



The CORS Bulletin

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In This Issue

Dear CORS members,

Inside this issue of the Bulletin are reports on the awards given in May at the highly successful 2013 CORS Annual Conference in Vancouver. In particular, be sure to take a look at the very impressive research efforts of the winners of the student paper awards. There is also a preview of next year's conference, to be held in Ottawa.

"In Memoriam: John Pritchard," marks the passing of a CORS member who was very active in the defence OR community – some of his former colleagues wrote this feature for this issue.

Also inside are the annual updates introducing the new Council and members of CORS committees. And as always, Council Corner, CORS Sections News and CORS SIGs News will fill you in on the activities and events that your fellow members are making happen around the Society.

Cheers,

Diane Bischak
Editor

Editor

Diane Bischak

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Erla Anderson

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Taraneh Sowlati
Elkafi Hassini
Dionne Aleman
Navneet Vidyarthi
Diane Bischak (12/14)
Jonathan Patrick (12/14)
Xuan Zhao (13/15)
Robert Allie (13/15)

Standing Committees

Awards
Education
Membership
Program
Public Relations
Publications
Past Presidents Advisory Board
SIG
Practice Prize
Student Paper Competition
Merit Award
Financial Planning
Nominating
INFOR Publisher Search
Strategic Planning
Travelling Speakers Program
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Peter Bell, David Martell,
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Benny Mantin, Anjali Awasthi
Elkafi Hassini, Derek Atkins,
Oded Berman
Navneet Vidyarthi, Elkafi Hassini,
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Elkafi Hassini, Bernard Gendron,
Samir Elhedhli, Navneet Vidyarthi,
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Bernard Gendron, Elkafi Hassini,
Armann Ingolfsson
Elkafi Hassini
Bernard Gendron
Dionne Aleman
Erla Anderson
Erla Anderson
<http://www.cors.ca>

The 2013–2014 Council

CORS Council is made up of the Officers of the Society, four Councillors, the Immediate Past President, a representative designated by each local section of the Society, and the Standing Committee Chairs. Contact information for 2013–2014 Council representatives is provided below. For a complete listing go to www.cors.ca.

President	Corinne MacDonald, Dalhousie University, corinne.macdonald@dal.ca
Vice-President	Taraneh Sowlati, University of British Columbia, taraneh.sowlati@ubc.ca
Secretary	Dionne Aleman, University of Toronto, aleman@mie.utoronto.ca
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Councillor	Jonathan Patrick, University of Ottawa, patrick@tefler.uottawa.ca
Councillor	Xuan Zhao, Wilfrid Laurier University, xzhao@wlu.ca
Councillor	Robert Allie, Weston Foods, robert.allie@readybake.com
Atlantic	Claver Diallo, Dalhousie University, claver.diallo@dal.ca
Quebec	Irène Abi-Zeid, Université Laval, irene.abi-zeid@osd.ulaval.ca
Montréal	Louis-Martin Rousseau, École Polytechnique de Montréal, louis-martin.rousseau@polymtl.ca
Ottawa	Dragos Calitoiu, Bank of America, Ottawa, calitoiu@optimod.ca
Kingston	Jeffrey I. McGill, Queen's University, jmcgill@business.queensu.ca
Toronto	Joseph Milner, University of Toronto, milner@rotman.utoronto.ca
SW Ontario	Fredrik Odegaard, University of Western Ontario, fodegaard@ivey.uwo.ca
Winnipeg	Currently vacant
Saskatoon	Winfried Grassmann, University of Saskatchewan, grassman@cs.usask.ca
Calgary	Maurice Elliott, Husky Energy, maurice.elliott@huskyenergy.ca
Edmonton	Armann Ingolfsson, University of Alberta, armann.ingolfsson@ualberta.ca
Vancouver	Taraneh Sowlati, University of British Columbia, taraneh.sowlati@ubc.ca
Toronto Student	Kimia Ghobadi, University of Toronto, kimia@mie.utoronto.ca
Waterloo Student	Saul Qishu Cai, University of Waterloo, qcai@uwaterloo.ca

Recent Changes to Council and Committees

Post	Previous	New
Council		
President	Elkafi Hassini	Corinne MacDonald
Vice-President	Corinne MacDonald	Taraneh Sowlati
Past President	Samir Elhedhli	Elkafi Hassini
Councillor / Conseiller	Jennifer Percival Louis-Martin Rousseau	Robert Allie Xuan Zhao
Standing Committees		
Awards (replaces Larnder, Solandt, and Service Award committees)	Corinne MacDonald Taraneh Sowlati	Corinne MacDonald TBA
Education	Fredrik Odegaard	Mehmet Begen
Membership	Taraneh Sowlati	Xuan Zhao
Past Presidents Advisory Board		Elkafi Hassini, Corinne MacDonald, Peter Bell, David Martell, Richard Caron
Program	Corinne MacDonald	Taraneh Sowlati René Séguin
Publications	Bernard Gendron	Bernard Gendron, Diane Bischak, Armann Ingolfsson
Public Relations SIG	Louis-Martin Rousseau Elkafi Hassini	Robert Allie Taraneh Sowlati
Ad hoc Committees		
Financial Planning	Navneet Vidyarthi Samir Elhedhli Elkafi Hassini Corinne MacDonald	Navneet Vidyarthi Elkafi Hassini Corinne MacDonald Taraneh Sowlati
INFOR Publisher Search		Elkafi Hassini, Bernard Gendron, Samir Elhedhli, Navneet Vidyarthi, Armann Ingolfsson
Merit Award	Samir Elhedhli Oded Berman Eldon Gunn	Elkafi Hassini Derek Atkins Oded Berman
Nominating Practice Prize Student Paper Competition Travelling Speakers Program	Samir Elhedhli John Blake Mehmet Begen Samir Elhedhli	Elkafi Hassini Richard Caron Benny Mantin Elkafi Hassini
Presidents of Local Sections		
Waterloo Student	Tiffany Bayley	Saul Qishu Cai

Outgoing President's Message

Dear CORS Members,

It has been an honour for me to serve the Society. I would like to take this opportunity to report to you on the major activities and initiatives that were undertaken during the past year.

In addition to running the day-to-day business of the Society, it is important to also think about the strategic plan for the Society. To that end we have created a Strategic Planning Committee. This committee will look at what the strategy of the Society should be and set plans for achieving it. One initiative that this committee started is the formation of an advisory board of past presidents. This board will use the collective history and wisdom of past presidents to advise on matters as per the request of the Council.



Elkafi Hassini

Another issue we focused on during the last year is the financial well-being of the Society. We have started a process of formalizing the conference organization tasks and sponsorship opportunities. In this regard I would like to thank this year's conference organizers on their dedication and the efforts they put into making sure the conference is successful. In particular they have done a good job in securing sponsorship from OR-related companies. We are hoping this will continue to be the standard for future conferences, rather than a one-time initiative. To this end we have put together a sponsorship package template and a link between current and future organizers so that these sponsoring companies can be kept in the loop. On another front we have made a significant progress in the direction of improving the INFOR journal and making it self-sustaining financially. We have visited the current publisher and had a very useful discussion on their current operations. Based on this, some immediate actions were taken both by the publisher and CORS to improve the journal situation. But more has to be done in the long term. As you have heard from Bernard Gendron, the editorial board of INFOR will be restructured to allow for the possibility of having more high quality submissions, and plans are under way to move the journal to a well-established publisher that can help the Society in marketing and growing the journal.

One other initiative that is still in progress is the update and migration of the CORS web site to a new server. This new web site will facilitate membership subscriptions and renewals as well as conference registrations. The web site will also be linked with the membership database, and this is expected to simplify our membership administration services. We are hoping the web site will be live in the coming year.

CORS now has three Special Interest Groups (SIGs). They are already playing a major role in setting up sessions for the conference and special issues for the INFOR Journal. Council has put together a set of guidelines to help facilitate the administration and growth of these SIGs. I would like to thank Doug Woolford for his help in drafting these guidelines.

All of this has been made possible by the great team work by Council members and others. Diane Bischak assumed the position of Bulletin Editor last summer, and she quickly got it up

and running. With her dedication and creativity the Bulletin now also has some new sections. Thank you, Diane, for this great work. Erla Anderson has ably filled the challenging role of Membership Services provider. Thank you, Erla, for your continuing dedication and professional support. Fredrik Odegaard will be leaving the Education Chair position. During his term Fredrik has come with several initiatives to improve the student competition. His dedication and enthusiasm will be missed. Thank you very much, Fredrick, for all that you have done. Also, Jennifer Percival and Louis-Martin Rousseau have finished their terms as Councilors. They have both helped in different ways during the last few years. In particular I would like to thank Jennifer for her work on the INFOR journal committee and Louis-Martin for his chairing the Public Relations Committee. I would also like to thank the other Council members for their dedication and support for CORS: Dionne Aleman, Samir Elhedhli, Corinne MacDonald, Navneet Vidyarthi, Bernard Gendron and Jonathan Patrick.

Finally, I would also like to mention the great support that Council had from Taraneh Sowlati on the Membership Committee, while at the same time handling the enormous task of chairing the annual conference. Vinh Quan has successfully handled the constitution update and has advised Council on related matters on several occasions. Armann Ingolfsson has served on the Strategic Planning Committee. Thank you, Armann and Vinh, for your continuing support for CORS.

I sincerely feel that it is a good time for CORS to take some bold steps to flourish. I look forward to working with my successor to achieve that goal. On this note, I would like to hand the Rivett Mug to the incoming president, Corinne MacDonald, wishing her all the best in running the affairs of the Society.



Elkafi Hassini

Address of the Incoming President

Dear CORS Members,

I first want to thank you for electing me to serve as your President for 2013-4. It is truly an honour. I want to take this opportunity to thank Elkafi Hassini, our outgoing president, for his work over the past year. I would like to extend a welcome to our incoming vice-president, Taraneh Sowlati, our new councilors, Robert Allie and Xuan Zhao, and our Education Chair Mehmet Begen. I'd also like to thank those continuing in roles: Dionne Aleman as Secretary, Navneet Vidyarthi as Treasurer, Councilors Diane Bischak and Jonathan Patrick, and Publications Chair Bernard Gendron. I would also like to thank Erla Anderson for her work as our Membership Services Provider and I look forward to working with her in the coming year.



Corinne MacDonald

I guess this is the part where I tell you what I am going to do as president. John Blake told me some time ago not to worry, as you really don't do much as president. I think what he really meant was that you don't do much as an individual. The work almost always involves the assistance of the many members who volunteer their time to serve the society. I believe that my most important role is to oversee the continuation and/or the continuous improvement of the many initiatives that have been started over the last few years. We have some great changes planned for INFOR that should be implemented in the coming year. We have introduced cost cutting measures over the past few years and we are starting to see the results; we will continue to look for ways to improve the financial stability of the society. This year we will see the introduction of a new society web site. We should continue to look at how we can deliver more in terms of member services using this site. We will be introducing a new Past President's Advisory Committee over the coming year; at the conference in Vancouver we were able to meet with several Past Presidents to help develop the terms of reference for this committee. We have three special interest groups up and running; we will continue to do whatever we can to support these groups, and to help other members interested in starting a group. To aid in this, we have created a new role on council, the SIG liason, to act as the single point of contact for SIG presidents. Our newly elected VP, Taraneh Sowlati, will take on this role. Not only is planning for the 2014 conference in Ottawa well underway, but we will be hosting a joint conference with INFORMS in 2015 in Montreal, and a 2017 conference with IFORS in Quebec. I really look forward to the upcoming year.

Over the past few years, a good deal of effort has gone into putting down in writing the traditions and operating policies of the society, as well as the guidelines for organizing CORS conferences. I plan, over the upcoming year, to review those policies and procedures to ensure we are actually adhering to them. I am also particularly interested in looking at ways we can improve the administration of the society. This perhaps isn't too exciting, but I think it is important to make sure we have our ducks in a row, so to speak.

Last year, our outgoing president Elkafi Hassini formed the Strategic Planning Committee, whose first objective was to consider the Past President's Advisory Committee idea. I would like to see us continue that initiative as we start looking forward to consider the larger issues that will affect CORS in the coming years. One issue I would like to have considered in depth is how we can attract more members from industry.

Finally, I have a request for you. I ask that you consider helping to support both of our publications: the Bulletin, and INFOR. Our Bulletin Editor, Diane Bischak, continues to do a great job, and I'm sure she would appreciate more contributions from the membership. Consider writing an article about an interesting project you have been involved with that other members may enjoy hearing about. As for INFOR, Bernard Gendron is always looking for high quality submissions – the next time you are thinking about where to send a paper, consider INFOR.

I look forward to serving CORS over the next year, and if any of you wish to provide feedback on the operation and direction of the society, please feel free to contact me at any time.



Corinne MacDonald

Council Corner

This new section of the CORS Bulletin will highlight recent discussions by the CORS Council and motions of particular interest that have been passed.

- Council created a standing “Awards Committee” to replace the Larnder, Solandt, and Service Award committees. The terms of reference will be established by September.
- Council created a standing “Past Presidents Advisory Board Committee” to advise Council on strategic matters. The committee is appointed by Council and consists of the immediate past president (chair), current president, and three past presidents (currently Peter Bell, David Martell, and Rick Caron). There will be a face-to-face meeting on the Monday morning of the annual conference to which all past presidents will be invited.
- Council created a standing “SIG Committee” that will liaise with the CORS Special Interest Groups and establish policies between Council and the SIGs.
- The 2015 CORS conference will be held in Montreal and will be a joint meeting with INFORMS International.
- The 2017 CORS conference will be held in Quebec City and will be held jointly with the IFORS conference.
- An ad hoc committee was created to find a new publisher for *INFOR*. Armann Ingolfsson has agreed to be Deputy Editor of *INFOR*. He will be assisting with day-to-day operations and a number of special issues that are coming up.

CORS 2013 Award Winners

Congratulations to the following winners of the awards and prizes presented at CORS 2013 in Vancouver, BC. Special thanks to all the participants and to the judges of the Student Paper Competition. More details on all CORS Awards and prizes, including a complete list of past winners, can be found by visiting the CORS website (www.cors.ca).

Prize	Recipients
Harold Larnder Prize	James B. Orlin , Edward Pennell Brooks Professor of Operations Research, Sloan School of Management, Massachusetts Institute of Technology
The CORS Award of Merit	Derek Atkins , E.D. MacPhee Chair in Management and Professor, Operations and Logistics Division, Sauder School of Business, University of British Columbia
Omond Solandt Award	Mitacs
The CORS Service Award	Samir Elhedhli , Professor, Department of Management Sciences, University of Waterloo
The CORS Practice Prize	<u>First Prize</u> Rick Caron, Esai Selvarajah, Sahand Ashtab, Carly Henshaw, Michael Higgins, Dong Wang, and Lily Wu , University of Windsor, " <i>A network model for The TDL Group Corporation</i> " <u>Honourable Mention</u> Claire Ma, Annie Zhang, Mahesh Nagarajan, Stuart Donald and Derek Atkins , University of British Columbia, and Hamid Mahmoudi and Catherine Barnardo , Fraser Health Authority, " <i>An optimization tool to improve the deployment of home care nurses</i> "
Student Paper Competition	<u>Open Category: First Prize</u> Taewoo Lee , University of Toronto, " <i>Generalized inverse multi-objective optimization with application to cancer therapy</i> " <u>Open Category: Honourable Mention</u> Jue Wang , University of Toronto, " <i>Bayesian control chart for multi-state processes in infinite horizon</i> " <u>Undergraduate Category: First Prize</u> Benny Wai, Alex Liu, Lawrence Huen , Simon Fraser University, " <i>Selecting optimal locations of food trucks: a case study for the City of Vancouver</i> " <u>Undergraduate Category: Honourable Mention</u> Bo Chen, Luheng Wang, Wenjiao Chen, Xiao Luo , Simon Fraser University, " <i>The university course selection problem: efficient models and experimental analysis</i> "

2013 CORS Award of Merit Winner: Derek Atkins



Derek Atkins (right) accepts the 2013 CORS Award of Merit from Peter Bell

Derek Atkins is the 2013 CORS Award of Merit winner. Dr. Atkins is the E.D. MacPhee Chair in Management and Professor, Operations and Logistics Division, Sauder School of Business, University of British Columbia. Educated at Oxford, Lancaster and Warwick, Dr. Atkins worked first in engineering and steel, then at the nascent Warwick Business School. He has been at UBC since 1976. During that time he has been Dean of the school (before the name Sauder was added) and Associate Vice President (Academic) of UBC. He served a six-year term as Director of the Centre for Operations Excellence at UBC, a centre he helped design with the inaugural director Professor Marty Puterman. He has published widely and was associate editor of both *Operations Research* and *Management Science* for a number of years.

2013 Omond Solandt Award Winner: Mitacs

The 2013 Omond Solandt Award for excellence in operational research was awarded to Mitacs.

Founded in 1999 as a Canadian Network of Centres of Excellence, Mitacs is a national, not-for-profit research organization that has worked closely with operational researchers from universities across Canada. Mitacs supports national innovation by coordinating collaborative industry-university research projects, with human capital development at their core. When the Mitacs-Accelerate graduate research internship program was piloted in 2004, the OR community was the first to take part. Most notably, the Centre for Operations Excellence at UBC has been encouraging its graduate students to undertake applied research internships through Mitacs-Accelerate for more than seven years.

The Omond Solandt Award is awarded to an organization, private or governmental, that is deemed to have made an outstanding contribution to operational research in Canada. Dr. Solandt was the first president of CORS and the founder and first chairman of the Defence Research Board. At various times in his life he headed the Science Council of Canada, was a vice-chairman of Canadian National Railways (CNR), and was Chancellor of the University of Toronto. A complete biography of Omond Solandt may be found in the Library on the CORS website.



Olga Stachova, Chief Operating Officer of Mitacs, receiving the award from Abraham Punnen

2013 Service Award Winner: Samir Elhedhli

Samir Elhedhli is the winner of the 2013 CORS Service Award. Dr. Elhedhli was President of the Society for the 2011-2012 year. He also served as a CORS Councillor (2007-2009) and was the Education Chair from 2007 to 2010. He was the Program Chair for the 2012 Joint CORS/MOPGP Conference held in Niagara Falls. He has been a cluster chair for a number of CORS conferences, and a regular referee for the student paper competition. Dr. Elhedhli is a Professor in the Department of Management Sciences at the University of Waterloo.



2013 CORS Practice Prize Winners

The CORS Practice Prize recognizes the outstanding application of operational research that has had a significant, verifiable and quantifiable impact on the performance of the client organization. Three finalists presented their projects at the 2013 CORS Annual Conference in Vancouver. The judging team of John Blake (Dalhousie University), Mike Carter (University of Toronto), and Armann Ingolfsson (University of Alberta) selected as the winner of the 2013 Practice Prize the project "***A network model for The TDL Group Corporation***", by the team of Rick Caron, Esai Selvarajah, Sahand Ashtab, Carly Henshaw, Michael Higgins, Dong Wang, and Lily Wu, all of the University of Windsor.



Richard Caron (centre) and Sahand Ashtab (right) accept the CORS Practice Prize from John Blake

The winning project addressed a problem of a Canadian company that has an existing network of restaurants supplied by existing distribution centres (DCs), where the DCs are supplied by vendors. The project team was asked to develop a network model to provide decision support for network management; for example, if more capacity was required, would a new DC be built or an existing DC be expanded, and where should it be located?

Honourable Mention was awarded to the project ***“Fraser Health: An optimization tool to improve the deployment of home care nurses”*** by the team of Claire Ma and Annie Zhang of the Centre for Operations Excellence (COE), Sauder School of Business, University of British Columbia; Mahesh Nagarajan of the Sauder School; Hamid Mahmoudi and Catherine Barnardo, Fraser Health Authority; and Stuart Donald and Derek Atkins of COE.



Claire Ma (left) and Emma Liu (right) accept the CORS Practice Prize from John Blake

This project dealt with the Home Care Nursing program at Fraser Health Authority (FHA), which provides short-term in-home health care services for patients in need of professional nursing care. The project team developed a tool to improve daily home care nurse deployment, so that assignment decisions could be made in an efficient, effective, transparent, equitable and standardized way across regional Home Health offices.

2013 CORS Student Paper Competition

Open Category

by Mehmet Begen, Ivey Business School, Western University
Chair of the Open Category Committee

The CORS Student Paper Competition was very popular again this year. In the Open Category, 12 submissions were received. Based on feedback from the judges, 4 finalists were selected to present their work at the CORS Annual Conference. The judges were:

Turgay Ayer (Georgia Tech)
Mehmet Ayvaci (University of Texas – Dallas)
Mike Chen (York University)
James J. Cochran (Louisiana Tech)
Abdullah Dasci (York University)
Fatih Safa Erenay (University of Waterloo)
Bilal Gokpinar (University College London)
Ray Hagtvedt (University of Alberta)
Bora Kolfal (University of Alberta)
Murat Kurt (University of Buffalo)
Benny Mantin (University of Waterloo)
Osman Ozaltin (University of Waterloo)
Jonathan Patrick (University of Ottawa)
Hubert Pun (Western University)
Michele Samorani (University of Alberta)
Burhan Sandikci (University of Chicago)
Steven Shechter (University of British Columbia)
Greg Werker (University of British Columbia)
Xinghao Shaun Yan (Western University)
Reena Yoogalingam (Brock University)
Xuan Zhao (Wilfrid Laurier University)

Diane Bischak (University of Calgary), John Blake (Dalhousie University), and Xinghao (Shaun) Yan (Western University, Ivey) were judges for the Open Category presentations.

The First Prize in the Open Category was awarded to Taewoo Lee, University of Toronto, for the paper "Generalized inverse multi-objective optimization with application to cancer therapy":

We generalize the standard method of solving inverse optimization problems to allow for the solution of inverse problems that would otherwise be ill-posed or infeasible. In multi-objective linear optimization, given a solution that is not a weakly efficient solution to the forward problem, our method generates objective function weights that make the given solution a near-weakly efficient solution. Our generalized inverse optimization model specializes to the standard model when the given solution is weakly efficient and retains the complexity of the underlying forward problem. We provide a novel interpretation of our inverse formulation as the dual of the well-known Benson's method, and by doing so develop a new connection between inverse

optimization and Pareto surface approximation techniques. We apply our method to prostate cancer data. We demonstrate that clinically acceptable treatments can be generated using a small number of objective functions and inversely optimized weights – current treatments are designed using a complex formulation with a large parameter space in a trial-and-error re-optimization process. We also demonstrate how to identify objective functions that are most influential in treatment plan optimization.



Taewoo Lee (right) accepting the Open Competition First Prize from Fredrik Odegaard

The honourable mention was awarded to Jue Wang, University of Toronto, for the paper "Bayesian control chart for multi-state processes in infinite horizon":

We study the Bayesian control chart for a multi-state production processes in finite horizon. The process is initially in control but is subject to Markovian deterioration that can bring the process to different out-of-control states, among which at least one state is absorbing. We account for the possibilities of transitions among out-of-control states and back to the in-control state. The objective is to find the optimal stopping rule under partial information that minimizes the expected total costs over a finite horizon. We characterize the structure of optimal policies: there exist two cut-off horizons which divide the entire horizon into at most three stages: no alarm stage, intermediate stage and polar control limit stage. We also devise computationally efficient algorithms for the last two stages. Three traditional problems - competing assignable causes, increasing failure rates, and semi-Markov deterioration - are solved as special cases. In particular, we establish the sufficient condition the existence of a counter-intuitive scenario where an out-of-control state can be more economic than the in-control state, which implies that the control of multi-state process is fundamentally different from the two-state case.



Open Competition Honourable Mention winner Jue Wang (right) accepting his award from Fredrik Odegaard

Undergraduate Category

*by Anjali Awasthi, Concordia University
Chair of the Undergraduate Category Committee*

This year, we received 10 submissions in the Undergraduate Category, out of which 4 were retained as finalists for the Oral Presentation. The judging committee was comprised of eight members whose details are as follows:

Dr. Jean-Marc Frayret (École Polytechnique, Université de Montréal)
Dr. Pascal Forget (Industrial Engineering, Université du Québec à Trois-Rivières)
Dr. Hichem Omrani (CEPS/INSTEAD, Luxembourg)
Dr. Sanjeet Singh (IIM Calcutta, India)
Dr. Yan Feng (Industrial Engineering, Dalhousie University)
Dr. Simon Li (CIISE, Concordia University)
Dr. Arnaud de La Fortelle (INRIA Rocquencourt, France)
Dr. Naveen Eluru (Civil Engineering, McGill University)

This year's undergraduate competition was really tough, and the judges had a hard choice to make. I would like to particularly recognize the efforts and dedication of all those undergraduate students who took part in this year's competition and wish them all the best for their future endeavors.

The First Prize was awarded to Benny Wai, Alex Liu, and Lawrence Huen, of Simon Fraser University, for the paper "Selecting optimal locations of food trucks: a case study for the City of Vancouver":

Food trucks offer an exciting alternative to eating out while tailoring to the fast-paced lifestyle of city dwellers, but effective methods to implement this form of dining-out alternative are still non-existent to many cities where it is still a new concept. Cannibalism of local restaurants can occur

when food trucks are licensed without informal planning. The conflict between local restaurants and food trucks has been a reoccurring theme in the media for the last few months; the city of Vancouver is now seeking better methods to find optimal locations for the food trucks. In this paper, we developed discrete optimization models for this problem and solve the model using Open-Solver, an Excel-based optimization engine. The data collected for this paper includes pedestrian data, active food trucks in the year 2012, road information, and licensed restaurants in downtown Vancouver. Our study identified optimal locations for summer 2013. Various alternative formulations are also given and comparative study is performed. While our paper concentrates on the city of Vancouver, the model is general enough to be applicable to other cities that are starting to implement food truck alternatives.



Benny Wai (right) accepting the Undergraduate Competition First Prize from Fredrik Odegaard

The Honourable Mention was awarded to Bo Chen, Luheng Wang, Wenjiao Chen, and Xiao Luo, of Simon Fraser University, for the paper "The university course selection problem: efficient models and experimental analysis":

The university course selection problem (UCSP) deals with finding an optimal choice of courses from a set of alternatives to attain a prescribed goal. It is assumed that a timetable is already given. If the planning is done for a term, the problem is simple and can be solved by complete enumeration using a computer. For multi-year planning, complete enumeration is impractical. The problem is made more complicated when inter-campus travel is also involved. In this paper, we formulate UCSP as a maximum weight independent set problem with specially structured additional constraints. Data for the experiments are collected from the SFU student information system. Experimental results using a general purpose integer programming solver are given. Our model could easily solve the problem, producing an optimal solution in very reasonable running time.



Evan Luo (right) accepting the Undergraduate Competition Honourable Mention from Fredrik Odegaard

2013-2014 CORS Budget

	2012-13 Budget	2012-13 Actual	2013-2014 Budget
I. Receipts			
Membership Dues	35,000.00	27,242.60	35,000.00
Conference Profit	20,000.00	34,917.22	20,000.00
SSHRC Conference Grant	7,125.00	7,125.00	7,125.00
INFOR Royalty	750.00	82.25	200.00
Miscellaneous	0.00	0.00	0.00
Total Receipts	\$62,875.00	\$69,367.07	\$62,325.00
II. Expenses			
Administrative Expenses	17,000.00	17,273.36	17,000.00
Bulletin	2,500.00	1,518.17	2,500.00
SSHRC Conference Grant	7,125.00	7,125.00	7,125.00
Council Meeting	4,500.00	0.00	2,500.00
Sections Shares of Dues	3,500.00	459.23	3,500.00
Sections Shares of Conference Profit	2,250.00	0.00	2,250.00
INFOR Journal	14,500.00	5,990.22	5,000.00
IFORS Subscription	450.00	397.25	450.00
Awards	3,000.00	1,850.00	3,000.00
Graduate Student (non-CORS) Conference			
Support	2,000.00	0.00	2,000.00
Travelling Speaker Program/CORS Events	2,000.00	823.60	2,000.00
Teaching Effectiveness Colloquium Faculty			
Support	1,000.00	0.00	1,000.00
GST/HST	2,000.00	-	2,000.00
Bank and Credit Card Charges	1,000.00	8,410.11	5,000.00
Web Services	10,000.00	80.68	10,000.00
Total Expenses	\$72,825.00	\$43,846.94	\$65,325.00

Expected Profit/Loss	(\$9,950.00)	\$25,520.13	(\$3,000.00)
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III. Balances

Opening Balance (as of April 1)	\$149,886.02	\$149,886.02	\$80,097.37
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Adjustments:

Expected Receipts During 2012/2013	\$62,875.00		
Expected Expenses During 2012/2013	(\$72,825.00)		
Expected Receipts During 2013/2014			\$62,325.00
Expected Expenses During 2013/2014			(\$65,325.00)
Expenses: Conference 2012 (Niagara Falls)	(\$60,126.80)	(\$97,308.78)	
Receipts: Conference 2013 (Vancouver)			

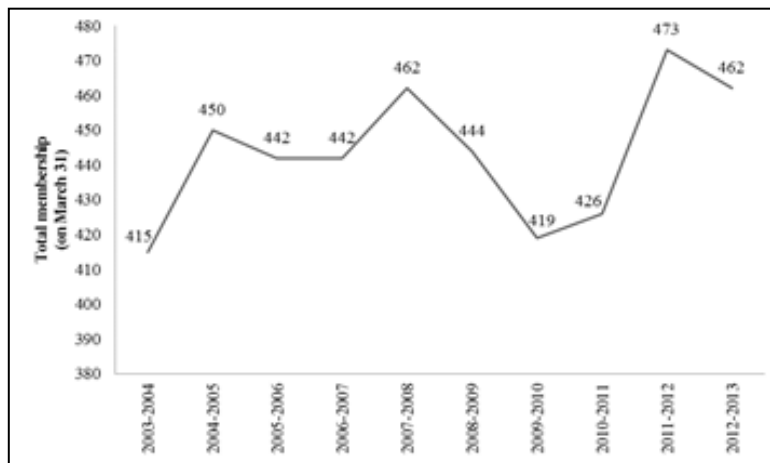
Registration			
Receipts: Conference 2013 (Vancouver)			
Sponsorship		\$9,500.00	
Expenses: Conference 2013 (Vancouver)		(\$2,500.00)	
Cheques not on 2012/2013 bank statements		(\$5,000.00)	\$5,000.00
Membership dues not on 2012/2013 bank statements			\$ 10,120.00
Closing Balance (March 31)	\$79,809.22	\$80,097.37	\$92,217.37

Navneet Vidyarthi, CORS National Treasurer, May 2013

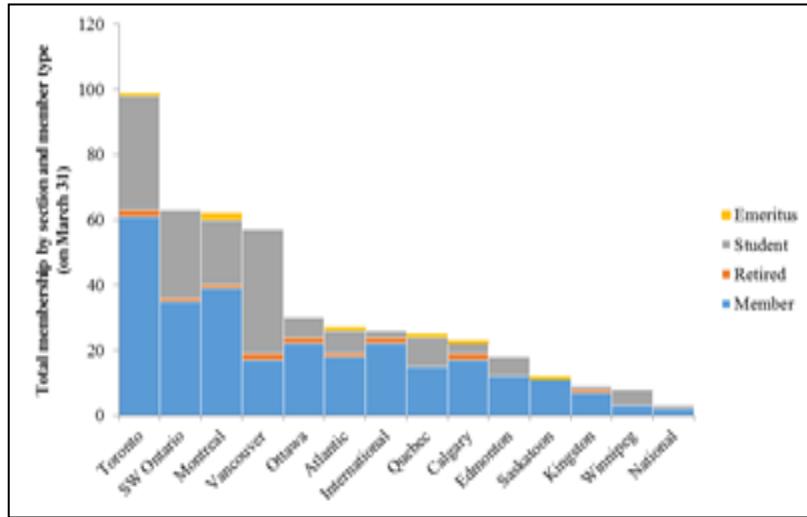
2012–2013 CORS Membership Report

I am pleased to submit a copy of the 2012–2013 Annual Membership Report of the Canadian Operational Research Society, which documents the membership activities experienced by the Society over the past year, for the CORS Council consideration. The report provides Council with the information it needs to assess the health and well-being of the Society; to monitor the effectiveness of membership processes and practices; and to identify areas where policy initiatives or changes may be required. This report reveals that CORS experienced a slight decrease in membership in 2012–2013 of 2%. There are also indications that members are retaining their memberships longer than previously. These graphs summarize the report, which can be seen in full on the CORS website.

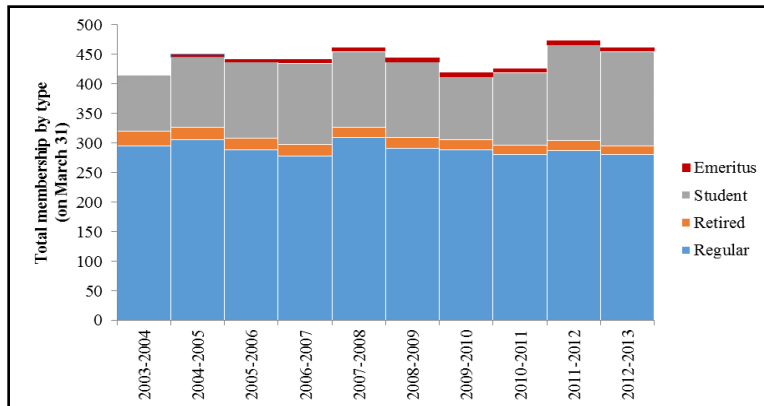
CORS Membership (Total Number) 2004–2013



CORS Membership by Section and Member Type, March 31, 2013



CORS Membership by Member Type, 2004–2013





The 56th CORS Annual Conference May 26-28, 2014 Ottawa Marriott, Downtown Ottawa, ON

On behalf of the **2014 CORS conference organizing committee**, it is my pleasure to invite you to join us in Canada's beautiful capital city, Ottawa for next year's national meeting during May 26-28, 2014.



Nestled on the banks of the majestic Ottawa, Rideau and Gatineau rivers, Ottawa is one of the most beautiful G8 capitals in the world. A thriving international technology and business centre and world class tourism and convention destination, Ottawa is also rich in institutions, parklands, waterways and historic architecture. It is home to a large number of foreign embassies and is a recognized centre for both academics and professional training. The city offers an open and welcoming environment to cultures from around the world, providing service in English, French, and a host of other languages. The city's residents enjoy an enviable quality of life that is recognized around the

world.

Quick Facts

- A population of over 1.2 million makes the Ottawa region the fourth-largest urban area in Canada
- More than 1,800 advanced technology companies employ more than 76,000 people
- With the highest-educated workforce in Canada, Ottawa has more engineers, scientists and PhDs per capita than any other city in the country
- Canada's Capital region welcomes over 7.3 million visitors per year, who spend over \$1.18 billion

The 2014 conference will be held at the Ottawa Marriott Hotel. Conveniently located in downtown Ottawa, it is just steps from Parliament Hill, the Rideau Canal, ByWard Market, restaurants, museums and many more attractions.



Ottawa is centrally located in the province of Ontario, with the award-winning Ottawa International Airport offering daily direct connections to over 30 Canadian, U.S. and European centres. The capital is also serviced by Canada's train service, VIA Rail, and accessible by a number of major highways. The airport is just a 15-minute shuttle ride from downtown Ottawa, and the city's downtown is remarkably compact and walkable.

The organizing committee has plans to arrange an exciting conference with a strong scientific program which includes stimulating plenary sessions and tutorials. All additional details will be published in the near future on the conference website and in the CORS Bulletin and communicated to members through our Listserv.

Please feel free to contact me at rene.seguin@drdc-rddc.gc.ca if you are interested in organizing a cluster or session, or submitting a paper.

Dr. René Séguin, General Chair

Center for Operational Research and Analysis
Defence Research and Development Canada
Government of Canada
email: rene.seguin@drdc-rddc.gc.ca

CORS Sections News

Kingston

The Kingston CORS section hosted a well-attended meeting in May at the Queen's University Club. We were pleased to have two interesting talks from RMC and Queen's researchers: Xiaofeng Yang and Mohan Chaudhry (RMC), "Computational analysis of queue-length distribution arising in the continuous-time queue: GI/G/1" and Matt Thompson (Queen's), "Pricing Commodity Contingent Revolvers - a Radial Basis Function, PDE, Technique" --- very different topics linked by a common theme of creative approaches to extreme computational complexity.

Saskatoon

We had two presentations this year. Both of them were well attended, and in both cases, we had a lively discussion. The first one was on November 8, 2012, and it was given by James Cao, PhD, Assistant Professor, Edwards School of Business, University of Saskatchewan. His topic was the impact of an "online-to-store" channel on demand allocation, online pricing and profitability. The second talk took place April 1, 2013, and was given by Edward H. Kaplan, William N. and Marie A. Beach Professor of Management Science at Yale University. He is an expert in policy making, and he talked about adventures in policy making in public housing, HIV/AIDS prevention, bioterror preparedness, suicide bombings and counterterrorism. His talk gave many new perspectives in this area, and we thank Ed very much for coming. We also thank CORS for its financial support through its Travelling Speakers Program. For more information about these talks, see our web page, www.cs.usask.ca/cors/.

CORS SIGs News

Forestry

The Forestry SIG organized a great forestry cluster at the CORS 2013 conference in Vancouver. Thanks to Luc LeBel for agreeing to act as forestry cluster chair this year; his successor will have a tough act to follow!

The Forestry SIG held its second annual meeting at the CORS conference, to a packed room (even folks standing at the back!). Discussion items at the meeting included:

- o recap of SIG activity over the past year (official constitution of the Forestry SIG, first FSIG forestry cluster at CORS 2013, special issue of *INFOR*);
- o role and management of the Google Groups message board;
- o progress update on forestry-themed special issue of *INFOR* (currently collecting manuscripts, revision process to begin soon);
- o new SIG commitment to produce a forestry-themed special issue of *INFOR* on a regular (e.g., 2-year) cycle;
- o election of a new Forestry SIG President for a 2-year term (congratulations to Jean-François Audy, Researcher & Network Liaison Manager at the NSERC Research Network on Value Chain Optimization)

The Forestry SIG cordially acknowledges its former and founding president, Gregory Paradis, Ph.D student at Université Laval, for getting the Forestry SIG ball rolling last year.

If you would like to join the Forestry SIG, please contact Jean-François Audy (jean-francois.audy@cirrelt.ca).

Finally, we would like to remind everyone about SSAFR, a world-class forestry-themed OR conference taking place in Quebec City in August. For more information, see the conference web site, www.ssafr2013.com.

Health Care Operational Research

The Health Care Operational Research SIG met during the CORS meeting in Vancouver in May. The meeting was well attended, with more than 30 people being present. The main business of the meeting revolved around the request from CORS Council for SIGs to adopt a set of bylaws. Council will provide a template for SIGs to use. When received, this will be forwarded to members for comment and review.

In other business, Jonathan Patrick (Patrick@telfer.uOttawa.ca) has agreed to organize the HCOR session track at next year's meeting, which will be held in Ottawa, while Sherry Weaver (sherry.weaver@haskayne.ucalgary.ca) will be the editor for a special health care issue of

INFOR. The final piece of business concerned elections for a new slate of officers for the 2014/15 year. John Blake, Armann Ingolfsson, and Jonathan Patrick will serve as the nominating committee, with an electronic ballot scheduled for the fall of 2013.

Queueing Theory

At the most recent CORS conference in Vancouver, the winner of the inaugural Queueing SIG Student Paper competition was announced. Congratulations go to Yanfei Gao of Carleton University, for the paper "Large Deviations for Resequencing Buffer Size", co-authored with Yiqiang Zhao. We received seven high quality submissions. Thank you to all who participated and to the judges who gave their time: Steve Drekić, Qi-Ming He and Gennady Shaikhov. We look forward to another strong competition next year!

The Queueing SIG is putting together a Special Issue of *INFOR* on Queueing in Computer and Telecommunication Systems, with submission deadline of September 15th, 2013. For information, see the SIG page or contact Doug Down (downd@mcmaster.ca) or Yiqiang Zhao (zhao@math.carleton.ca). We would look forward to your submissions.

As always, SIG information can be found at:
<http://www.cas.mcmaster.ca/~downd/corsqsig/event.html>

CORS Members Making Waves

Dr Michael J Armstrong has been named a Fulbright Scholar for 2013-2014. This \$25,000 award will fund his stay as the Visiting Research Chair in War and Peace Studies at Norwich University in Northfield, Vermont, from January to May 2014. While there, he will be collaborating on interdisciplinary studies that combine operational research with the digital humanities. Michael is an Associate Professor in the Goodman School of Business at Brock University near Niagara Falls, Ontario.



In Memoriam: John Pritchard 1934-2012



CORS member John Pritchard (P. Eng., retired NORAD, NATO DND), who died August 15, 2012 in Ottawa with his wife Gail at his side, had a strong and varied career with the defense operational research agencies.

John graduated from the University of British Columbia with a master's in electrical engineering and an undergraduate degree in physics. Upon graduation, John joined the OR group in the Defence Research Board. While a large portion of his work focused on studies of land combat in support of the Canadian Army, his work ran the gamut from ballistic missile defense to emergency planning. The missile defence work was helpful in a four-year posting, starting in 1966, to NORAD HQ in Colorado.

In 1973, John and Gail were posted to Rome, as John had been selected for the NATO Defence College. This was followed by work in support of the Canadian Forces Europe; a particular component of this assignment was a large scale study of brigade level communications, which enabled John to lead subsequent work in the analysis of electronic warfare at the tactical level.

In 1988-1994, John was responsible for the operational research support of the Emergency Preparedness studies within the Canadian Government. A particular facet of this work was overseeing the transition for the OR work to the successor Office of Critical Infrastructure Protection and Emergency Preparedness organization, now part of Public Safety Canada. It is notable that this period covered a good deal of the United Nations International Decade for Natural Disaster Reduction.

He retired from the government in 1994. In retirement, John was very active with some of his former defence OR colleagues in the work of the Orbita Consultants group.

Announcements

CORS Special Interest Groups

CORS Council recently approved a policy on Special Interest Groups (SIGs). A SIG provides a mechanism to promote CORS, the SIG area and the SIG members, as well as the opportunity for CORS members with common interests to interact and network.

SIGs formed so far include:

- CORS Queueing Theory SIG: contact Doug Down (downd@univmail.cis.mcmaster.ca, McMaster University, Department of Computing and Software).
- CORS Health Care Operational Research SIG: contact John Blake (john.blake@dal.ca, Dalhousie University, Department of Industrial Engineering).
- CORS Forestry SIG: contact Jean-François Audy (Jean-Francois.Audy@cirrelt.ca, Researcher & Network Liaison Manager at the NSERC Strategic Research Network on Value Chain Optimization), or go to <http://cors-forestrysig.pieorswirls.com/>.

If you would like to join a SIG, contact the persons listed above, or simply indicate that you would like to join when you renew your CORS membership.

CORS encourages members with common interest in an area within or related to operational research to form additional SIGs. More information about SIGs can be found online at <http://www.cors.ca/en/membership/index.php>.

Discussions are underway about forming SIGs in several additional areas. If you are interested in forming a SIG in a particular area, then feel free to contact the CORS SIG Committee Chair: Taraneh Sowlati (taraneh.sowlati@ubc.ca).

It's time to renew your CORS membership

Don't forget to renew your CORS Membership.

Go to <http://www.cors.ca> to renew online using your VISA® or MasterCard® credit card

OR

Mail your credit card information or a cheque payable to the Canadian Operational Research Society to CORS-SCRO, Box/C.P. 2225, Station D, Ottawa, ON K1P 5W4. If you do not wish to continue as a member of the Society, please contact Erla Anderson at erla@shaw.ca.

Meetings and Conferences

CORS Business Meetings

September 20, 2013	CORS Council Meeting, Teleconference
November 29, 2013	CORS Council Meeting, Teleconference
January 31, 2014	CORS Council Meeting, Ottawa, ON
March 28, 2014	CORS Council Meeting, Teleconference
April 25, 2014	CORS Financial Planning Committee Meeting
May 25, 2014	CORS Council Meeting, Ottawa, ON
May 26, 2014	CORS Council Meeting, Ottawa, ON
May 27, 2014	CORS Annual General Meeting, Ottawa, ON

CORS Annual Conferences

May 26–28, 2014	CORS Annual Conference, Ottawa, ON
2015	CORS Annual Conference, Montreal, QC – joint with INFORMS
2017	CORS Annual Conference, Quebec City, QC – joint with IFORS

Other Conferences

2013 August 23-24	CanQueue 2013, University of Waterloo, Waterloo, ON http://Canqueue2013.uwaterloo.ca/
2013 Sept. 3–5	OR55 Annual Conference, Exeter, England http://www.theorsociety.com/Pages/Conferences/OR55/OR55.aspx
2013 Oct. 6–9	INFORMS 2013 Annual Meeting, Minneapolis, MN http://meetings2.informs.org/minneapolis2013/
2013 Nov. 16–19	Decision Science Institutes 44 th Annual Meeting, Baltimore, MD https://www.decisionsciences.org/Annualmeeting/
2013 Dec. 8–11	2013 Winter Simulation Conference, Washington, DC http://www.wintersim.org
2014 March 6–8	ICORES 2014 – 3 rd International Conference on Operations Research and Enterprise Systems, Angers, France http://www.icores.org/
2014 May 9-12	POMS 2014 Annual Conference, Atlanta, GA
2014 July 13–18	IFORS (International Federation of Operational Research Societies) 20th Conference, Barcelona, Spain http://www.ifors2014.org/
2014 Nov. 9–12	INFORMS 2014, San Francisco, CA

WWW Conference Listings

CORS-SCRO Conference Page: http://www.cors.ca/en/conferences/i_other.php

INFORMS Conference Home Page: <http://www.informs.org/Conf/Conf.html>

IFORS Conferences: <http://www.ifors.org/panorama/conferences/index.shtml>

Netlib Conferences Database: <http://www.netlib.org/confdb/Conferences.html>

SIAM Conference Home Page: <http://www.siam.org/meetings/calendar.php>

POMS Conference Page: <http://www.poms.org/conferences/>

CORS Funding Opportunities

Graduate Student Conference Support (GSCS) Program

CORS has established the GSCS program to encourage attendance of graduate students at conferences, symposia, or workshops specifically aimed at graduate students, such as student conferences, doctoral colloquia, and conferences for junior operations researchers. CORS may provide partial funding up to \$500 per student for attendance at such events. Note that the GSCS program will *not* fund attendance at CORS meetings, because CORS has a separate program for this purpose. All GSCS funding is subject to availability of funds and the following eligibility criteria:

- Student is a member of CORS.
- Student's supervisor is a member of CORS.
- Student is enrolled in a graduate program in a field related to operational research.
- Student is studying at a Canadian university, or is a Canadian citizen or permanent resident studying abroad.

The application process is competitive. The following criteria will be used to select applications that will be funded:

- The quality of the paper to be presented at the conference, if applicable.
- The benefits that the student is likely to derive from attending the conference.
- The stage that the student has reached in his/her degree program.
- Prior GSCS funding received by the applicant (new applicants will be given preference, all else being equal).

An online application form for GSCS funding is available at http://www.cors.ca/en/students/i_graduate.php

Since funding is limited, applicants are encouraged to submit their applications in a timely manner. Applications must be received at least two months before the conference date to receive full consideration. Applicants who meet this deadline will be notified of the outcome of their application at least one month before the conference date. For further information, contact:

Mehmet Begen, CORS GSCS Coordinator
E-mail: mbegen@ivey.uwo.ca

INFORMS Teaching Effectiveness Colloquium (For Faculty)

In conjunction with the Annual INFORMS Meetings, INFORMS hosts a Teaching Effectiveness Colloquium. CORS has funding available to partially support a limited number of faculty members interested in attending. Faculty members that are awarded funding are expected to:

- give a presentation in an OR/MS Education session at CORS National Meeting, and
- write a short article regarding OR/MS education for the CORS Bulletin.

Funding is restricted to faculty members, and not available to graduate students. For more information and instructions on how to apply please contact:

Mehmet Begen, CORS Education Chair
E-mail: mbegen@ivey.uwo.ca

CORS Traveling Speakers Program

The Traveling Speakers Program (TSP) enables local sections to bring Canadian OR practitioners / researchers as speakers to their local events. In order to keep costs in line while maximizing the CORS National profile, CORS sponsorship will be limited to 50% of the total expenses, up to a maximum of \$500 per speaker or \$1000 for a single event (conference, workshop). Other expenses can be covered by the local section. The program of the event must acknowledge the contribution of CORS. Each local section must contact the TSP coordinator to obtain approval for funding preferably at least one month in advance of the event date. Payment will be made by the CORS Treasurer upon receipt of the expense report.

Elkafi Hassini, CORS TSP Coordinator
E-mail: hassini@mcmaster.ca

The Next Issue

The next issue of the Bulletin is scheduled to appear at the end of October. Along with the regular features and news from the local sections, it will contain more information about the next CORS conference. Contributions to this issue, especially news on the activities of SIGs, local sections or CORS Members, should be submitted by **October 11, 2013** to:

Diane Bischak
Editor, CORS-SCRO Bulletin
Haskayne School of Business
University of Calgary
Calgary, AB T2N 1N4
Phone: 403-220-3368
E-mail: diane.bischak@haskayne.ucalgary.ca

The preferred method of submission is by an MS-Word attachment to an e-mail.

CORS Bulletin Translation Policy

Items that are CORS business will be translated into English and French. All other items will be published in the language they are submitted in.

CORS Bulletin Advertising Policy

Ads cost \$120 per page, proportional for fractional pages. Logos and prepared layouts can be accommodated. This fee also includes distribution of the advertisement on the CORS ListServ. Direct inquiries to the Editor.

CORS ListServ

As a benefit of membership, members may use the CORS ListServ to transmit messages, announcements, and job postings to the entire membership or to a targeted subgroup such as a local section. For example, you can send

- messages regarding the activities and business of the Society;
- announcements about conferences, conference sessions, special journal issues, seminars or other activities provided that these are related to operational research in its broadest sense;
- job postings of general interest to CORS members.

The ListServ is not used for commercial purposes, and all messages are vetted before they are sent out. To submit items to the ListServ, e-mail Erla Anderson, CORS Membership Services at erla@shaw.ca.

For non-members, a fee of \$60 is charged for the distribution of Job Postings and other announcements or messages of interest to the CORS membership.



Canadian Operational Research Society
Société canadienne de recherche opérationnelle

The **Canadian Operational Research Society** was founded in 1958. Its goal is to advance the theory and practice of OR and to stimulate and promote contacts between people interested in the subject.

Publications: A quarterly scientific journal called *INFOR* and a news *Bulletin*.

Meetings: An annual National Conference with award ceremony, occasionally organized jointly with an international society (IFORS, INFORMS), as well as numerous local events organized by the local sections.

Local Sections: CORS has twelve local sections located throughout Canada and three student sections.

Awards and Prizes: CORS presents the following annual Awards and Prizes at its National Conference:

Award of Merit for significant contributions of a present or past member of CORS to the profession of OR.

Harold Larnder Memorial Award to an individual who has achieved international distinction in OR.

Omond Solandt Award to an organization, private or governmental, that is deemed to have made an outstanding contribution to OR in Canada.

Practice Prize for the challenging application of the OR approach to the solution of applied problems.

Service Award for outstanding contributions of time and service to the Society.

Student Paper Competition to recognize the contribution of a paper either directly to the field of OR through the development of methodology or to another field through the application of OR.

Graduate Student Funding: CORS encourages attendance of graduate students at conferences, symposia, or workshops by providing partial funding. Visit CORS website for details.

CORS Diploma: This diploma is awarded to students graduating from a university curriculum comprising several OR courses. Criteria and an example certificate may be found on the CORS website.

Membership Directory: An online Directory of CORS Members is available as a membership benefit.

To join CORS: Go to the CORS website (www.cors.ca) and join online by credit card using the form found under membership services or complete the PDF application form found on the CORS website and mail it with payment to the address below.

Fees: Member \$110; Retired Member \$55; Student Member (including post-doctoral fellows) \$45

Website: <http://www.cors.ca>

CORS-SCRO BOX/C.P. 2225, STN D OTTAWA, ONTARIO K1P 5W4

Atlantic Québec Montréal Kingston Ottawa Toronto Toronto Student Waterloo Student
Southwest Ontario Winnipeg Saskatoon Calgary Edmonton Vancouver

www.cors.ca