

October-November 2014

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ASOR Recent Advances

ASOR Recent Advances 2015 is a conference where presentations on completed academic research are complemented with sessions on interesting and/or novel applied work, the discussion of new research ideas and directions, and research work-in-progress.

Recent Advances is being held on 9-10 February 2015 teleconferenced between six sites (in Brisbane, Newcastle, Canberra, Sydney, Melbourne and Adelaide).

There are still three or four presentation slots left in the conference schedule: get in quickly with your conference paper or extended abstract in order to secure one.

Deadline, submission and registration details are attached to the end of this newsletter, and also can be found at www.asor.org.au.

Upcoming OR Seminars

ASOR Seminars

18 March 2015: Charl Ras (Univ. Melbourne)

15 April 2015: Axel Bender (DSTO, Adelaide)

20 May 2015: Worst Case Analysis Workshop (At RMIT, hosted by Moshe Sniedvich)

AMSI/ANZIAM AGR National Seminars

For information about these events, visit <http://www.amsi.org.au/index.php/research-a-higher-education-mainmenu/access-grid/national-seminar-series>.

Events in late 2014 and early 2015

The Access Grid Room system has been offline since late October, and will not return until February 2015. This closure significantly affects our ability to hold our events. The main ASOR programme restarts with Recent Advances in February 2015.

People News

In Melbourne, **Alan Dormer** has left CSIRO and taken on a CEO position at Opturion, a NICTA spin-off.

ASOR past-President **Santosh Kumar** (right) received a COTA Senior Achiever Award for 2014, in particular for his work with the 200 strong Northern Region Indian Seniors Association (NRISA), and being a tireless advocate for projects that address the housing and health support needs of older people who struggle to connect with health and welfare services (more information can be found at <http://www.seniorsonline.vic.gov.au/Home/Festival-and-Awards/Your-events/Seniors-Awards/2014-Awards>).



In Newcastle, **Hadi Charkhgard** has been awarded a *Faculty Research Higher Degree Outstanding Postgraduate (Research) Student Achievement Award* for 2014 for the work on *The Triangle Splitting Method For Biobjective Mixed Integer Programming*.

Hadi Charkhgard presented this work, earlier this year, in the prestigious conference IPCO 2014. The Faculty (of Science and IT at U. Newcastle) Research & Research Training Committee awards up to a total of 10 outstanding achievement awards in each year. These awards are designed to promote excellence in research and creativity and give recognition to outstanding achievements. The committee views these awards as being prestigious, and recipients of the award will receive a \$250 cheque, Certificate, their achievement will be noted on their Official Academic Transcript.

More Australian OR in the running for the Edelman Prize

Following Biarri's success in reaching the final of the INFORMS Edelman Prize earlier this year, Rio Tinto and CSIRO's work in developing an Iron Ore logistics optimisation system has reached the assessment stage in the Edelman semi-finals for 2015. The developments at Rio Tinto Iron Ore have already topped Rio's own innovation awards, and were also recognised at the 2013 Euro conference as a finalist in the Best Practice category.

ASOR/NICTA/Monash Seminar

The final ASOR (Melbourne/National) Seminar for 2014 was held in Melbourne and was delivered by **Dr Giovanni Felici** from CNR in Rome. Giovanni presented *Perturbed Perspective Cuts in Tight Unit Commitment models with Optimal Transmission Switching*. Giovanni visited CSIRO in Melbourne during October and November, and is a member of the Institute of System Analysis and Computer Science of the Italian National Research Council (Consiglio Nazionale delle Ricerche, CNR).

Due to the Access Grid Rooms being offline, we teamed-up with NICTO and Monash University instead, and broadcast between Monash Clayton, Monash Caulfield and NICTA Canberra.

Giovanni described approaches to the centralized management of electricity generation units in order to meet demand in the Italian AC transmission system. The conventional "DC approximation" was used, this adding significant complexity to the models compared with a "transportation model" approach. A quadratic objective function was adopted in some of the models in order to account for the operating costs of thermal generation units.

Optimisation of Whey Logistics in South America

Rodolfo García-Flores, CSIRO

The project *Strengthening disadvantaged communities in Argentina, Brazil, Colombia and Uruguay* is an international aid project whose aims are achieving better utilisation of the whey produced by small cheese makers in disadvantaged communities in South America, as well as reducing the environmental damage caused by its disposal. The project is sponsored by the Australian Government's Public Sector Linkages Program of the Department of Foreign Affairs and Trade. CSIRO has a role in transferring technical knowledge to the public sector of the countries involved through extension and assistance programmes. The OR contribution in this is to assess the viability of investing in shared whey processing facilities, through developing decision-making tools based on mathematical optimisation techniques.

I personally participated in R&D activities hosted in the Free University of Colombia by Dr Ilba Burbano from 6 to 11 of October 2014, and in the Brazilian Corporation for Agricultural Research (EMBRAPA) by Dr Amauri Rosenthal from 15 to 17 of October. CSIRO has developed, in collaboration with dairy experts and researchers with extensive knowledge of the situation of the communities on the ground, a general network flow and facility location model to inform the cheese makers in selected South American communities on the best investment

strategies and design of their new whey supply chains. The purpose of the trip was to discuss in detail the requirements of the communities in their respective countries in order to produce meaningful results, as well as to visit some of the cheese makers in the community of Sabanalarga (Atlantic Department of Colombia) and understand, first hand, their needs and challenges. In Brazil, the activities aimed at defining the scope of the model for the Brazilian communities, and formulating the questions that the model should answer. These centred on how to handle salty whey, and modelling processes to produce alternative products.



Delegates in Columbia: Yussi Arteta (Dean, School of Engineering, Free University), Jesús Cohen (Professor, school of Engineering), Segio Borbonet (Consultant, Uruguay), Ilba Burbano (host, Professor), Rodolfo García-Flores (CSIRO), Clara Gutiérrez (Professor)

The cheese-making industry in South America is very fragmented and whey disposal methods have a significant impact on the environment. Researchers in the Free University, EMBRAPA, and other partner research institutions are collecting the information needed to solve the problem, including cheese maker location, volume of whey produced, and road availability. Additionally, there are specific nuances that add to the complexity of the problem. For example, the preferred processing plant in Colombia is simpler and less costly than for all the other countries. In Brazil, the amount of salty whey produced is higher than in the other countries. The research team is using this information to fine-tune the models for each country.



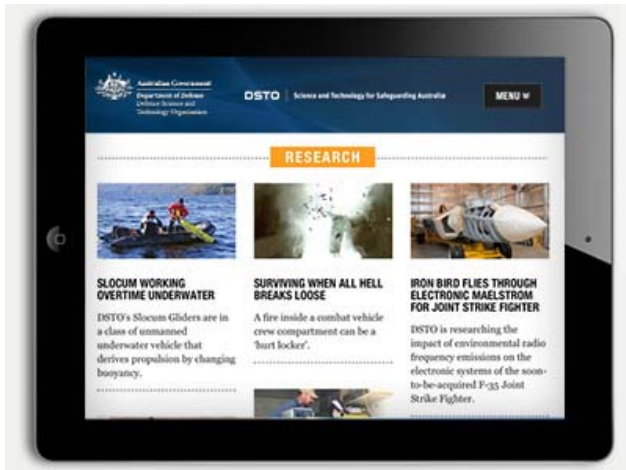
Visit to a cheese maker in Sabanalarga, Atlantic Dept., Colombia

In addition to the core project, I participated in discussions on possible collaborations. For example, the Colombian Government has asked a group of local universities to study the

re-organisation of the port of Barranquilla and optimise its operation considering all the modes of transportation used. There is also interest in developing humanitarian logistics models to handle disasters, such as floods and hurricanes, in the Colombian Caribbean area.

DSTO News App

Joyanto Mukerjee (our DSTO representative within ASOR Melbourne) advises us of the relatively new DSTO News App: information on which can be found at <http://www.dsto.defence.gov.au/media-centre/dsto-app>



Australian Maths and OR on YouTube and Vimeo

Andy Wong and ASOR Brisbane have been busy creating an **ASOR YouTube channel!** Recordings of three of their monthly seminars in 2014 have been posted already:

- Matt Herbert, *A Multicommodity Network Flow Approach to Coal Train Crew Scheduling*.
- Robert Burdett, *An Integrated Approach for Earthwork Allocation, Sequencing and Routing*.
- Colin Eustace, *A framework for optimising resource supply chains*.

More content from across ASOR will be coming soon. Visit <https://www.youtube.com/user/AusORSoc>.



A screenshot from YouTube of Robert Burdett's slides for the ASOR Brisbane seminar on *An Integrated Approach for Earthwork Allocation, Sequencing and Routing*, which was posted in early November

(By email from Susan Cuddy) The recent publication of the Journal of Environmental Modelling and Software (EMS) Position Paper *Evolutionary algorithms and other*

metaheuristics in water resources: Current status, research challenges and future directions by MSSANZ Society members led to the establishment of the MSSANZ/iEMSs Occasional Seminar Series, with Hoger Maier delivering the inaugural seminar at the University of Adelaide on 19 November 2014. The seminar can be viewed on Vimeo, as the first of many video seminars that MSSANZ and iEMSs hope to post.

Internships Opportunities: Offers and Requests

Post-PhD Internships at CSIRO

CSIRO is once again offering *Post-PhD Internships* within its Operations Research group at the CSIRO Clayton campus. These are twelve-week fully-paid assignments at CSIRO, for recently-completed PhD students who can work with CSIRO researchers to take partly-completed research (by CSIRO and/or the student) and generate completed and publishable research results. Each applicant will be assigned a CSIRO OR group member who will help form the application for the position. The selection of candidates will be based on the alignment of research interests between the student and CSIRO's researchers. The student must have completed their thesis submission before commencing at CSIRO, and should not yet have had their PhD examination completed. *Register your interest by emailing Simon.Dunstall@csiro.au before 19 December 2014.*

French Student Seeking Internship

Mathilde Garrigues is currently studying Optimization and Artificial Intelligence in ENAC and Université Paul Sabatier (Toulouse, France), in order to get a Research Master Degree in Operations Research. She is seeking a five or six months research internship in OR. Mathilde already is a qualified electronic engineer, and is studying Operations Research with the aim of eventually pursuing a PhD. *If your organisation is interested in taking on Mathilde, please email Simon Dunstall or Kaye Marion with a request for contact information.*

ASOR email List

Subscribe to ASOR's official email list for announcements, membership matters, news and events by visiting <http://www.asor.org.au> and putting your email address in the box at the top of the page.

Our current mailing list is national, and supersedes some other lists that were local (including, melbourne-list@asor.org.au) and which are now closes. It is not a list that can be posted-to directly: rather, mailouts are composed by the list administration team and sent out as a campaign.

To request a mailout, email Andy Wong or Simon Dunstall with the information you would like to be broadcast.

ASOR Linked-In Group

Members who have accounts on LinkedIn should visit <http://www.linkedin.com/groups/Australian-Society-Operations-Research-4473262>, which covers ASOR nationally.

ASOR Website

Visit <http://www.asor.org.au/>, and especially click through to Melbourne or Queensland chapters and see up-to-date websites for ASOR's most active chapters. The ASOR website contains a back-catalogue of newsletters, membership forms, registration forms (from time-to-time when we have events) and other goodies.

Health workshop in Adelaide

A similar event to the Health Care Modelling Workshop held in Melbourne during February 2014 is being planned for February 2015. This time the workshop will be in Adelaide (city campus of Flinders University) in the week 16-20 February 2015. For details, contact Dr Mark Mackay at Flinders University, or look out for further information in the next ASOR newsletter.

International Envirometrics Society

Erin Peterson (CSIRO) and Bronwyn Harch (QUT)

The International Environmetrics Society (TIES) is a society for quantitative scientists interested in working on multidisciplinary environmental problems. Our aim is to foster the development and use of statistical and other quantitative methods in the environmental sciences, environmental engineering and environmental monitoring and protection. To this end, the Society promotes the participation of statisticians, mathematicians, scientists and engineers in the solution of environmental problems and emphasizes the need for collaboration and for clear communication between individuals from different disciplines and between researchers and practitioners. The Society further promotes these objectives by conducting meetings and producing publications, and by encouraging a broad membership of statisticians, mathematicians, engineers, scientists and others interested in furthering the role of statistical and mathematical techniques in service to the environment.

You can find more information about TIES at our website: <http://www.envirometrics.org/>

The 25th Annual TIES Conference will be held in Brisbane on June 28th to July 3rd, 2015.

Upcoming Australian OR Conferences and Events



ASOR Recent Advances 2014. 9-10 February 2015. Brisbane, Newcastle, Sydney, Canberra, Melbourne and Adelaide via teleconference (Access Grid Rooms).

See <http://www.asor.org.au>



NICTA Optimisation Summer School, ANU Kioloa Campus, NSW South Coast, 11-16 January 2015; <http://tinyurl.com/optschool>.

International Symposium on Environmental Software Systems (ISESS) conference to be held in Melbourne, 25-27 March 2015. See www.iss2015.org.



MODSIM 2015. Incorporating DORS and ASOR. 29 November – 4 December 2015.

Web Pages of Interest

ASOR National: www.asor.org.au

STA: <http://scienceandtechnologyaustralia.org.au/>

NZ OR Society <http://www.orsnz.org.nz/>

ORS (UK): <http://www.orsoc.org.uk/>

INFORMS (US): <http://www.informs.org/>

IFORS: <http://www.ifors.org>

Optimisation in Melbourne:
<http://www.or.ms.unimelb.edu.au/>

For the latest international news, conference and jobs details see: <http://www.ifors.org/panorama/index.html>

tutOR: <http://www.tutor.ms.unimelb.edu.au>

ASOR BRANCHES AND ASOR NATIONAL

ASOR Melbourne Committee 2014-2015

ASOR Melbourne presently welcomes members from Victoria, South Australia, NSW and the ACT.

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Lou Giannini.

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Recent Advances

in Operations Research

ASOR Recent Advances 2015 — 9th and 10th February 2015 — Nationally via Access Grid

The **ASOR Recent Advances Conference** is a forum for the exchange of ideas and the promotion of growth and activity in the Australian OR community. It is a conference where presentations on completed academic research are complemented with sessions on interesting and/or novel applied work, the discussion of new research ideas and directions, and research work-in-progress.

ASOR Recent Advances will run over two days and be teleconferenced across multiple coordinated sites via the AMSI Access Grid system. Presenters and attendees can utilize participating Access Grid facilities in Sydney, Newcastle, Brisbane, Adelaide, Canberra or Melbourne.

Presentations and Papers

Recent Advances combines abstract-only presentations with presentations of peer-reviewed conference papers. The peer-reviewed papers will be published in a special Recent Advances issue of the ASOR Bulletin — an indexed and quality-rated academic journal published by ASOR.

Abstract-Only presentations are supported by 150- to 300- word abstracts (mathematical symbols permitted) that can be supplied in plain text, MS Word or Latex formats.

Conference Papers for peer review should be between three and seven pages (in 10pt font, single-column, 2.5cm margin page layout) and can be supplied in MS Word or Latex formats.

Key Dates

12 December 2014. Refereed paper submission deadline (earlier submission preferred).

30 January 2015. Deadline for submission of abstracts for abstract-only presentations.

9-10 February 2015. Recent Advances conference.

Keynotes and Focus Sessions

ASOR has secured Recent Advances keynote speakers from Australia and New Zealand: **Kate Smith-Miles** (Monash University), **Yakov Zinder** (University of Technology Sydney) and **Andrew Mason** (University of Auckland). Recent Advances incorporates a special focus session on Commercial OR, with presenters including **Alan Dormer** from Opturion and **Ian Monks** from Melbourne Water.



Venues, Times and Local ASOR Contacts

Melbourne: RMIT Access Grid Room (Room 8.9.66), local contact **Paul Lochert** — plochert@bigpond.net.au

Brisbane: QUT Access Grid Room, local contact **Andy Wong** — aw3379@gmail.com

Newcastle: U. Newcastle Access Grid Room, local contact **Fabian Rigterink** — Fabian.Rigterink@gmail.com

Adelaide: UniSA Mawson Lakes AGR, local contact **Amie Albrecht** — Amie.Albrecht@unisa.edu.au

Sydney: UTS Access Grid Room, local contact **Yakov Zinder** — Yakov.Zinder@uts.edu.au

Canberra: NICTA Canberra (details to be advised), local contact **Alan Lee** — Alan.Lee@nicta.com.au

Registration Cost

Most costs directly or indirectly associated with holding Recent Advances are being met through the gracious in-kind support or financial contributions from our university hosts, ASOR National and local ASOR branches.

For presenters and attendees at Recent Advances, the following registration fee applies.

- ASOR Members \$50, or \$90 including ASOR 2015 membership*
- Retired members \$25
- Student members FREE, including ASOR 2015 membership*
- Non-members \$60, or \$90 including ASOR 2015 membership*

(* ASOR East Coast – i.e., Brisbane or Melbourne branches – only)

Please register using the attached registration form, no later than 30 January 2015 (earlier registration preferred).

Submitting Abstracts and Papers

Please send abstract and full paper submissions by email to:

Simon Dunstall (simon.dunstall@csiro.au) or Paul Lochert (plochert@bigpond.net.au).

The review of Recent Advances conference papers is being coordinated by Baikunth Nath and Henry Burley.

ASOR National AGM

ASOR will hold its Annual General Meeting during Recent Advances.

Organising Committee

For queries and further information please contact the nominated local contact, or a member of the Organising Committee: Simon Dunstall (CSIRO), Kaye Marion (RMIT), Andrzej Ceglowski (Monash), Paul Lochert, Henry Burley, Baikunth Nath or Paul Gaertner (DSTO and ASOR Bulletin editor)

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Recent Advances

in Operations Research

ASOR Recent Advances - Registration

It is essential to register by **30 January 2015**, and earlier registration is much preferred.

INTENDED LOCATION: ☐ MELBOURNE ☐ ADELAIDE ☐ BRISBANE
☐ NEWCASTLE ☐ SYDNEY
☐ OTHER: _____

TITLE _____ NAME: _____

ADDRESS: _____

Phone Number(s): _____ Email: _____

Dietary restrictions: _____

Payment (applies for all cities and states)

☐ Member (\$50) ☐ Member + ASOR Subs 2015 (\$90)*
☐ Non-Member (\$60) ☐ Non-member + ASOR Subs 2015 (\$90)*
☐ Retiree (\$25) ☐ Student + ASOR Subs 2015 (FREE)*

(*Membership offer applies for ASOR membership in SA, Vic, Tas, NSW or QLD only)

Find enclosed a cheque for \$_____ payable to *Australian Society of Operations Research (Inc)*

or charge to ☐ MASTERCARD ☐ VISA

Card Number:

Expiry date: /

Cardholder Name: _____

Signature: _____ Date: _____

Please forward this registration by email to Paul Lochert (plochert@bigpond.net.au)

