

ASOR News — June 2013

Contents

Recent Advances, 17 July 2013	1
Optimisation in Industry workshop	1
Fleet Management Workshop	1
ASOR Melbourne email List	2
Membership	2
Upcoming OR Seminars	2
ASOR Melbourne June Seminar	2
AMSI/ANZIAM AGR National Seminar	2
AEMO 100% Renewable Energy Study — Industry Launch	2
Support for Visiting Researchers	3
Postdoc Positions in Singapore	3
Summary of OR workshops and conferences in Australia	3
Web Pages of Interest	4
Committee Membership for 2013-2014	4

Recent Advances, 17 July 2013

Recent Advances is being held early this year, to clear the way for the ASOR National Conference in Adelaide in December. If you have not heard of Recent Advances before, it is a one-day single-track conference held each year by ASOR Melbourne, showcasing research by our local members as well as ASOR members from interstate. Speakers nominate themselves by submitting an abstract, and the day is seamlessly run by our current treasurer, Paul Lochert.

The date for this year's Recent Advances conference is **17 July 2013**, and as is now customary we will be joining Melbourne, Newcastle and possibly SA and other sites by Access Grid.

Optimisation in Industry workshop

Optimisation in Industry is a three-day workshop that brings together researchers, graduate students and industry practitioners with an interest in solving challenging industrial problems using analytics, mathematical modelling, and advanced optimisation and constraint programming methods.

ASOR Melbourne is sponsoring this workshop, which is being hosted and organised by RMIT and IBM Research. Visit the website at <http://optimisationinindustry.com/> for further information. Registration is \$150 for ASOR members (\$100 for students), and is available online.

Fleet Management Workshop

ASOR, DSTO and the Royal Australian Air Force (RAAF) will be jointly hosting a workshop on Defence Aviation Fleet Management in Melbourne on 20 August 2013. Fleet management covers the phases of the capability lifecycle from introduction into service through to retirement.

The workshop will involve a small selection of fleet managers from the RAAF, analysts and researchers from DSTO, and OR researchers and practitioners with interests and/or experience in Fleet Management. The focus for the day will be on Defence Aviation Fleet Management, but the ideas are potentially extensible across other domains, such as maritime and land.

The intended outcomes of the workshop are for the RAAF to better understand the potential of OR for Fleet Management, and for OR people to understand better the needs and opportunities in Defence Aviation Fleet Management.

Applications to attend and/or present the workshop will be sought during June (watch the ASOR mailing list). For more information, contact David Marlow or Simon Dunstall (refer to the committee contacts list).

ASOR Melbourne email List

If you need to update your details for our mailing list, melbourne-list@asor.org.au, visit the web page at http://asor.org.au/mailman/listinfo/melbourne-list_asor.org.au, where you can maintain your information, subscribe or unsubscribe.

Membership

Are you a lapsed member but still on the ASOR mailing list? Please do stay on the list, but also strongly consider renewing your ASOR membership. Newly-redesigned membership forms are online at <http://www.asor.org.au/melbourne/membership.html>.

Upcoming OR Seminars

ASOR Melbourne Series

Wednesday 12 June, 4pm, UNSW, Newcastle and RMIT Room 8.9.66 via Access Grid. *Improving Strong Branching by Domain Propagation*, **Gerald Gamrath**, ZIB Berlin. See details elsewhere in this newsletter.

Hosted by Optimisation and OR in Melbourne

See www.or.ms.unimelb.edu.au.

AMSI/ANZIAM AGR National Seminars

These are broadcast on the Access Grid network:

Friday 21 June, 4pm: U. Queensland and elsewhere via Access Grid. *The mathematics of conservation decisions*, Presenter **Prof. Hugh Possingham**.

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

ASOR Melbourne June Seminar

ASOR Melbourne's June Seminar will be presented by **Gerald Gamrath from ZIB Berlin**, on **12 June**, and is titled *Improving Strong Branching by Domain Propagation*. **Please note the starting time of 4pm for this seminar** (i.e., not our usual 6pm starting time).

Deciding how to branch is one of the most important decisions any branch-and-bound based MIP solver has to take. An important component of most state-of-the-art branching rules is strong branching, which predicts the dual bounds of potential child nodes by solving auxiliary LPs.

In this talk, we describe how these predictions can be improved by including domain propagation into strong branching. We present computational experiments which show that this reduces the strong branching effort and helps to decrease both the number of branch-and-bound nodes and the overall solving time.

AMSI/ANZIAM AGR National Seminar

The next seminar in this series will be held on **21 June at 2.30pm** (AEST) and delivered via Access Grid Rooms by **Professor Hugh Possingham** from the University of Queensland. The title of the seminar is "The mathematics of conservation decisions"

I will discuss three major problems in conservation research: where should we invest, globally, in biodiversity? How much should we allocate to different threatened species? How should I build protected area systems on the land and in the sea? The problems will be defined and the algorithms to solve the problems will be discussed. The politics and policy implications of conservation decision support using mathematics and economics will be alluded to - to the point that I don't get sued. Our publications can be found at: <http://scholar.google.com.au/citations?user=9-veEp8AAAAAJ&hl=en> and our centre's web sites can be found at: <http://www.edg.org.au/>.

AEMO 100% Renewable Energy Study — Industry Launch

On May 2 the Australian Energy Market Operator (AEMO) launched a draft of their report into the potential for 100% of the East Coast stationary electrical energy supply to be from renewable sources. The brief and funding for the work was supplied by the Federal Government.

The report was not concerned with a year-by-year pathway of change until 100% renewables in 2030 or 2050, but did look in detail at the demand-supply

balance at 30 a minute time resolution in these future years (using historical data synthesized into time series for 2030 and 2050). CSIRO, the Geothermal Centre of Excellence and ROAM Consulting provided data on the availability and variability of renewable energy sources, including onshore wind, Hot Sedimentary Aquifer, geothermal, wave power and biomass.

The general conclusion was that there is ample renewable energy supply, so much so that only a small fraction will be needed in order to satisfy our needs. The engineers consulted during the work indicated that there were, of course, challenges for the power system but that these were not insurmountable. Large amounts of capital would be required, yet this is also the case for fossil-fuel plant anyway. Supply could meet demand, with a plausible investment level, as long as biomass sources were available in order to cover wind and solar unavailability.

The completed public version of the report should be released in the near future.

Support for Visiting Researchers

Have you got an interstate or international visitor? ASOR Melbourne has committed funds to assist with the costs of visits, in exchange for visitors giving a seminar for the members. Contact your favourite committee member to discuss the opportunities.

Postdoc Positions in Singapore

The School of Computer Engineering at Nanyang Technological University, Singapore, has 3 Research Fellow (Postdoc) positions available for 3-4 years at starting immediately. These are Research Fellow (Postdoc) positions on Agent-based Modeling and Simulation.

The work will involve conducting research and development in the area of agent-based modeling and simulation. Specifically, it is an industry funded project with a world-wide reputable company. The successful applicants will be designing and developing agent-based models and simulations to support decision making for complex business systems such as production scheduling and supply chain, etc.

The School of Computer Engineering is fast growing, and so is the company. Singapore is also establishing two new universities. Thus, there are plenty of opportunities for future long-term careers available.

Requirements include:

- (1) PhD degree in CS or a related discipline;
- (2) Sufficient research and development experience in agent-based modeling and simulation;
- (3) Excellent programming skills, and being familiar with the AnyLogic platform is an asset;
- (4) Excellent English writing and speaking skills.

If interested, please send a detailed CV to Jie Zhang @ntu.edu.sg.

Summary of OR workshops and conferences in Australia

Optimisation in Industry, on 5-7 June 2013, is a three-day workshop that brings together researchers, graduate students and industry practitioners with an interest in solving challenging industrial problems using analytics, mathematical modelling, and advanced optimisation and constraint programming methods. For more information visit <http://optimisationinindustry.com/>.

AMSI Workshop on Mathematics of Transportation Networks on 19-21 June 2013 brings together researchers and stakeholders from government and industry to discuss the application of mathematics to the design and operation of transportation networks. Visit <http://users.monash.edu.au/~mpetn/> for more information.

Mathematics of Planet Earth Conference. 8-12 July 2013, Rydges Hotel, Melbourne. Submission of abstracts closed on May 31, but registrations are open. See www.mathsofplanetearth.org.au/events/2013/.

Recent Advances. ASOR Melbourne's annual mini-conference, to be held on 17 July 2013, in RMIT Room 8.9.66 and other sites by Access Grid.

MODSIM 2013 / ASOR 2013. Adelaide Convention Centre, December 1-6, 2013. The Theme of the conference is Adapting to Change: the multiple roles of modelling. MODSIM 2013 incorporates DORS and the 2013 ASOR National Conference. <http://mssanz.org.au/modsim2013>

The 4th **Freight Logistics Optimisation Workshop (FLOW)**, on 9 December 2013, is a one-day course introducing optimisation to logistics practitioners in industry. Holiday Inn, Flinders Lane, City. FLOW is a joint initiative of CSIRO, ASOR and the Logistics Association of Australia.

Web Pages of Interest

We are affiliated with FASTS through AMSC. To keep abreast of FASTS activities, consult:

www.usyd.edu.au/fast

ASOR National: www.asor.org.au

ASOR Melbourne Chapter:
<http://www.melbourne.asor.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>

Committee Membership for 2013-2014

Chair — Simon Dunstall,
0417 330 231, simon.dunstall@csiro.au

Vice Chair — Patrick Tobin,
03 9953 3199, Patrick.Tobin@acu.edu.au

Secretary — Kaye Marion,
03 9925 3162, k.marion@rmit.edu.au

Treasurer — Paul Lochert,
03 9802 4628, plochert@bigpond.net.au

Student Representative — Cameron MacRae,
cameron.macrae@rmit.edu.au

Committee:

Moshe Sniedovich
03 8344 5559,
m.sniedovich@ms.unimelb.edu.au

Henry Burley
03 9458 1872, h.burley@latrobe.edu.au

Red Ceglowski
03 9903 4569,
Andrzej.Ceglowski@buseco.monash.edu.au

Gaurav Singh
03 9545 8467, Gaurav.Singh@csiro.au

David Marlow,
david.marlow@dsto.defence.gov.au

Melih Ozlen
03 9925 3007, melih.ozlen@rmit.edu.au

Mohsen Jafari Songhori,
m.jafarisonghori@student.unimelb.edu.au

Baikunth Nath (ex-officio)
0433 926 091, baikunth@unimelb.edu.au

Newsletter Editor — Simon Dunstall

The AUSTRALIAN SOCIETY for OPERATIONS
RESEARCH Inc.
MELBOURNE CHAPTER
GPO Box 1048, Melbourne, Vic 3001