



NEWSLETTER

March 2005

Operational Research Society of New Zealand, Inc.
PO Box 6544, Wellesley St. Auckland, New Zealand, www.orsnz.org.nz

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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 Ehrgott, newsletter@orsnz.org.nz. Acceptable formats are plain text, word, or graphic formats jpg, tiff, and gif. Pdf or postscript documents are *not acceptable*.

Note from the Editor

Not much to say for me. I apologize for the long delay of this issue that was caused by late submissions of contributions and other commitments here in Auckland, among others the organization of the transportation workshop in Auckland, see the letter from the president below. I'll try to get back to the normal schedule with the June issue.

Matthias Ehrgott

Letter from the President

An exciting event lies just ahead of us: A Workshop on Mathematical Models for Optimizing Transportation Services is to be

held in the School of Engineering at the University of Auckland from April 19-22, 2005. The Workshop is funded by the New Zealand Institute of Mathematics and its Applications and is organized and partially supported by the Operations Research Group in the Department of Engineering Science at the University of Auckland. This is an important first for Operations Research in New Zealand in that the Workshop is part of a thematic programme in Optimisation funded by the NZIMA.

One goal of the thematic programme is to emphasize the interface between mathematical optimization and its applications in practical situations. To this end sponsorship has been obtained from Air New Zealand, Fonterra, and the Auckland Regional Transport Authority. ORSNZ is proud to support the workshop by hosting the website.

The workshop will also include a special session on the use of modelling, optimisation, simulation and other mathematical tools for improving the efficiency of emergency services (ambulance, fire, police).

An impressive list of eminent International speakers will present invited talks at the workshop. The full workshop programme is now available at www.esc.auckland.ac.nz/transportation. About 75 participants from New Zealand and overseas have registered for the event. Don't miss the next issue of the newsletter for a report on the workshop.

David Ryan



ORSNZ Visiting Lecturer Scholarships

ORSNZ invites nominations for ORSNZ Visiting lecturer Scholarships for visits to New Zealand between September 2004 and June 2005. 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 92019
Auckland

The printing of this newsletter has been generously sponsored by Hoare Research Software.



The Science of Better What?

By ManMohan S. Sodhi

Learning without wisdom is like a load of books on a donkey's back. — Japanese proverb

If an attractive woman in a bar were to ask me what I do, I would feel stumped in my efforts to impress. So I really appreciate the ongoing efforts to brand our area. Operations or operational research doesn't have the same brand image as do economics, biophysics or marketing. But before we market ourselves to others, we may need to look inward.

While I was a graduate student at the Anderson School at UCLA, I heard a senior student say, "If you can, get into the math [graduate studies] program; if you can't, try O.R. If you can't get into O.R., try O.M. And if you can't get into O.M., try O.B.!" This was said in jest, but these words do capture our emphasis on mathematical theory.

At the 2004 INFORMS conference in Denver, as I attended talk after talk in the supply chain sessions, I felt there was a difference from two years ago. Earlier, most presenters would make a token gesture linking their work to a company or industry even though their results were not linked. In Denver, most speakers dropped the pretense. One pre-tenure faculty member who works on supply chain contracts admitted in private that he had never worked with any company on a contract. Another junior faculty member said, "We know what we need to do for tenure," i.e., "play the game" and get published in *Management Science*.

If we are going to call O.R. the "science of better," then we should be improving something. For those of us who are in business schools, a natural area of application is business. But the Denver presenters from business schools did not concern themselves with business. Maybe the academic world is bifurcated into pre-tenure faculty playing the game and tenured people pursuing improving things. Of course there are lots of

exceptions, and my own alma mater, UCLA, gave tenure to someone who has won the prestigious Edelman Award for application. And you only need to pick up the latest issue of *Interfaces* or visit the Web site www.scienceofbetter.com to see the science of better in action.

My question is not whether O.R. is useful to business and/or society. It is. My question is what exactly we value and whether what we value is consistent with how we are trying to portray ourselves with the "science of better" campaign. Why is an *Interfaces* publication rated "B" while *Management Science* and *Operations Research* are "A"? I have two publications in *Sloan Management Review* and one more forthcoming in *Harvard Business Review*, but that's because, unlike in OR/OM departments in the United States, these journals are highly rated here in Britain. Why do pre-tenure faculty members think that they need not worry about application to get published in the "right" journals? Do those supporting the science of better campaign promote and hire based on application?

I very much support pursuing theory. It is theory that has helped us build credible applications. Without theory we would have neither "science" nor "better." But if we value only theory — at least for academic hiring and promotion — then we shouldn't be surprised if the theory becomes increasingly divorced from reality as our brightest seek to generalize existing results or try different assumptions without worrying about industry. We are not doing science — we are doing mathematics. And we should really be testing our mettle against the really bright people in mathematics departments, even at small teaching schools.

But we are not mathematicians. If we are to do the science of better, we have to do *science*, not mathematics, even though we *use* mathematics. Physicists do science in seeking to explain nature and use mathematics. Science of better implies that we seek to improve business, government, society, etc., by modeling some metric, propose a testable way to improve it, and implement it to determine the actual improvement.

For example for healthcare, metrics could be cost/patient, percentage of the population getting healthcare, etc. In Denver, I really enjoyed the keynote presentation by William Pierskella from UCLA (naturally). He talked about the zillions of opportunities for applying O.R. to healthcare in the United States. I disagree with him only on the importance he accorded information technology. Britain's National Health Service (NHS) has sunk billions of pounds in IT while seeing most metrics drop. Still, this IT is without O.R. and maybe with its centralized system, Britain's healthcare is a better candidate than its U.S. counterpart for benefiting from O.R.

If you go to a hospital administrator, how do explain what you do? "I do the science of better" would sound too glib. "I do operational research" sounds better, but what do you actually do? We can say "better scheduling to decrease the waiting time to see a doctor," "better use of resources to increase the number of patients treated," etc. In other words, we observe a business system and propose ways to improve the chosen metrics. So do we do "systems science"? No, but only because that phrase has changed so much over time. We do management science. I mean operations research. Or, both. To the woman in the bar, I think I will just say "operations, you know, running things . . . running things better." I don't need to impress anyone — I actually can make things run better.

ManMohan S. Sodhi is a member of the operations management faculty at Cass Business School in London. He welcomes your comments at M.Sodhi@city.ac.uk.

"The Committee asked about definitions of OR. I could not bring myself to say 'The science of better'" O.R. Society member

The headline is a verbatim comment I saw on an e-mail recently. Far from being disappointed, I replied that the member was right NOT to use the 'Science of Better' tagline as a definition of O.R. Taglines are used to provide a reminder of the main attributes of products or services - not to 'define' it. So, the definition of Tesco is not 'every little helps' and 'Science of Better' is not the definition of O.R.

The tried and market tested definition we're urging people to use is 'the discipline of applying advanced analytical methods to help make better decisions'. Predictably, not everyone is absolutely happy with every syllable of this definition (what do you mean 'advanced?'), but most agree that it is helpful if only to start a discussion about what OR people do - especially people who have no idea at all what OR people do.

If you need more guidance on how to explain what OR is and how to prove its value, you'll find lots of help at www.orchampions.co.uk

O.R.: the discipline of applying advanced analytical methods to help make better

From the UK ORS e-newsletter, 15 December 04

Graham Sharp, Marketing (ORS, UK)

Chapter News

Auckland News

The year at Auckland University has started with its usual rush of students eagerly awaiting their OR project topics. We have a good selection of topics this year, but, alas a low number of Year 4 students to take them up. We are banking on Min and Max to build the numbers in coming years. We will host visits from Eddie Anderson, Rudiger Schultz, and Stein Wallace later this semester. Ex-pat and OR polymath Shane Henderson (now a tenured professor at Cornell) is also visiting for two months doing joint research with nearly everyone in Engineering Science. We wish he would stay longer!

Optimal Decision Technologies received a glowing write-up in the Herald last Friday. Their SIREN software for emergency services (brainchild of Andrew Mason and Shane Henderson) is being marketed in cities around the globe, and promises to be a huge success story for New Zealand Operations Research. Andrew is presenting an invited talk at the INFORMS Practice meeting next month on applied Operations Research.

We are busy processing registrations for the NZIMA Workshop Mathematical Models for Optimizing Transportation Services to be held in Auckland in April (see www.esc.auckland.ac.nz/Transportation).

Air New Zealand, Fonterra and ARTA are all sponsors of this event and much of the conference programme is devoted to mathematical models arising in problem areas of interest to them. We have a stellar lineup of international invited speakers, with many contributed talks from the international community as well. Many of the speakers will be in Auckland for slightly extended visits so April will be an active month for Operations Research at this Branch.

Andy Philpott

Canterbury News

Members of the MSCI group at the University of Canterbury are very pleased to have Pavel Castka join them in February. Pavel was at the University of Salford before coming to New Zealand. He has particular research interests in Quality Management and the area of Corporate Social Responsibility (CSR). He has co-authored a book on CSR which has just been published. Pavel will be teaching in the Operations Management area for the group. We are looking forward to working with Pavel and having his input into our programme.

In other news on the staffing front, Don McNickle is on leave at the University of Southern Queensland, working with Ron Addie. Last year his leave took him to USQ, Loughborough and Budapest. Shane Dye is also on leave at the University of Duisberg-Essen in Germany and will be back in June. John Raffensperger and Nicola Petty start their one year of study leave in July.

The Chair in MSCI is also being readvertised this year along with several other chairs which have been created in the College of Business and Economics.

On the student front, our Management Science Honours programme has twelve people enrolled in it, ten in the operations research stream and two in the operations management stream. We also have some interesting projects lined up for them to tackle, ranging from equipment location problems to capacity modelling to developing a cancer screening mortality simulation. It should be an interesting year for all.

In March we also had the pleasure of having Ed Silver from the Haskayne School of Business at the University of Calgary give us a seminar on "Enhancing Research Productivity". A large number of people turned out for this seminar which was very well received.

On the publicity front, the "Min and Max" brochures have been printed and are ready to go out to schools. The poster has also been finalised and is going to print. These

will be sent to the schools as soon as they are available.

Ross James

Wellington News

After several eventful years of meetings under David Boland's energetic leadership, the Wellington branch had a fallow year in 2004. We clearly missed David's organising zeal. However, on a positive note, the lack of meetings last year means that there is over twelve months' worth of research and project work to tap into. Tom Halliburton stirred us into action in the summer and has joined Vicky Mabin (Chair), John Davies and myself on the organising team, providing a much-needed counter-weight to a Lancastrian biased group.

Vicky has compiled a varied list of potential topics and speakers for this year which is starting to take shape. They include topical Wellington issues such as research exploring the debate around Transmission Gully, insights into the risk management process in local government and Systems Dynamics applied to Lord of The Rings tourism as well as applying the Theory of Constraints, credit risk modelling and multi-method approaches to problem solving and decision making. As we celebrate ORSNZ's 40th anniversary this year, we are also looking at some events to mark this auspicious milestone.

Our first meeting is planned for Wednesday 9th March at 12.30 at VUW's Pipitea Campus, when Juanita Saxby will present material from a book she's currently writing on multidisciplinary research methods for the Knowledge Economy. As usual we will advise branch members via e-mail of each meeting as details are finalised.

As you will have gathered, there is plenty of scope for re-activating the branch this year and we'd welcome any support from the membership whether it be joining the branch committee, helping out with an event or giving a presentation. You can contact us through vicky.mabin@vuw.ac.nz or

john.r.hayes@eds.com. We look forward to seeing you at this year's events.

John Hayes

Waikato News

The artistic genius of John Scott is demonstrated yet again.

All around is quiet and still;
Things are going well at the Systems mill.
Summer School is running at steady pace,
While those on leave are all over the place.
The rest of us are researching things,
Enjoying the freedom that summer brings.
"No news is good news" so they say,
And so it is for us on this sunny day.

The Department of Management Systems and industry collaboration

Others in the Department are devising models and solution techniques for the specification of the direction of the lanes of multi-laned bridges and freeways that have a moveable barrier that divides the two directions of traffic flow in peak hour traffic. Why? In order to reduce congestion. The work has been applied to, you guessed it, the Auckland Harbour Bridge.



Les Foulds

Les's Puzzle Corner

On the first day of a new job, a colleague invites you around for a barbecue. As the two of you arrive at his home, a young boy throws open the door to welcome his parent. "My other two children will be home soon!" remarks your colleague.

Waiting in the kitchen while your colleague gets some drinks from the basement, you notice a letter from the principal of the local school tacked to the noticeboard. "Dear Parents," it begins, "This is the time of year when I write to all parents, such as yourselves, who have a girl or girls in the school, asking you to volunteer your time to help the girls' soccer team." "Hmmm," you think to yourself, "clearly they have at least one of each!"

This, of course, leaves two possibilities: two boys and a girl, or two girls and a boy. Are these two possibilities equally likely, or is one more likely than the other?

Note: This is not a trick puzzle. You should assume all things that it seems you're meant to assume, and not assume things that you aren't told to assume. If things can easily be imagined in either of two ways, you should assume that they are equally likely. For example, you may be able to imagine a reason that a colleague with two boys and a girl would be more likely to have invited you to dinner than one with two girls and a boy. If so, this would affect the probabilities of the two possibilities. But if your imagination is that good, you can probably imagine the opposite as well. You should assume that any such extra information not mentioned in the story is not available.

Solution to the Puzzle in the Last Issue

The values of the two decision variable are, uniquely, 4 and 13. This can be demonstrated by the use of Goldbach's conjecture. Contact Les Foulds lfoulds@waikato.ac.nz for a verification.

Les Foulds
lfoulds@waikato.ac.nz



Notices

NZSA Newsletter

The New Zealand Statistical Association Newsletter 61 online version is available at <http://nzsa.rsnz.org/Newsletter61/index.htm>.

The pdf version of the newsletter is available through

http://nzsa.rsnz.org/archive_newsletter.shtml at <http://nzsa.rsnz.org/newsletter/News61.pdf>

The next newsletter is planned for September 2005.

Roger Littlejohn
Editor NZSA Newsletter

2005 Medals and Awards Administered by Academy

The following suite of medals and awards is being offered in 2005 by the Academy Council of the Royal Society of New Zealand.

- Hector Medal - Mathematical and information sciences
- Te Rangi Hiroa Medal - Social and economic policy and development
- R. J. Scott Medal - technologies associated with biological, food, natural products processing & medical practice technologies
- Hamilton Memorial Prize for beginners in scientific or technological research in New Zealand
- Hatherton Award for the best scientific paper by a PhD student at any New Zealand University in physical sciences, earth sciences and mathematical and information sciences

The closing date for applications and nominations is Friday, 5 August 2005. Electronic copies of the information and application forms are available from awards@rsnz.org. Copies are also available on the Society's website

http://www.rsnz.org/awards/academy_awards/forms.php.

I look forward to receiving nominations for these prestigious medals and awards.

Judy Lyons (Mrs)
Administration Officer - Academy Council

Journals – Calls for Papers

Dear Colleagues

I have accepted the invitation to act as the Guest Editor for the special issue of the International Journal of Business Performance Management on Productivity Benchmarking. I cordially invite you to check out <http://www.inderscience.com/browse/callpaper.php?callID=3D197> and let me know if you intend to submit a manuscript.

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New Journal on Inventory Research

A new journal devoted to inventory research has been by Inderscience publishers. The journal's name is International Journal of Inventory Research.

Submissions are encouraged on all aspects of inventory research including, but not limited to:

- * Modelling inventory systems (deterministic/stochastic, single/multi-echelon, static/dynamic, etc.)
- * Empirical research
- * Supply chain management
- * Retail inventory management
- * Revenue management
- * Supplier partnerships, including vendor-managed inventory, quick response, etc.
- * Enterprise resource planning (ERP)

- systems
- * Supply contracts
- * Transportation inventory networks
- * Lean systems
- * Macroeconomic aspects of inventories

Research that integrates inventory theory with other areas (marketing, quality control, finance, etc.) is also encouraged.

Conference Announcements

Association of Asia-Pacific
Operational Research Societies
January 16-18, 2006
Manila, Philippines

With the theme Operations Research: *Optimising Resources for Outstanding Results*, the conference seeks to bring together OR researchers, academicians and practitioners, whose collective work has sustained continuing OR contribution to decision-making. The conference will provide a forum where:

- * Researchers could present their findings dealing with the theoretical, computational, and application aspects of operations research;
- * Practitioners could share their experiences on the problems, methodologies and outcomes of applying OR to solve real-world problems;
- * OR workers could discuss pertinent academic-, theoretical- and application- oriented issues;
- * Decision-makers could gain an insight into the experiences of others who have benefited from the use of OR in the public and private sectors.

Important Dates

- On-line submission for abstracts starts February 15, 2005
- Deadline for abstract submission June 15, 2005
- Notification of acceptance July 15, 2005
- Deadline for early registration September 1, 2005
- Deadline for author registration (for in-

clusion in Abstract book) December 1, 2005

For additional information please contact Organizing Chair, Elise del Rosario, elise@jgdelrosario.com or Program Chair, Professor Han Chun Kwong, hanck@pc.jaring.my

After a successful APORS Conference in India in 2003, APORS has landed in the Philippines! APORS 06 will be held in the heart of the commercial and business district in Metro Manila from January 16 to 18, 2006.

To emphasize the regional nature of this conference, we have, for the first time, worked out an arrangement where MSOR Society of Malaysia President, Prof. Han Chun Kwong chairs the technical program while the ORSP takes charge of the local arrangements. Even with these two societies though, APORS will not be complete without your participation.

We have organized three panel discussions on each day of the 3-day conference. These panel discussions will be on OR in Business, OR in Governance and OR Education.

National Contributions will be showcased in semi-plenary sessions and are automatically considered for the awards to be given on the last day of the conference.

APORS 06 welcomes proposals to organize sessions. Note that Prof. Han has to receive abstract submissions and session proposals on or before June 15, 2005.

We are hopeful that this Conference will bring out a stronger APORS and we need your wholehearted support for this. See you at the APORS Council meeting!

Elise del Rosario, President, APORS

**International Conference on
Operational Research for
Development (ICORD-V):
19-21 December 2005**

The International Conference on Operational Research for Development (ICORD-V) will be organised during 19th to 21st December 2005 at Jamshedpur, India. The conference is sponsored by International Federation of Operational Research Societies (IFORS). The ICORD conference series was initiated with a conviction that Operational Research (OR) can make significant contributions to the process of development in general and developing countries in particular. The conference will provide a forum for discussion and exchange of ideas among researchers, academics and practitioner community either involved directly or with an interest in OR in development. The conference will make it a priority to facilitate attendance at this international conference by participants from less developed countries. The aim will be to generate in-depth discussion among representatives of both developing and developed worlds.

A pre-conference workshop on **Problem Structuring Methods for Development** has been planned. The workshop will be coordinated by Prof. Jonathan Rosenhead of London School of Economics.

Co-Chairpersons of the Conference: Prof. Jonathan Rosenhead, London School of Economics, Prof. Arabinda Tripathy, Indian Institute of Management Ahmedabad, India

Email: tripathy@iimahd.ernet.in
Website: www.icord-v.net

**The Sustainable Development
of Asia Pacific**

Multi-Conference on the applications of System Dynamics and the Disciplines of Management

November 4 - 6, 2005 Tongji University
Shanghai, China

Location: Tongji University will provide a memorable opportunity for delegates to experience a fast growth Shanghai. The conference will bring together people from all over the globe, especially from Asia Pacific working in system dynamics and the disciplines of management.

Conference Theme: the Sustainable Development of Asia Pacific

Many countries, particularly some developing countries in Asia-Pacific, have faced the severe threats of financial crises, energy and natural resource shortages, environmental pollution and the pressure of overpopulation for years. At the same time, in a new era of unprecedentedly social, economic and technological changes the managers have concerned about how they can lead their firms and companies to overcome the obstacles in front of them. Therefore, the main theme of this conference will be focused on the sustainable development of both macro and micro economies.

Submissions are welcomed for work on all topics germane to system dynamics and the disciplines of management including:

- * Energy and natural resource shortages, environmental and ecological challenges—recycling economy
- * Business dynamics for sustainable development
- * Regional and national economic dynamics
- * Crisis management and financial system dynamics
- * System dynamics for R&D and Innovation
- * R&D project management
- * Simulation for decision making
- * Corporate strategy, planning and policy design
- * Dynamics of information systems
- * Public management and policy
- * Health care policy and biological and medical modeling
- * Theory development in the natural and social sciences
- * Dynamic decision making in supply chain, M&A, etc.

- * Complex nonlinear dynamics
- * Advances in the modeling process and simulation tools and techniques for model analysis
- * Teaching system dynamics and systems thinking in the K-12 grades and universities
- * Others

The program will comprise plenary, parallel, poster and workshop sessions demonstrating the state-of-the-art in the theory and application of system dynamics and the disciplines of management.

In addition, panel discussions, special interest group meetings, roundtable sessions, student colloquia, events of historic interest, vendor displays, exhibits, demonstrations and other related gatherings will be scheduled. We look forward to participants fully enjoying the Conference!

Submissions: Papers may be submitted from April 12, 2005 to July 22, 2005 and must be in sufficient detail to make clear their meaning and value. Submissions must be in English and should be 5-10 pages in length. Submission of models and other supporting materials is encouraged in all cases.

Each paper must have a designated presenter and one individual can be a designated presenter for at most two works.

All works submitted will be assigned for anonymous peer review. The results of this review, with the oversight of the program co-chairs, will determine whether a work will be accepted for plenary, parallel or poster presentation.

Notifications of acceptance will be sent by August 24, 2005. Authors retain the copyright to all submitted work and, by submitting, grant permission for inclusion in the conference proceedings.

Proposals for workshops, tutorials, and other pre- or post- conference activities should be submitted using the Workshop Proposal Form found on the conference

website. E-mail the completed form directly to the Workshop Chair, Professor Guangle Yan, at yangl@public7.sta.net.cn.

Session proposals and theme proposals for plenary or parallel sessions, and panel discussions and roundtable sessions, are welcome. Proposals should contain a brief description of the session theme, session organizer(s) and tentative list of all papers to be included in the session. Session proposals are due by August 26, 2005 to Dr. Bing Wu Program Chair, at info@suntek.info

Submission Format

Preliminary and final submissions must be received in .pdf format. Other formats will not be accepted and will be returned to the contact author as rejected.

Any supporting material, including models, submitted as a single file or a .zip archive.

Full contact information for one author must be included with each submission. The contact author is required to provide the following information for him/herself and for the designated presenter in the online form:

- * Title of work; Contact author name; Organization; Postal address; Email address

Contact information for all co-authors will also be required.

Materials must be submitted by E-Mail: systemdynamics@126.com. The form for presentation will be ppt.

Conference Proceedings

The conference pack will include the program with Printed Abstract Proceedings and CD-ROM Proceedings for all accepted papers. Full works for plenary, parallel, poster and workshop presentations will be included on the CD.

Deadlines and Key Dates

April 12, 2005: Opening date for paper submissions and workshop proposals.



July 22, 2005: Paper submission deadline.
Workshop proposals due.

August 24, 2005: Notification of acceptance.

August 26, 2005: Session proposals due.

September 28, 2005: Conference registration deadline.

November 3, 2005: Final deadline for late registrations accepted on a space-available basis (no on-site registration).

November 4, 2005: Conference Managerial Committee Meeting

Registration Fees

Participant from abroad : \$300 USD
(\$330 USD after September 28, 2005)

Full time student from abroad: \$200 (\$220 USD after September 28, 2005)

Participant home : ¥800 (¥1000 after September 28, 2005)

Full time student home : ¥400 (¥500 after September 28, 2005)

The registration fee will cover 3 lunches and a conference banquet.

Summer School on Shortest Paths Between Algorithms and Optimization

Copenhagen, Denmark, July 4-8, 2005

This summer school on shortest paths will span theory, practice, and applications in optimization problems. We will cover single source and all pairs shortest paths in directed and undirected graphs; with exact and approximate solutions; combinatorial techniques, the use of matrix multiplication, and exploiting integer weights; fast generation of distance oracles; dynamic versions

where distances are quickly recomputed when the graph updated; and various NP-hard variants of shortest path problems. Finally, we will give an overview on how shortest paths are used as subproblems in other combinatorial optimization problems.

The summer school will be held at DIKU, University of Copenhagen. State-of-the-art lectures will be given by the foremost researchers in the field, ensuring a proper balance between algorithms and optimization. The lectures will be supplemented by exercises and discussions.

Confirmed speakers

- Natasha Boland, The University of Melbourne, Australia
- Camil Demetrescu, University of Rome, Italy
- Andrew Goldberg, Microsoft Research, Silicon Valley, California
- Pino Italiano, University of Rome, Italy
- Mikkel Thorup, AT&T Labs, New Jersey
- Uri Zwick, Tel Aviv University, Israel

Registration and further information
<http://www.diku.dk/PATH05/>

Meetings Calendar

New Zealand

Workshop on Optimization of Transportation Services, University of Auckland, New Zealand
April 19 – April 22, 2005
<http://www.esc.auckland.ac.nz/Transportation>

International

Eighth SIAM Conference on Optimization Stockholm, Sweden
May 15, 2005 - May 18, 2005
<http://www.siam.org/meetings/op05/>

Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problem Prague, Czech Republic
May 30, 2005 - June 1, 2005
<http://cpaior05.mff.cuni.cz/index.html>

Eleventh Conference on Integer Programming and Combinatorial Optimization (IPCO XI) Berlin, Germany
June 8, 2005 - June 10, 2005
<http://www.math.tu-berlin.de/ipco05>

2005 INFORMS Conference on OR/MS Practice: Applying Science to the Art of Business, Palm Springs, California
April 17, 2005 - April 19, 2005
<http://www.informs.org/Conf/Practice05>

7th International Conference of the Canadian Operational Research Society, Halifax (Nova Scotia, Canada)
May 16, 2005 – May 18, 2005
<http://www.dal.ca/~jblake/cors2005/>

17th EURO Mini Conference "Continuous Optimization in Industry"
Pecs, Hungary, June 29 - July 1, 2005
http://www.cs.elte.hu/opres/Pecs05EUROmini/h_about.html

8th ISAHP, University of Hawaii, Honolulu, USA
July 8 – July 10, 2005
<http://www.isahp2005.net!>

17th Triennial Conference of the International Federation of Operational Research Societies 2005, Honolulu, Hawaii
July 11, 2005 - July 15, 2005
<http://www.informs.org/Conf/IFORS2005/>

5th Annual MOPTA Conference Modeling and Optimization: Theory and Applications
July 25 -- 27, 2005
University of Windsor, Windsor ON Canada
<http://www.uwindsor.ca/mopta>

The 6th Metaheuristics International Conference (MIC 2005), Vienna, Austria,
August 22, 2005 – August 26, 2005
www.mic.2005.org

First South Pacific Conference on Mathematics, Noumea, New Caledonia,
August 29 -- September 2, 2005
<http://www.univ-nc.nc/Recherche/labo/erim/lastconf/confsp.htm>

Operations Research 2005, International Conference of the German Society for Operations Research, Bremen, Germany
7- 9 September 2005,
www.or2005.uni-bremen.de

18th National Conference of the Australian Society for Operations Research, Perth, Australia
26 – 28 September 2005
<http://www.maths.curtin.edu.au/asor05/>

Officers of the Operational Research Society of New Zealand: 2004

President

David Ryan
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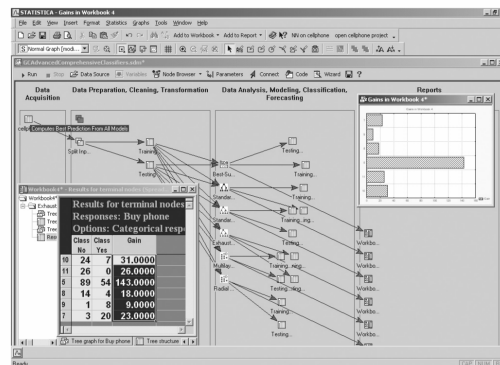
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