript documents are *not acceptable*.

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## ORSNZ Visiting Lecturer Scholarships

ORSNZ invites nominations for ORSNZ visiting lecturer scholarships for visits to New Zealand between September 2006 and June 2007. Each visiting lecturer must give a talk on some topic likely to be of general interest to ORSNZ members at each of Auckland, Hamilton, Wellington, and Christchurch. Each visiting lecturer will be invited to write a guest editorial for the society newsletter. The emolument of each scholarship is up to \$1000. ORSNZ will not normally consider payment of additional costs to visiting lecturers.

Each candidate must be nominated by a current member of ORSNZ, "the champion". The nomination must include the CV of the nominated visiting lecturer, the date and location of the hosts of the visit, the name of the champion and an undertaking by the champion to coordinate a visit by the nominee to the four above named centres.

Enquiries concerning, or nominations for, scholarships should be sent to

*David Ryan, Department of Engineering Science,  
The University of Auckland, Private Bag  
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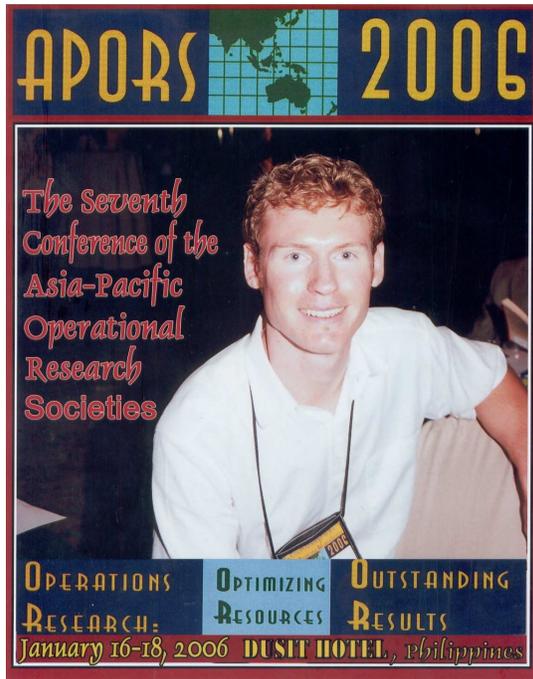
## ORSNZ Hans Daellenbach Prize Call for Nominations

To honour the considerable contributions of Emeritus Professor Hans Daellenbach to OR/MS in New Zealand, the ORSNZ has established the ORSNZ Hans Daellenbach Prize. The purpose of this award is to elicit, recognise, and reward outstanding examples of management science and operations research in New Zealand, and to encourage their dissemination in the international literature. Nominees for the prize must be members of the ORSNZ. The prize is accompanied by a \$1000 honorarium, and winners must give a plenary address on their relevant work at the ORSNZ conference in the year of the award. Nominations are invited and should be sent to

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## APORS 2006: Optimizing Resources, Outstanding Results

Manila, the bustling capital of the Philippines, was the stage for the 2006 conference of the Asia Pacific Operations Society (APORS). With its theme of “Operations Research: Optimising Resources, outstanding results,” APORS 2006 drew together operations researchers from around the region for three days of intense academic discussion and pleasant socialising.



In her opening speech, Gloria Macapagal-Arroyo (President of the Philippines), extended an informed welcome to conference delegates, and outlined her vision for the role of operations research in the Philippines. With her personal background in OR, the speech was indeed an auspicious and informed start to the conference.

In the subsequent plenary talk, Thomas Magnanti, IFORS President and Dean of Engineering at MIT, emphasised the magnitude of savings gained from the recent application of operations research techniques throughout business and industry. There were also many interesting presentations amongst the general contributions. One of these was Albert Stahel’s presentation about his simulation work of the “Shock and Awe” strategy employed by the United States during the recent war in Iraq. This was a fascinating introduction to applications of OR in the realms of military strategy.

No less interesting was Peter Bell’s lucid overview of revenue management, which discussed how astute companies are increasingly using OR to maximise their income streams. He floated the idea of supermarkets raising grocery prices in busy periods to both increase profits and encourage higher non peak utilisation.



Many papers at the APORS conference were dedicated to discussing OR applications in a globalised economy. This has helped me to better understand New Zealand’s position. In short, New Zealand is a country with high land and labour costs at the end of a relatively expensive transport route. To put it in terms operations researchers are familiar with, in a globalised world, New Zealand’s economy has a negative reduced cost and is in danger of being removed from the basis. I believe that knowledge gained from many specific operations research problems can offer valuable insight into broader socio-economic issues. It is, however, the duty of operations researchers to share this insight with the broader society.

Two prizes were awarded for papers presented at APORS 2006. ‘Best Theoretical Paper’ was awarded to Geoffrey Ang Chua, while I am pleased to report that I received the ‘Best Applied Paper’ for my work on Wind Farm Optimization.





As well as observing regular conference presentations, I was part of a group of young operations researchers from around the Asia Pacific region. We were allocated our own presentation streams, with each Young Scholar allowed fifteen minutes to present their work and fifteen minutes of involved audience discussion. Topics ranged from optimization of workforce size, developing efficient menu systems for mobile phones, and investigating the impact of tax reform on industry performance.



However, outside the conference venue, the elegant nature of mathematical structures paled amidst the chaos that characterises Manila. While the hustle and bustle had some limited appeal, the air pollution caused by traffic congestion meant that hotel windows on the seventeenth storey were permanently locked shut. The atmosphere was definitely not so enjoyable for those of us who enjoy our foot powered frolics! Indeed, the host city provided its own lessons for conference guests by reminding us that what we take for granted in affluent countries might never be accessible to large proportions of the world's population.

On the brighter side, Filipino culture appears to be alive and kicking. There is an abundant supply of local fashion designers producing clothes of a high quality and unique style. Music and dancing erupted spontaneously, with a young boy dancing with a manikin in the window of a clothes store providing for hilarious entertain-

ment. The local food was generally excellent, with banana smoothies being a personal favourite.

In looking forward to the next APORS conference in Malaysia in 2009, I hope that operations research devotees in New Zealand will make the most of this opportunity for regional academic cooperation. It provided me with exposure that cannot be experienced in a lecture theatre.

**Acknowledgements:** I would like to acknowledge the assistance of the following individuals and institutions:

- Operational Research Society of New Zealand
- Department of Engineering Science, University of Auckland
- Dr. Rosalind Archer and Dr. Hamish Waterer

*Stuart Donovan*

## People

The **Optima Corporation** (formerly known as Optimal Decision Technologies) has grown up. Staffed largely with graduates of Engineering Science, Optima spent two years in incubation with The ICEHOUSE, and after successfully raising over \$1m in private capital they graduated in February 06 with a new name, new management and new offices. Optima are currently busy implementing its SIREN software in 3 emergency services organisations in Canada and the UK, and are in final negotiations with other customers in Denmark, UK and the US.

## Puzzle Corner

### Puzzle 6

The staff of a bank includes a director, an assistant director, and four department heads. The director wants to have several locks installed on the new strongroom door and keys made for them, so that:

- The director can open the door alone.
- The assistant director can open the door only if accompanied by any one of the department heads.
- Any three of the department heads can open the door together.

What is the minimum number of locks that must be installed and how are the keys for them distributed?

Source: P Berloquin, *Games of Logic*, Unwin Paperbacks, London, 1977.

### **Solution to Puzzle 5 in the December Issue**

a) Dantzig, b) Bellman, c) Dantzig.

*Les Foulds*

## **Chapter News**

### **Auckland News**

The Auckland Branch of ORSNZ continues to be active on many fronts. On March 29<sup>th</sup> the Auckland Branch held its annual meeting. The meeting was well attended, not only by University staff, but by a number of our alumni, who had joined ORSNZ as student members and now work in the City. This demonstrates the value of student membership as a way of renewing the Society.

The Branch Meeting was presented with a very thought-provoking talk from 2006 ORSNZ Visiting Lecturer Professor Raimo Hämmäläinen from Helsinki University of Technology. The talk described a suite of software systems developed by Raimo and co-workers for helping make decisions with multiple objectives. Many of these systems are available on the web, and are in continual use by academics and industries. It has been a pleasure hosting Raimo in the Department of Engineering Science, and he has contributed well to the Department, as well as becoming a key crew member on Wednesday-night yacht races.

We report on the appointment of Dr Stu Mitchell to the position of Pasifika Student Mentor in the Auckland School of Engineering. Stu, who has just completed his PhD in OR with Dave Ryan, hails originally from Fiji. In his new role, he will provide academic and pastoral support to Pacific Island students in the school, and we hope show them some of the benefits of studying OR.

The Electric Power Optimization Center continues to be active. On April 28, they hosted a one-day invited workshop, Supply-Function Equilibrium Modelling of Electricity Markets, to be attended by experts from Europe, the US, and Australia. Details can be downloaded from

<http://www.esc.auckland.ac.nz/Organisations/EPOC/SFEworkshop2006.html>.

On March 12<sup>th</sup>, many of Auckland members of the ORSNZ were at the wedding of Andrew Mason to Catherine Swan, held on the shores of Herne Bay on a blistering Auckland afternoon. As we have come to expect from Andrew, the wedding was meticulously planned and executed, with a happy mix of ritual and informality. The ceremonial sailing of bridal party from Herne Bay to the Viaduct Basin reception was a highlight. We wish Andrew and Catherine well in their new joint venture.

The Department of Engineering Science has a good group of final-year undergraduate project students this year. The students focusing on OR, and their topic choices are listed below. We hope that many of these will present in the Young Practitioner Prize at Christchurch in December.

- Sneha Anthony Revenue optimization of electricity line companies
- Vitesh Bava Evaluation of radiotherapy treatment planning models using DEA
- Shao-Kang Chang Tournament construction methods for Auckland Bowls
- Graham Connell Well-placement optimization
- Nicolas de Pont Stochastic supply-boat routing for Statoil (Norway)
- Peter Ebden Faster shortest path algorithms for SIREN
- Christopher Fok Solving revenue optimization problems using Markov decision processes
- Michael Frankovich Multi-stage stochastic programming models for network revenue management
- Sam Gordon Rogaining: a prize-collecting orienteering problem
- Julie Jang Production planning for Hynds Pipes
- Chapa Jayalath Solving minimax problems without auxiliary variables
- June Lau Generation of computer tests using dynamic programming
- Nelson Wong Calibration of electricity dispatch models
- Wu Tai Yu Optimal hospital layout at Super-Clinic Manukau City

### **Canterbury News**

No news were reported.



## Waikato News

In the September newsletter we reported on Les's visit to Norway on the first leg of his sabbatical leave. Les has now settled in Perth for the second half of his leave and has been telling us about his adventures in Western Australia. One of them involved an 8-day sojourn on the Cocos (Keeling) Islands, an Australian territory about 3,000km NW of Perth in the Indian Ocean. With his feet now back on the ground of mainland Australia, Les is conducting research with his colleagues at Curtin University in Perth into structural equations models of large-scale information system implementation, the application of project management techniques to E-procurement, bridge lane direction management, value-added warehousing activities, and farm crop harvesting scheduling.

## Wellington News

No news were reported

## Call for Papers

**XIII LATIN IBEROAMERICAN  
OPERATIONS RESEARCH  
CONFERENCE**  
Montevideo, Uruguay  
November 27 – 30, 2006



The first CLAIO (Congreso Latino-Iberoamericano de Investigación Operativa) took place in Río de Janeiro, Brasil in 1982. Since that time CLAIO has been scheduled bi-annually on different Latin-American cities with the sponsorship of the Latin Iberoamerican Association of Operations Research (known as ALIO). Among the fundamental aims of the conference are the interaction and interchange between academics and practitioners, the pro-

motion and debate of theoretical and practical work, and novel applications of operations research, and the instruction of young scholars. Lately, there has also been an important growth in the number of participants from academy and industry coming from outside the region.

The XIII CLAIO will take place on November 27 to 30, 2006, in Montevideo, the capital of the Republic of Uruguay, a calm city with beautiful beaches and promenades, and which is proud of its cultural heritage as the cradle of Tango and of Candombe (afro-american) music, as well as of the "Gaucho" traditions of its countryside. End November corresponds to the end of Southern Hemisphere Spring, with a very nice weather, sunny and warm but not excessively hot.

The event is organized by the Operations Research Department of the University of the Republic of Uruguay, under the sponsorship of ALIO and of IFORS, which has appointed Prof. Dr. Martin Grötschel from ZIB, Berlin, Germany, as "IFORS Distinguished Lecturer" for this event.

Other invited speakers include:

- James J. Cochran, Louisiana Tech University, USA
- Carlos A. Coello Coello, CINVESTAV, Mexico
- Michel Gendreau, CRT, Université de Montréal, Canada
- Monique Guignard, Wharton, University of Pennsylvania, USA
- Gerardo Rubino, IRISA/INRIA Rennes, France
- José Mario Martínez, UNICAMP, Brasil.
- Pierre L'Ecuyer, IRO, Université de Montréal, Canada
- Suresh Seti, The University of Texas at Dallas, USA.

The Program Committee invites to submit extended abstracts, special section proposals, and other relevant work for evaluation before April 29, 2006. The approved extended abstracts will be published on CD-ROM conditioned to the assistance of at least one of the authors. Selected papers from CLAIO will be considered for publication in special issues of the following international journals: Annals of Operations Research, Journal of Heuristics, and Journal of Industrial and Management Optimization (see details in CLAIO homepage).

## Deadlines

Extended abstracts submission: May 21, 2006.  
Approval/rejection announcement: June 16, 2006.

#### Participation fee (American dollars, USD)

Until 30 September/From 1 October 1, 2006	
Students	100/130
Members (ALIO)	200/250
Other	300/350

## Meetings Calendar

### New Zealand

#### The Australia New Zealand Academy of Management (ANZAM) Operations Management Symposium

Wellington, 6 – 7 June 2006

[www.vuw.ac.nz/anzamops2006](http://www.vuw.ac.nz/anzamops2006)

#### ASC/NZSA 2006 The Australian Statistical Conference/ New Zealand Statistical Association Conference 2006

Auckland, 3 – 6 July 2006

[www.statsnz2006.com](http://www.statsnz2006.com)

### Asia Pacific

#### The International MultiConference of Engineers and Computer Scientists 2006

Hong Kong, 20-22 June 2006

<http://www.iaeng.org/IMECS2006/index.html>

#### INFORMS International 2006 Hong Kong

Hong Kong, 25 – 28 June 2006

<http://www.informs.org/Conf/Hongkong06/>

### International

#### MOPGP'06 7<sup>th</sup> International Conference on Multiobjective Programming and Goal Programming,

Tours, France, 12 – 14 June 2006

<http://www.univ-valenciennes.fr/ROAD/MOPGP06/>

#### MCDM 2006 – The 18<sup>th</sup> International Conference on Multiple Criteria Decision Analysis

Chania, Greece, 19 – 23 June 2006

<http://www.dpem.tuc.gr/fel/mcdm2006/>

## Contact information

<http://www.fing.edu.uy/inco/eventos/claio06/eng> or  
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Program Committee Chair: Héctor Cancela, UDELAR, Uruguay, [cancela@fing.edu.uy](mailto:cancela@fing.edu.uy)

#### EURO XXI, 21st European Conference on Operational Research 2006 Reykjavik, Iceland

Reykjavik, Iceland, 2 – 5 July 2006

<http://www.euro2006.org>

#### The 19th International Symposium on Mathematical Programming (ISMP 2006)

Rio de Janeiro, Brazil, 30 July – 4 August 2006

<http://www.ismp2006.org/>

#### Multidisciplinary ECAI-06 Workshop on ADVANCES IN PREFERENCE HANDLING

Riva del Garda, Italy, 28 – 29 August 2006

<http://www.mycosima.com/ecai2006-preferences/>

#### International Conference Operations Research (OR 2006)

Karlsruhe, Germany, 6 – 8 September 2006

<http://www.or2006.de>

#### OR48 Annual Conference

Bath, UK, 11 – 13 September 2006

[www.orsoc.org.uk](http://www.orsoc.org.uk)

#### Fourth Annual International Symposium on Supply Chain Management

Toronto, Canada, 4 – 6 October 2006

<http://merc.mcmaster.ca/symposium/SCMSymposium2006.html>

#### INFORMS Annual Meeting 2006,

Pittsburgh, USA, 5 – 8 November 2006

<http://www.informs.org/Conf/Pittsburgh06>

#### XIII CLAIO Latin American Conference on Operations Research

Montevideo, Uruguay 27 – 30 November 2006

<http://www.fing.edu.uy/inco/eventos/claio06/eng/>

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To apply for membership or buy subscriptions, see the application form on our web site, and mail it to: Membership Secretary, ORSNZ, PO Box 6544, Wellesley Street, Auckland, NZ.

## Use MATLAB® to Build Your OR Models



MATLAB® is an interactive, extensible software development environment that offers high-performance numerical computation, data analysis, and visualisation capabilities as well as application development tools. Traditional programming involves tedious, time-consuming tasks such as declaring, data typing, sizing, and memory allocation, but MATLAB performs those tasks for you. In addition, MATLAB is matrix-based and eliminates the need to write nested loops in many cases, leaving you free to write expressions that reflect the way you think of problems. You do not need to switch tools, convert files, or rewrite applications.

The MATLAB GUI builder tool, GUIDE, lets you easily design your application interface. The customisable design palette of GUIDE offers all the drag-and-drop options you need to create an application interface.

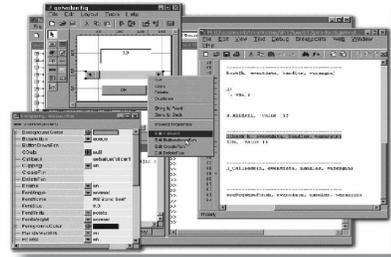
With the MATLAB Compiler, you can deploy completed models on Windows, Mac, and Unix operating systems, at no charge. In addition to the basic tools within MATLAB, toolboxes can be added to give extra functionality. Some of relevance to OR are:

**Database Toolbox** - With the Visual Query Builder tool within this toolbox, you can query stored data without needing to know or learn SQL.

**Statistics Toolbox** - Includes functions and interactive tools for analysing historical data, modelling data, simulating systems, and developing statistical algorithms.

**Optimization Toolbox** - This contains widely used algorithms for standard and large-scale optimisation, that can solve constrained and unconstrained continuous and discrete problems.

**Financial Toolboxes** - These toolboxes offer functionality that enables you to perform portfolio optimisations, risk analyses, asset allocations, fixed income pricing, and much more. They provide functions for the analysis of time series data in the financial markets, and tools to estimate the parameters of GARCH models.



The MATLAB GUI builder tool, GUIDE, lets you easily design your application interface. The customisable design palette of GUIDE offers all the drag-and-drop options you need to create an application interface.



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 Email: \_\_\_\_\_  
 Your industry: \_\_\_\_\_  
 Your particular interest: \_\_\_\_\_  
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