



# The CORS Bulletin

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## In This Issue

Dear CORS members,

My apologies for the delay in publishing the summer issue of the Bulletin. I am sure all of you are busy preparing for the new academic year. This is the post-conference issue of the Bulletin and it features the comments of our outgoing president Dr. Armann Ingolfsson; the address of the address of the incoming president Dr. Samir Elhedhli; a summary of the changes to CORS Council; a listing of all the CORS 2011 award winners; the 2011-2012 CORS budget; a summary of the 2010-2011 membership report; an In Memoriam article for CORS Emeritus Member Cecil Law and an update on the activities in the Calgary and Ottawa sections. Members should also be sure to read an important announcement regarding the implementation of the new pay for paper policy. Be sure to take note of the poster for the 2012 CORS – MOGPG International Joint Conference in Niagara Falls, ON and mark the dates your calendar.

Sincerely,  
Chirag Surti,  
Bulletin Editor

### Editor

Chirag Surti

### Publisher

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### Elected Officers

President	Samir Elhedhli
Vice-President	Elkafi Hassini
Past-President	Armann Ingolfsson
Secretary	Dionne Aleman
Treasurer	Navneet Vidyarthi

### Councillors

Fredrik Odegaard (10/12)  
Douglas Woolford (10/12)  
Jennifer Percival (11/12)  
Louis-Martin Rousseau (11/12)

### Standing Committees

Education	Fredrik Odegaard
Membership	Taraneh Sowlati
Public Relations	Louis-Martin Rousseau
Publications	Bernard Gendron
Program	Elkafi Hassini

### Ad hoc Committees

Practice Prize	John Blake
Student Paper	Fatma Gzara Anjali Awasthi
Solandt Prize	Elkafi Hassini
Larnder Prize	Elkafi Hassini
Service Award	Elkafi Hassini
Merit Award	Bernard Gendron Eldon Gunn Armann Ingolfsson
Financial Planning	Navneet Vidyarthi Samir Elhedhli Elkafi Hassini Armann Ingolfsson
Nominating	Armann Ingolfsson
Constitution Review	Vinh Quan, Armann Ingolfsson
Membership Recruitment & Retention	Taraneh Sowlati Doug Woolford Wendy L. Caron
Special Interest Groups	Doug Woolford Armann Ingolfsson
IFORS Representative	Dionne Aleman
Membership Services	Wendy L. Caron
Web Administrator	Wendy L. Caron
WWW	<a href="http://www.cors.ca">http://www.cors.ca</a>

## THE 2011 - 2012 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 2011-2012 Council representatives is provided below. For a complete listing go to [www.cors.ca](http://www.cors.ca).

President	Samir Elhedhli, University of Waterloo, <a href="mailto:Elhedhli@uwaterloo.ca">Elhedhli@uwaterloo.ca</a>
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Past President	Armann Ingolfsson, University of Alberta, <a href="mailto:armann.ingolfsson@ualberta.ca">armann.ingolfsson@ualberta.ca</a>
Councillor	Fredrik Odegaard, University of Western Ontario, <a href="mailto:fodegaard@ivey.uwo.ca">fodegaard@ivey.uwo.ca</a>
Councillor	Douglas Woolford, Wilfrid Laurier University, <a href="mailto:dwoolford@wlu.ca">dwoolford@wlu.ca</a>
Councillor	Louis-Martin Rousseau, École Polytechnique de Montréal, <a href="mailto:louis-martin.rousseau@polymtl.ca">louis-martin.rousseau@polymtl.ca</a>
Councillor	Jennifer Percival, UOIT, <a href="mailto:jennifer.percival@uoit.ca">jennifer.percival@uoit.ca</a>
Atlantic	Claver Diallo, Dalhousie University, <a href="mailto:claver.diallo@dal.ca">claver.diallo@dal.ca</a>
Quebec	Irène Abi-Zeid, Université Laval, <a href="mailto:Irene.Abi-Zeid@osd.ulaval.ca">Irene.Abi-Zeid@osd.ulaval.ca</a>
Montreal	Louis-Martin Rousseau, École Polytechnique de Montréal, <a href="mailto:louis-martin.rousseau@polymtl.ca">louis-martin.rousseau@polymtl.ca</a>
Ottawa	Dragos Calitoiu, Bank of America, Ottawa, <a href="mailto:calitoiu@optimod.ca">calitoiu@optimod.ca</a>
Kingston	Jeffrey I. McGill, Queen's University, <a href="mailto:jmcgill@business.queensu.ca">jmcgill@business.queensu.ca</a>
Toronto	Joseph Milner, University of Toronto, <a href="mailto:milner@rotman.utoronto.ca">milner@rotman.utoronto.ca</a>
SW Ontario	Matt Davison, University of Western Ontario, <a href="mailto:mdavison@uwo.ca">mdavison@uwo.ca</a>
Winnipeg	Currently vacant
Saskatoon	Winfried Grassmann, University of Saskatchewan, <a href="mailto:grassman@cs.usask.ca">grassman@cs.usask.ca</a>
Calgary	Chandandeep Grewal, University of Calgary, <a href="mailto:csgrewal@ucalgary.ca">csgrewal@ucalgary.ca</a>
Edmonton	Armann Ingolfsson, University of Alberta, <a href="mailto:armann.ingolfsson@ualberta.ca">armann.ingolfsson@ualberta.ca</a>
Vancouver	Taraneh Sowlati, University of British Columbia, <a href="mailto:taraneh.sowlati@ubc.ca">taraneh.sowlati@ubc.ca</a>
Toronto Student	Jonathan Y. Li, University of Toronto, <a href="mailto:jli@mie.utoronto.ca">jli@mie.utoronto.ca</a>
Waterloo Student	Bissan Ghaddar, University of Waterloo, <a href="mailto:bghaddar@uwaterloo.ca">bghaddar@uwaterloo.ca</a>

## Recent Changes to Council and Committees

Post Council	Previous	New
President	Armann Ingolfsson	Samir Elhedhli
Vice-President	Samir Elhedhli	Elkafi Hassini
Past President	Vinh Quan	Armann Ingolfsson
Councillor / Conseiller	Taraneh Sowlati	Louis-Martin Rousseau
	Bill Simms	Jennifer Percival
Secretary	Corinne MacDonald	Dionne Aleman

### Liaison Officers

Atlantic	Corinne MacDonald	Bernard Gendron
Quebec	Bernard Gendron	Louis-Martin Rousseau
Ontario	Bill Simms	Jennifer Percival

### Standing Committees

Program	Manish Verma	Elkafi Hassini
Public Relations Committee	Bill Simms	Louis-Martin Rousseau

### Ad hoc Committees

Constitution Review (New)		Vinh Quan, Armann Ingolfsson
Financial Planning	Armann Ingolfsson	Samir Elhedhli
	Samir Elhedhli	Elkafi Hassini
	Vinh Quan	Armann Ingolfsson
	Navneet Vidyarthi	Navneet Vidyarthi
IFORS Representative	Corinne MacDonald	Dionne Aleman
Larnder Award	Wieslaw Kubiak	Elkafi Hassini
Membership Recruitment & Retention	Taraneh Sowlati	Taraneh Sowlati
	Bill Simms	Douglas Woolford
	Wendy Caron	Wendy Caron
Merit Award	Bernard Gendron	Eldon Gunn
	David Martell	Bernard Gendron
	Vinh Quan	Armann Ingolfsson
Nominating	Vinh Quan	Armann Ingolfsson
Service Award	Samir Elhedhli	Elkafi Hassini
Solandt Prize	David Tulett / Yuyue Song	Elkafi Hassini
Special Interest Groups (New)		Doug Woolford, Armann Ingolfsson
Travelling Speakers Program	Vinh Quan	Armann Ingolfsson

### Presidents of Local Sections

Toronto	Vacant	Joseph Milner
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## OUTGOING PRESIDENT'S MESSAGE

Friends, colleagues:

It has been a privilege to serve as president of CORS this past year.

I have enjoyed hearing from you about the ways in which you value CORS and about how the society could be improved. It has been a great pleasure to work with the many people who volunteer for CORS, in particular, the members of CORS Council and the organizing committee for our annual meeting here in St. John's. I am particularly happy that we have this conference here in Newfoundland, because it is place that I have wanted to visit for a long time. Please join me in thanking the conference organizers for the energy and dedication that they have put into organizing the scientific program, ensuring that this conference runs smoothly, and for making us feel welcome.



Armann Ingolfsson

One of the issues that CORS Council has focused on during the past year is to make it possible for people to become CORS members, to renew their membership, to vote, and to access CORS publications electronically. This is important because it reduces costs, increases convenience for members, and decreases paper use. Electronic voting requires changes to the CORS constitution. Vinh Quan has worked hard to draft the changes to the constitution necessary to allow electronic voting and other improvements. The process has been delayed because the Canadian government has been revising the rules that govern non-profit organizations and because of the recent federal election, but it now appears that we will be able to present a new and improved constitution for CORS members to discuss at next year's AGM in Niagara Falls, with a subsequent vote that I hope will be the last time that CORS votes via snail mail. We have implemented electronic invoicing. INFOR and the Bulletin have been available electronically for a while and in the upcoming year we will begin to charge an extra fee to those members that choose to receive printed copies in the mail.

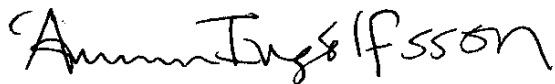
Other initiatives to improve our electronic infrastructure are in progress. UT Press, which publishes INFOR, is implementing a streamlined approach to allow new members quicker access to the journal. Web forms for membership renewal, submitting entries for the student paper competition, applying for funding to attend CORS meetings, and the membership directory web pages all need updating and we are investigating how to do that in a cost-effective and sustainable manner. The Vancouver section, under the leadership of Taraneh Sowlati, has used web technology to allow people to participate from a distance in events organized by the section. We encourage other sections to try this and we encourage members to take advantage of such opportunities to participate in events that they otherwise would not be able to join.

The INFOR journal has made great strides under the able stewardship of Bernard Gendron. Issues are published more regularly, citation statistics are improving, and we had an excellent set of 50<sup>th</sup> anniversary issues.

We have a draft policy for the formation of CORS Special Interest Groups and we had a lively discussion about that policy yesterday. Thanks to Doug Woolford for his help in drafting the policy. CORS Council will discuss the policy tomorrow. I see great potential for such groups to benefit both CORS and the communities of researchers and practitioners that choose to form such groups.

I have mentioned the names of some of the members of CORS Council already. The other members of Council this past year have been Corinne MacDonald, Navneet Vidyarthi, Bill Simms, Fredrik Odegaard, and Samir Elhedli and I would like to thank each of you for your dedication to CORS and for the pleasure of working with you.

And now it is time to pass on what used to be known as the Rivett Mug but has since been promoted to the Rivett Cup, to the next CORS President, Samir Elhedli.



Armann Ingolfsson



# ADDRESS OF THE INCOMING PRESIDENT

Dear CORS Members,

It is truly an honour to serve as president of a society as important and as close to my heart as CORS. Since my first involvement with the society, I felt at home- surrounded with people I learnt from and admired. This would not have been possible without the support and guidance of a number of people. I would like to express gratitude to my Ph.D. supervisor, Jean-Louis Goffin, who encouraged me to participate in CORS and its student paper competition, as well as Vedat Verter and Steve Drekic who introduced me to CORS Council.



Samir Elhedhli

First I would like to thank, welcome, and congratulate those who donate their valuable time to the well functioning of the society.

I thank the outgoing president Armann Ingolfsson for his leadership during the past year, and the outgoing secretary Corinne MacDonald for her great service to CORS.

I welcome Dionne Aleman as secretary, Elkafi Hassini as vice president, Louis-Martin Rousseau and Jennifer Percival as new councillors, and all returning and new committee chairs: Bernard Gendron for publication, Fredrik Odegaard for education, Taraneh Sowlati for membership, Vinh Quan for constitution review and Doug Wolford for SIG formation. Finally, many thanks go to Wendy Caron for all the support services she provides to the society.

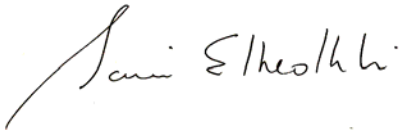
I congratulate the CORS 2011 conference organizers for such a great job. Well done Wieslaw Kubiak, Manish Verma, Peter song, David Tulett, and Rick Caron.

My main objective during the coming year is to bring the society as close as possible to its current and potential members. To achieve this, the Council and I will try to maintain and improve the current services the society offers to its members. We will continue to work on previous initiatives such as (1) the formation of Special Interest Groups (SIGs), by establishing guidelines to govern their formation and sustainable functioning; and (2) will continue the efforts to improve INFOR. I will work with the publication committee chair Bernard Gendron to explore ways to encourage more submissions, notably from CORS members, and to increase visibility by possibly exploring new publishing venues.

We will also initiate new directions to address the immediate needs of the society. The most pressing item, perhaps, is to balance the budget. The immediate goal is to bring the deficit to acceptable levels and establish a vision to balance the budget within the coming years. The focus would obviously be on the three main revenue sources: the journal, the membership, and the conference. The good support, the proposed membership fee increase received from the members present at the St. John's conference, is very motivating for the Council and I to

enhance the two other revenue sources. As mentioned earlier, the journal publication will be reassessed to increase visibility and eventually revenues. Conference profits, on the other hand, tend to be a little uncertain but have the potential to increase if certain components are well planned. In my opinion, a good program will always attract good attendance. For that, we will re-establish a program advisory committee headed by the VP with the previous and current conference or program chairs as members. We count on CORS members to help us increase the quality and diversity of the program at the annual conference to appeal to the majority of our existing and potential members. We hope that SIGs will help us achieve this goal as well.

Finally, I thank all CORS members for their continuous support to CORS, and I look forward to seeing all of you at next year's conference in Niagara Falls.



Samir Elhedhli



## CORS 2011 Award Winners

Congratulations to the following winners of our various awards and prizes awarded at CORS 2011 in St. John's NL. Special thanks to all the participants and also to the judges of the Student Prize 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](http://www.cors.ca)).

<b>Prize</b>	<b>Recipient</b>
<b>Harold Larnder Memorial Award</b>	<b>Edward G. Coffman</b> , Professor Emeritus, Columbia University
<b>Omond Solandt Award</b>	Not Awarded
<b>The CORS Award of Merit</b>	<b>Eldon A. Gunn</b> , Department of Industrial Engineering, Dalhousie University
<b>The CORS Service Award</b>	<b>Thomas B. Morrison</b> , Ausenco Sandwell, Calgary <b>Thorn Walden</b> , Canadian Energy Research Institute, Calgary <b>Saeed Zolfaghari</b> , Director, Industrial Engineering Program, Ryerson University, Toronto
<b>The CORS Practice Prize</b>	Not Awarded
<b>Student Paper Competition</b>	<u>Open Category</u> <u>First Prize</u> <b>Jonathan Y. Li</b> , University of Toronto, "Portfolio Selection under Model Uncertainty: A Penalized Moment-Based Optimization Approach" <u>Honourable Mention</u> <b>Mahmood Ebadian</b> , University of British Columbia, "The development and application of a new simulation model for multi-agricultural biomass" <u>Undergraduate Category</u> <u>First Prize</u> <b>Shuang E, Derek Hewitt, Jenny Morrow, Scott Van Bolhuis</b> , University of Alberta, "Staffing Requirements Based on Stochastic Arrivals and Infinite Server Model (M/M/s)"

## 2011 Award of Merit Winner Eldon Gunn

Eldon Gunn is the recipient of the 2011 CORS Award of Merit. Eldon has been a mainstay of operational research in Canada since the 1970's. With his early start working for the Nova Scotia Research Foundation to his current work with the Forest Value Chain Optimization (VCO) Network, Eldon has been at the forefront of OR in this country, particularly in solving problems in natural resources area, for forty years. In every way, Eldon exemplifies a CORS Merit Award winner. He has a long, distinguished and accomplished record of research in both the theory and practice of OR. He has served the OR community through his dedication to CORS, serving as president in 1991-92, and was instrumental in the success of CORS annual meetings held in Halifax. He has served on several NSERC committees and chaired the NSERC Industrial Engineering Grant Selection Committee. He is a member of the Association of Professional Engineers of Nova Scotia, INFORMS, the Mathematical Programming Society and a senior member and fellow of the Institute of Industrial Engineers.



*Eldon's contribution to Operations Research has not just been limited to theoretical developments. There are very few OR researchers in Canada and probably the world who have regularly gone out to companies, studied their problems, and used OR to model and help solve them. The number of companies he has worked with is staggering and even more impressive is the number of sectors in which he has worked: forestry, fisheries, mining, manufacturing, SMEs, and more. [Uday Venkatadri, Chair, Industrial Engineering, Dalhousie U.]*

Commenting on his recent leadership in the NSERC Strategic Research Network on Value Chain Optimization (VCO) for the forest bioeconomy, Sophie D'Amours (Scientific Director of the VCO network) said *"Eldon has been a key investigator in the implementation of the VCO Network. He has provided both knowledge and leadership in defining major orientation of the research framework. He has actively connected with FPInnovations, the business partner of the network, and rapidly brought together the top Canadian experts to work on one of Canada's most critical issues: linking the forest and industry through new modern strategic planning approaches. Within the network, Eldon is not just active in setting the stage; he is also driving a number of research projects. This is a testimonial of his passion for research and desire to contribute to a better society."*

Eldon has also been very instrumental in building and developing Industrial Engineering and Operational Research in Atlantic Canada. He was the Head of the IE Department at Dalhousie University from 1997 to 2006 and again from 2008 to 2010, and has been primarily responsible for the growth and success of the TUNS/Dalhousie program. John Blake, an Industrial Engineering faculty member at Dalhousie said *"I know from personal experience that perhaps Eldon's strongest contribution has been his ability to mentor and foster development of undergraduates, graduates, and newly minted faculty. Quite simply, Eldon Gunn has been a pillar of OR in Atlantic Canada and beyond."*

Eldon's past PhD students echo these sentiments. *"Eldon not only made my PhD program an enjoyable and successful enterprise but continued to support and mentor me as a new faculty member and a novice researcher. His mentoring extended far beyond OR to include professional ethics, advice on career choices, how to deal with search committees and other challenges that arise in academia. I have the ultimate respect for Eldon's judgement and standards and profited from his advice many times."* [Evelyn Richards]

June 30, 2011

Dr. Armann Ingolfsson  
President  
Canadian Operational Research Society  
(Delivered by e-mail)

Dear Dr. Ingolfsson

I am writing to thank the Canadian Operational Research Society for the recent Award of Merit that I received at the CORS Annual Conference held in St. John's, Newfoundland and Labrador. I very much appreciated the recognition.

As I tried to convey in my response at the Banquet, CORS has been an important part of my life for almost forty years. I have benefited immensely from the many friends and professional contacts that I have made through CORS. Much of what I have accomplished stems from contacts that I have made through CORS, or from presentations made at CORS conferences. This Award will serve to remind me of that long and rewarding association, which I hope to maintain for many years to come.

I know you are stepping down as CORS President this year. Please accept my thanks for your work on the continuing development of CORS.

Yours sincerely



Eldon A. Gunn, Ph.D., P. Eng.  
Professor

## 2011 CORS Service Award Winners

Tom Morrison, Thorn Walden, and Saeed Zolfaghari received 2011 CORS Service Awards at the CORS 2011 Annual Conference in St. John's, NL.

**Thomas B. Morrison**, who currently works as Manager, Arctic and Cold Regions for Ausenco Sandwell, first joined CORS in 1998. He has served on the executive of the CORS Calgary Section from 1998 to the present, as Program Director, Vice President, President, Past President, and Councillor. He has been one of the primary driving forces of the Calgary section, as a presenter, member of the section executive, and by providing facilities for board meetings at his former company, Morrison Scientific.

**Thorn Walden**, currently a Senior Economist at the Canadian Energy Research Institute, served on the executive of the CORS Calgary Section from 1996 to 1998 and from 2000 to 2008, as Secretary, Program Director, Treasurer, Vice President, President, Past President, and Councillor.

**Saeed Zolfaghari** is currently a Professor and Director of the Industrial Engineering Program at Ryerson University. He served the CORS Toronto section as a treasurer from 2000 to 2007 and president from 2007 to 2010. He was a member of the organizing committee for CORS 2002 and program chair for the joint CORS/INFORMS meeting in 2009.



Samir Elhedhli (l) presenting the Service Award to Thorn Walden.



Samir Elhedhli (l) presenting the Service Award to Saeed Zolfaghari

## CORS 2011 Student Paper Competition Winners

The high quality of OR education and the excellence of the new generation of operational researchers in Canada were showcased again in this year's CORS Student Paper competition. There were a total of 13 papers submitted by graduate students and another 8 by undergraduate students. The selection committee decided to award one first prize and one honourable mention in the open category, and one first prize in the undergraduate category.

Congratulations to all participating students for a job very well done.

Fatma Ghaza  
Anjali Awasthi

### Open Category

#### Selection Committee

**Chair:** Fatma Ghaza, Department of Management Sciences, University of Waterloo

#### Judges:

Baris Balgioglu, Dept. of Mechanical & Industrial Engineering, University of Toronto  
Mehmet Begen, Ivey School of Business, University of Western Ontario  
Ignacio Castillo, School of Business and Economics, Wilfrid Laurier University  
Timothy Chan, Department of Mechanical and Industrial Engineering, University of Toronto  
Abdullah Dasci, School of Administrative Studies, York University  
Kai Huang, DeGroot School of Business, McMaster University  
Monia Rekik, Département des opérations et systèmes de décision, Université Laval  
Louis-Martin Rousseau, Dépt. de mathématiques et génie ind., École Polytechnique de Montréal  
Haldun Sural, Department of Management Sciences, University of Waterloo (Visiting)

#### Winner

**Jonathan Y. Li**  
University of Toronto  
Co-author: Roy H. Kwon

*Portfolio Selection under Model Uncertainty: A Penalized Moment-Based Optimization Approach*

#### Abstract

Uncertainty on the choice of a financial model leads to additional "model risk" in portfolio selection. This level of risk becomes ever pronounced in recent financial markets and results in substantial deterioration of portfolio performance. In practice, portfolio managers face difficulty in seeking a balance between relying on their knowledge of a reference financial model and taking into account possible ambiguity of the model. We present a new approach for portfolio selection when the underlying distribution of asset returns is uncertain or ambiguous to investors. In particular, we consider the case that an investor can formulate some reference financial models based on his/her prior beliefs or information but is concerned about misspecification of the reference models and the associated loss. Based on the concept of Distributionally Robust Optimization (DRO), we introduce a new penalty framework that provides investors flexibility to define prior reference models using moment information and accounts for model ambiguity in terms of moment uncertainty. We further provide efficient

solution methods for the penalized moment based problem. Computational experiments show that our penalized moment-based approach outperforms classical DRO approaches using real-market data. Furthermore, the approach can be extended to incorporate alternative uncertainty structures and factor models.



Fredrik Odegaard (r) presenting the First Prize, Student Paper Competition, Open Category to Jonathan Li

### **Honorable Mention**

#### **Mahmood Ebadian**

University of British Columbia

Co-authors: Taraneh Sowlati, Shahab Sokhansanj, Mark Stumborg, Lawrence Townley-Smith

*The development and application of a new simulation model for multi-agricultural biomass*

#### **Abstract**

This paper presents the development of a new logistics model and its application to supply a mixture of agricultural feedstock to a proposed cellulosic ethanol plant. The new model, called IBSAL-MC (Integrated Biomass Supply Analysis & Logistics– Multi Crop), is a hybrid push-pull logistics model which pushes the field operations to harvest and collect as much biomass as possible within the harvest season while pulling downstream operations to meet the daily demand of the ethanol plant. The proposed ethanol plant, which requires 750 dry metric ton of wheat straw per day, is near Prince Albert, Saskatchewan. Despite the abundance of wheat straw in the region, the daily demand of the ethanol plant would be fully met only for 104 days. In terms of the total annual demand, only 92% of it would be met. The logistics cost varies between \$62.06 and \$63.46 tonne<sup>-1</sup> with 90% confidence level, and its mean and standard deviation are \$62.76 and \$2.32 tonne<sup>-1</sup>, respectively. The number of trucks required to transport biomass from farms to the gate of ethanol plant is 13. The capacity of the required on-farm storage and at-plant storage are estimated at 400 tonnes and 3500 tonnes of biomass, respectively.



## Undergraduate Category

### Selection Committee

**Chair:** Anjali Awasthi, Concordia Institute for Information Systems Engineering, Concordia University

### Judges:

Rajeev Namboothiri, University of Montreal  
Jean-Marc Frayret, Ecole Polytechnique  
Navneet Vidyarthi, Concordia University  
Satyaveer S Chauhan, Concordia University  
Simon Li, Concordia University  
Yan Feng, Dalhousie University  
Nadia Lehoux, University of Laval  
Pascal Forget, University of Quebec a Trois Rivieres  
Raf Jans, HEC Montreal  
Rajesh K Tyagi, HEC Montreal  
Masoumeh K Zanjani, Concordia University

### Winner

**Shuang E, Derek Hewitt, Jenny Morrow, Scott Van Bolhuis**  
University of Alberta

*Staffing Requirements Based on Stochastic Arrivals and Infinite Server Model (M/M/s)*

### Abstract

The optimal staffing scheme is to allocate the minimum number of servers required to maintain a certain standard of service. This article presents the methodology used in creating a model that would find the best accommodation between the demand and the feasibility of the staffing schedule. However, the results are not perfectly optimal due to the stochastic nature of call arrivals and the non-stationary nature of servers.



## 2011-2012 CORS Budget

	2010-11 Budget	2010-11 Actual	2011-12 Budget
<b>I. Receipts</b>			
Membership Dues	25,000.00	24,577.15	35,000.00 *
Conference Profit	1,000.00	1,247.00	5,000.00
SSHRC Conference Grant	7,125.00	7,125.00	7,125.00
INFOR Royalty/Profit	1,500.00	781.08	1,000.00
Miscellaneous	120.00	420.00	120.00
<b>Total Receipts</b>	<b>\$34,745.00</b>	<b>\$34,150.23</b>	<b>\$48,245.00</b>
<b>II. Expenses</b>			
Administrative Expenses	17,000.00	15,443.53	17,000.00
Bulletin	5500.00	3,545.26	2,500.00
SSHRC Conference Grant	7,125.00	7,125.00	7,125.00
Council Meeting	7,000.00	6,258.75	7,000.00
Sections Shares of Dues	3,500.00	3,194.45	3,500.00
Sections Shares of Conference Profit	200.00	249.40	1,000.00
INFOR Journal	11,150.00	13,021.42	8,000.00
IFORS Subscription	1,600.00	441.92	450.00
Awards	2,500.00	2,953.30	3,000.00
Graduate Student (non-CORS) Conference Support	2,000.00	3,000.00	2,000.00
Travelling Speaker Program/CORS Events	2,000.00	1,268.31	2,000.00
Teaching Effectiveness Colloquium Faculty Support	1,000.00	0.00	1,000.00
GST	3,000.00	1,235.00	2,000.00
Bank and Credit Card Charges	1,000.00	1,596.96	1,000.00
<b>Total Expenses</b>	<b>\$64,575.00</b>	<b>\$59,333.30</b>	<b>\$57,575.00</b>
<b>Expected Profit/Loss</b>	<b>(\$29,830.00)</b>	<b>(\$25,183.07)</b>	<b>(\$9,330.00)</b>
<b>III. Balances</b>			
Opening Balance	\$105,848.80	\$105,848.80	\$93,735.34
<b>Adjustments:</b>			
Expected Receipts During 2010/2011	\$34,745.00		
Expected Expenses During 2010/2011	(\$64,575.00)		
SSHRC Grant Cheques Not Received during 2009/2010	\$7,125.00	\$7,125.00	
INFOR Expense Cheque Not Incashed during 2009/2010	(\$8,068.21)	(\$8,068.21)	
Conference Profit Not Distributed during 2009/2010	(\$282.62)	(\$282.62)	
Expected Receipts During 2011/2012			\$48,245.00
Expected Expenses During 2011/2012			(\$57,575.00)
Receipts: Previous Bank Account Transfer		\$2,092.81	
Expenses: Conference 2011 (St. John's)		(\$1,162.04)	\$1,162.04
Expenses: Conference 2012 (Niagra Falls)		(\$2,518.84)	\$2,518.84
Cheques issued but not on 2010/2011 bank statements		\$17,130.51	(\$17,130.51)
Cheques received but not on 2010/2011 bank statements		(\$1,247.00)	\$1,247.00
<b>Closing Balance</b>	<b>\$74,792.97</b>	<b>\$93,735.34</b>	<b>\$72,202.71</b>

\* Note that this accounts for the proposed membership fee increase.

## Membership Report 2010-2011

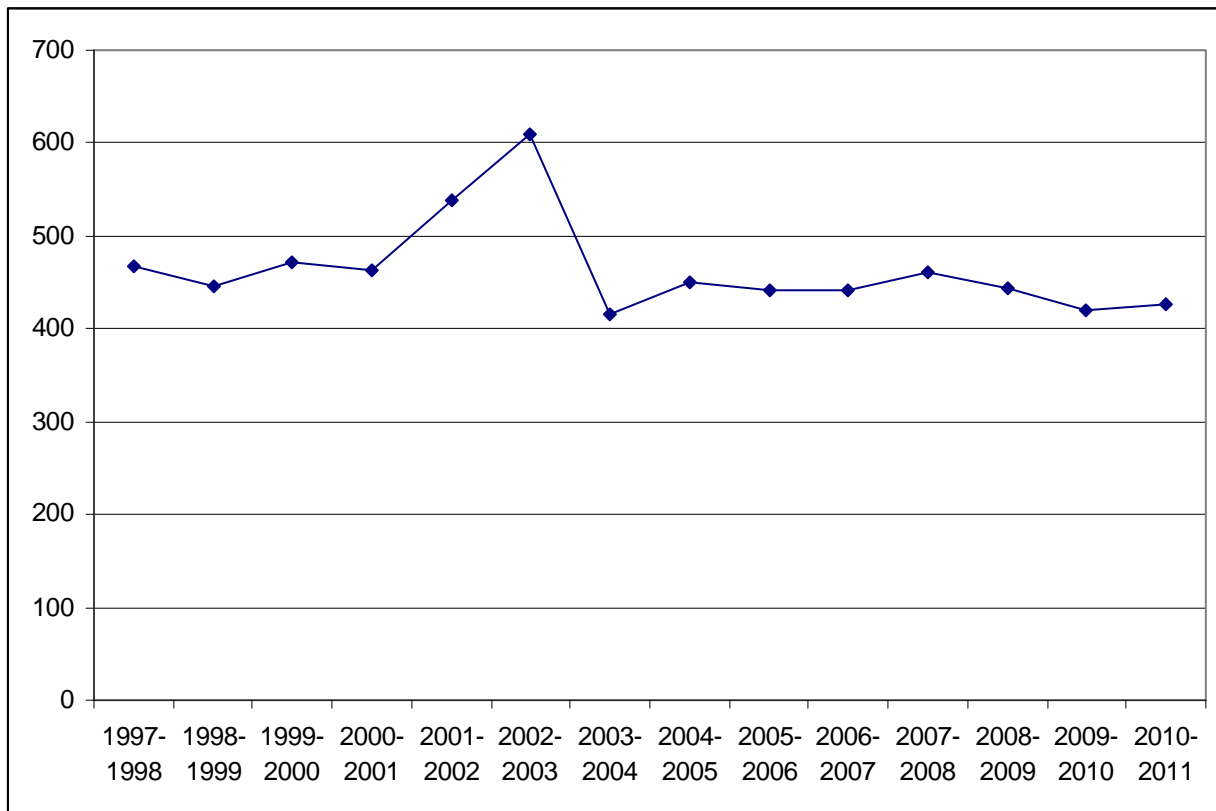
At the request of CORS Council, Wendy L. Caron, CORS Membership Services provider, prepared an Annual Membership Report documenting the membership activity experienced by the Canadian Operational Research Society over the 2010-2011 membership year. The objective of the report was to provide Council with the information needed 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. Information on other membership related matters falling within the purview of the Membership Services provider were also provided. The report in its entirety is available for viewing on the following website <http://www.cors.ca/documents/MembershipReport1011.pdf>. Excerpts from the Executive Summary and three graphs from the Report are provided below.

- At the end of the 2010-2011 membership year (March 31, 2011), total membership in the Canadian Operational Research Society was 426 of which 280 or 66% of the membership are Members, 17 or 4% Retired Members, 122 or 29% Student Members, and 7 or 2% Emeritus Members.
- Membership in the Society increased by 7 over the previous year; a growth rate of 1.7%. This modest increase is a welcomed reversal of the decrease in membership experienced the past two years.
- Notwithstanding a net increase in overall membership, since 2008 the Society has experienced a steady decrease in the number of Members; from 310 to 280; a 10% decrease.
- The number of people joining the society during the 2010-2011 membership year was 104, 19 more than in the previous period and a number more in keeping with the level experienced a few years ago.
- During the 2010-2011 membership year a total of 84 memberships were discontinued, 26 less than in the previous membership year. This is the fewest number of discontinued memberships since 2003 and is evidence that some of initiatives taken by Council over the past year e.g. the Membership Survey and the more regular publication of INFOR have benefited membership retention.

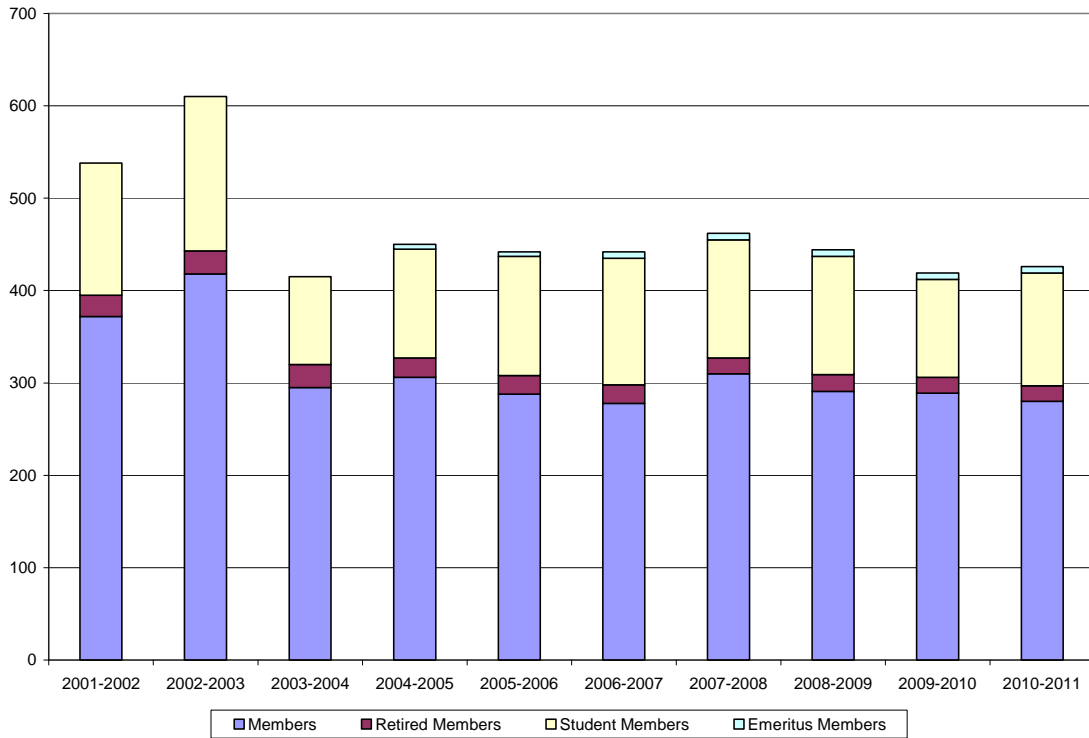
The modest increase in CORS membership this year, from 419 to 426, is a welcomed reversal of the decrease in membership experienced the past two years. However, the membership level has not yet rebounded to the mid four hundred level, a reasonable and attainable figure, which was more or less consistently seen between 2004-2009. The significant decrease in the number of members discontinuing their memberships after 1-2 years is an extremely positive indication that members are retaining their memberships longer than previously. This is also evidence that some of initiatives taken by Council over the past year e.g. the Membership Survey and the more regular publication of INFOR, have benefited membership retention. Efforts in this regard and in encouraging former members to rejoin the Society should continue. In addition, the increase in the number of students this past year seems to be associated with funding opportunities for and participation in CORS 2011 and to a lesser extent the CORS Diploma. Supervisors and CORS Diploma Coordinators should actively promote these membership benefits to their students. Addressing the remarks made by student respondents in the 2010 Membership Survey, for more practical application articles in the Bulletin and professional development activities/opportunities may also aid in the retention of Student Members.

Ensuring that membership retains its value for all members is important. The 2010 Membership Survey provides some insight into the means to accomplish this. The survey findings revealed that members join the society primarily for the following reasons: pride and loyalty to the Canadian OR community, to take advantage of networking opportunities and for professional development. Local section events promoting these activities should be supported both administratively and fiscally.

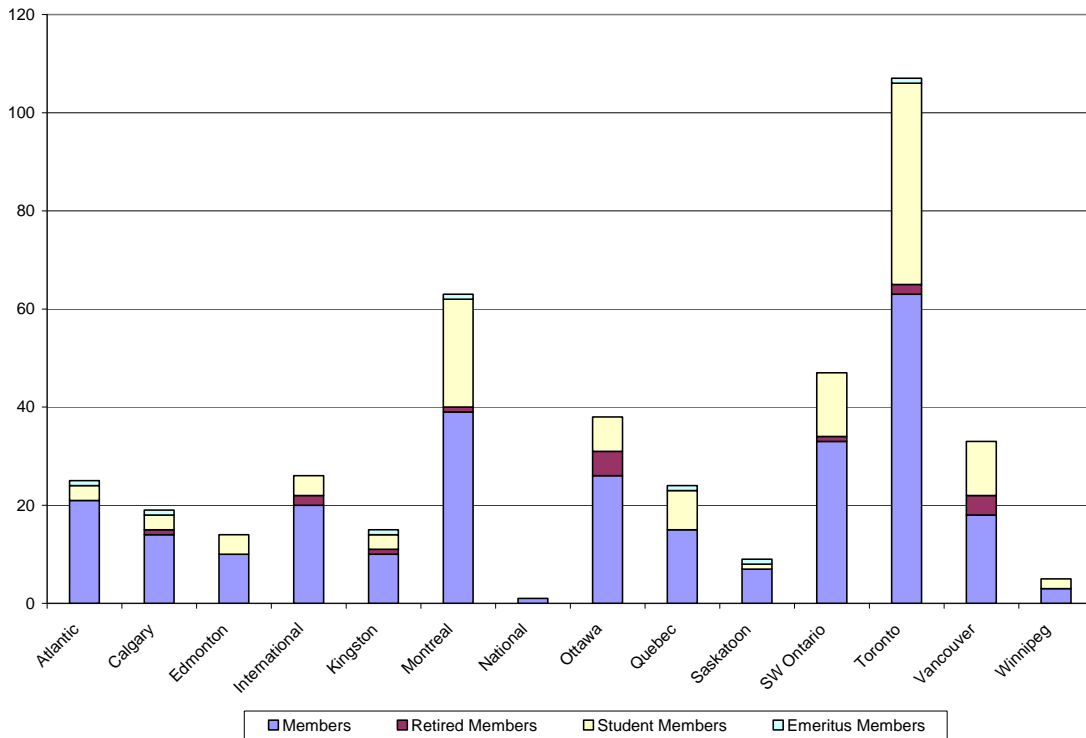
**CORS Membership (Total Number) 1998-2011**



**CORS Membership by Member Type 2002-2011**



**CORS Membership by Section and Member Type March 31, 2011**





**54th CORS Annual Conference**

**and**

**10th MOPGP Biannual Conference**

**June 11-13, 2012**

**Sheraton on the Falls**

**Niagara Falls, Ontario, Canada**

**Joint International Conferences  
on Operations Research and  
Multi-Objective and Goal Programming**

**[www.cors.ca/CORS2012](http://www.cors.ca/CORS2012)**

On behalf of the 2012 CORS/MOPGP conference organizing committee, I would like to invite you to join us in the scenic Niagara Falls for next year's conference from June 11-13, 2012.

Niagara Falls is a city of wonders. It is one of the most beautiful tourist destinations in the world and welcomes more than 14 million visitors each year. In addition to inspiring your mind, you will refresh your soul. We suggest that you consider bringing with you your children or partner to enjoy the many family-friendly facilities that are available in the region of Niagara Falls.

Whether you enjoy the thrill of a "journey behind the falls" or nature hiking you will find what you want and much more: Maid of the Mist (close-up of the falls), Niagara River Recreation Trail, Butterfly Conservatory, Niagara-on-the-Lake, Whirlpool Aero Car, Wax Museums, Bird Kingdom at the Niagara Falls Aviary, IMAX Theatre, Marineland, Niagara Parks Botanical Gardens, Indoor Water Parks and Lake Erie Beaches (want even more? Visit [niagarafallstourism.com](http://niagarafallstourism.com)).

The organizing committee has plans for an exciting conference. In addition to a strong scientific program, distinguished plenary speakers and interesting tutorials, we plan to edit four special journal issues. Two journal editors have already welcomed the idea and we are in discussion with a third journal editor. All details will be published soon on the conference web site and brochure as well as the society's email list. We have chosen the Sheraton on the Falls Hotel and Conference Center and expect that you will enjoy their facilities. You will soon hear from the organizing committee regarding sessions and presentations, but please feel free to get in touch with us if you are interested in organizing a cluster, session or submitting a paper.

For more information, including registration, fees, accommodation and abstract submission, please see our website: [www.cors.ca/cors2012](http://www.cors.ca/cors2012).

Elkafi Hassini  
General Chair





# ANNOUNCEMENTS

## INFOR and Bulletin Pay for Paper policy to be implemented commencing July 31, 2011

### INFOR

Commencing with Volume 49 Issue 1 CORS members will no longer receive a paper copy of the Journal INFOR. Online access to the Journal will continue to be available at <http://www.utpjournals.com/infor/CORSMember.html> and electronic notification of the availability of the next issue for viewing will be provided using the CORS ListServ. Anyone wishing to continue to receive a paper copy of the publication may do so by paying an annual fee of \$20 (4 issues) issues and must contact Wendy L. Caron, CORS Membership Services at [caronwendyl@sympatico.ca](mailto:caronwendyl@sympatico.ca) as soon as possible to make all necessary arrangements. Act today to make sure there is no interruption in delivery.

### CORS Bulletin

Commencing immediately, anyone wishing to continue to receive a hard copy issue of the Bulletin by mail may do so by paying a \$10 annual fee (4 issues) and must contact Wendy L. Caron, CORS Membership Services at [caronwendyl@sympatico.ca](mailto:caronwendyl@sympatico.ca) to make all necessary arrangements (payment, language preference etc.). Otherwise, by default, members will receive electronic notification when the next issue is available for viewing and the associated URL.

Bernard Gendron,  
Chair, Publications Committee

## CORS MEMBERS MAKING WAVES

CORS member Michael Armstrong wrote a article titled "When a \$69 flight actually costs you \$113" that appeared in the business section of the Toronto Star newspaper on 7 April 2011. The article criticizes companies that advertise a low price but then tack on a variety of "extra" charges when a consumer buys their product. You can read more at the web site below. Michael teaches quality management in in the Faculty of Business at Brock University.

<http://www.moneyville.ca/article/969961--when-a-69-flight-actually-costs-you-113-it-s-time-to-intervene>

MJ Armstrong, PhD  
Associate Professor  
Brock University



# CORS SECTIONS NEWS

## Calgary

On Wednesday, June 29, 2011 the Calgary Section held a Professional Development Seminar. The topic of the presentation given by Ming Hu, Alberta Electric System Operator was *Integration of Wind Power into Power Systems and Market Operations*.

### **Abstract:**

There is significant interest in wind power development in the Alberta Integrated Electric System (AIES). Integration of large-scale wind power into the AIES presents significant challenges to electric power system operation due to the wind power variability and uncertainty and the limited flexible resources in the system. This talk will describe and explain the issue and challenges of wind power system integration and related mitigation solutions. It will also discuss related technical work done or lead by the Alberta Electric System Operator (AESO) in order to accommodate wind power development in the AIES, including wind power forecast, wind power management and the development of a new graphical electrical system operation tool.

### **About the Speaker:**

Ming Hu graduated from China in 1988 with a B.Eng. in Electrical Engineering and in 1991 with a M. Eng. in Electric System Planning & Economics. During 1991 to 2001, Ming worked as an engineering model developer, power system planning engineer, power system and project economic analyst, and manager of project economic analysis in the China State Power Economic Research Center (now State Grid Energy Research Institute). Ming joined the operations forecasting group at the Alberta Electric System Operator (AESO) in 2002, and moved to the system performance group in 2006. From 2005-2010, Ming had been working on the analysis, modeling and mitigation of solutions to integrate wind power into system operations. Since early 2011 Ming has worked in the system engineering group.

## Ottawa

The Ottawa Chapter of Canadian Operational Research Society organized the first 2011 meeting on May 18, at University of Ottawa.

The title of the event was "Modeling long term care with supportive housing". Insufficient long term care (LTC) capacity is a problem causing long waiting times and congestion in hospitals. The scheduling of patients to LTC is a complex problem that is compounded by the non-homogeneity of long term care beds (different facilities and room accommodations), the presence of client choice and level of care, and the competing demands of the hospital and community populations. The research analyzes scheduling policies for both hospital and community demands with the introduction of supportive housing (SH) capacity. A model with Approximate Dynamic Programming (ADP) using Q-learning (QL) was proposed to obtain the allocation policy for a given capacity.

The presenter was Marisela Mainegra Hing, a Postdoctoral Fellow at the Telfer School of Management, University of Ottawa. She holds a PhD in Operations Research from the University of Twente, The Netherlands, a Master in Applied Mathematics and a Bachelor in Computer Science from the Central University of Las Villas, Cuba. Her research interests are in process modeling and optimization, data analysis, artificial intelligence and simulation.

## In Memoriam: Cecil E. Law, CORS Emeritus Member

It is with regret and with the greatest respect that I inform the CORS Membership of the death of Cecil E. Law on April 20, 2011. Cecil was a long standing, Emeritus Member of CORS and a past president of the Society. We honour Cecil's memory and his important contributions to the field of operational research in general and CORS in particular, by reprinting an interview with Cecil that first appeared in CORS Bulletin Volume 37, Number 4 November 2003.

### Interviews with Canadian OR Veterans Guest: Cecil E. Law, Professor Emeritus

*Cecil E. Law, Professor Emeritus at Queens University, will be inaugurating our Canadian OR Veterans interviews. The editor's plan was to preface the interview with a short biographical note of the interviewee, however, given the richness of Professor Law's past it was decided that it will be shared with our readers with all its available details.*

*Given he will be 85 in November, it is incumbent on us to mention the enthusiasm, promptness and courteousness of Professor Law during the interview. If anything, this supports his objection to the mandatory retirement of professors at the age of 65 as sanctioned by the Senate of Canada. He sarcastically concludes that senators must be smarter than professors as they are allowed to stay in their jobs until the age of 75!*

**Q** If you would, please recount to CORS Bulletin readers the major milestones in your education and professional background.

**A** I was born in November 1922 at Vancouver, BC. In those days, you had to be six to attend school at all, but I managed to do all of Grade One from January to June, so passed into Grade Two. At that stage (depression time) my father got a job as a diesel engineer in a power plant at a mine in Premier, just beyond the Alaska Panhandle, and the family went there to live for the next five years. I had to travel two miles up the mountain from our house near the power plant to the school in the town on top of the mountain. Naturally I had a marvellous time plowing through the more than six feet of snow that fell many nights, and was never once on time for school, even when the mill four horse team gave me a lift, or the Post Office dog team generously hauled me along, to my everlasting delight. My relatives worried that the many black bears in the area would literally eat me up, and they soon got me shipped back to Point Grey (near UBC) to live with my grand parents.

By 1937, I had joined the Seaforth Cadets, was well established in high school and planned a career as a forestry engineer. That year my father bought a fish boat, and in 1938, I joined his crew on the Gulf of Georgia salmon fishery. The next year he got a job with BC Telephone and I took over the boat as skipper, with various high school buddies and my younger brother as crew.

When war broke out in the late summer of 1939, I was too young to be mobilized, but my father, a severely wounded veteran of the First World War Seaforths, sailed off to England, much to my mother's disgust. The following spring, I had finished high school plus three university science courses and after a month with the BC Forest Service, I joined the Canadian Scottish in Victoria as a drummer, and later as a piper. In the course of joining, the recruiting officer got confused

by my late birthday yet my obvious familiarity with things military and put down my birth year as 1920, which advanced my cause more than a little.

In early 1942, after service all over Vancouver Island and the Queen Charlottes, I managed to get a draft to England as a reinforcement, and got my father to claim me back to the Seaforths. By early 1943 I was an Acting-Sergeant, passed through pre-officers training, and was shipped back to Canada on the Queen Mary with many other senior NCOs to be commissioned after Officer Training at Gordon Head, now the site of U. of Victoria.

In early 1944, after further training at Calgary and at Brockville with literally hundreds of other Lieutenants, those of us with previous overseas experience managed to get on draft back to the UK. I luckily received a course as a mortar officer, which kept me from immediate posting into action, and in August I found myself in....not Italy with my Regiment, but in France, where the heavy losses, especially of junior officers, were causing serious problems. I was posted as a rifle platoon commander to the South Saskatchewan Regiment in Second Division, and after some wasted time seeking transport, I and seven other officers were immediately sent into action near Dunkirk, France. As it happened, within a half hour I was left in command of the company, as well as my platoon. After several battles there and along the Antwerp-Turnhout Canal, and many casualties over the next two weeks, I was promoted to command the battalion Mortar Platoon, and remained with that command until the end of hostilities. Curiously, I accidentally took part in a couple of OR studies, though I had no idea what OR was, only that the officers involved seemed to have a lot of freedom of action. Since I had met a Dutch school teacher during the battle in Nijmegen, and married her in June '45, I volunteered for the Canadian Occupation Force in Germany and took over an area as company commander that included Lord Haw-Haw's radio broadcasting station and its German Operators, plus several thousand German soldiers and sailors, and a camp full of several hundred so-called German Honour Brides, young women left with babies by German Service men. Since strict non-fraternization was practiced, my 200 or so men were extremely frustrated by the habit of the young women of coming to the North Sea beach, taking of all their clothes, and swimming in the sea while my poor men guarded the piers and the radio station on the sea front. Later I took over the Divisional Training School NCO Training Company. I planned then to stay in the Army. Abruptly, Canada withdrew her participation in the Occupation, and in September 1946 I found myself back in Vancouver, waiting for posting as a paratroop. Alas, a young lady doctor decided my minor wounds made me unfit for paratroop duty and I found myself back at university, still in uniform, since I had absolutely no civilian clothes after six and a half years of the Army.

I started in maths and physics, thinking that might be fun, but wanted to get into medicine. UBC didn't yet have a medical program. So I switched into Honours Wildlife Biology and slogged away. In 1949 and 1950 I spent my summers in the Arctic as a replacement for the resident biologist, having won the Governor General's Fellowship in Zoology to Berkeley and been admitted to UBC's brand new PhD program. Alas, the North Koreans had started their war, the US wouldn't admit me to Berkeley unless I agreed to be subject to the draft, not as a Major or Captain, but as a private in the US Army. I disrespectfully declined and hammered away at my PhD studies, doing all the available courses and qualifying exams. But I needed a year at another school.

At this point DRB appeared, stating that my experience with OR made me valuable and my Arctic experience made me more valuable. So I agreed to one year only, since we now had two daughters, and no money, and were struggling on the \$68 per month living allowance

and my service entitled me to (For 78 months in all).

After nine months running the animal field experiments at Suffield, I was persuaded to take charge of the Arctic Operational Research Team at Fort Churchill, working with the Army and the Air Force, including all field exercises, weapons and navigation research. After that it was a year in England at the Joint Services Staff College with senior British commonwealth and US officers and absolute access to everything of Service interest. Then back to Ottawa to head field experiments, weapons systems analysis, and then Simulation and War Gaming, plus a considerable amount of work with computers, starting back in 1952.

By 1960, I was frustrated by the Canadian Defence picture and took a job as head of Operational Research and Computing at C-I-L, doubling my salary. In DRB I had insisted on having a researcher under me fired as a security risk, and sure enough he later helped to establish the FLQ. On the promise of a move to Ontario, in late 1962 I took a job with Dr. Solandt at CN as Co-Ordinator Systems Analysis, but instead of Toronto, I was based in Montreal, but travelled throughout the system.

In 1966, while Vice President of CORS, which I had helped to found in 1958, Queen's offered me a post as Full Professor in the School of Business to set up both OR and computing programs. In 1968, I was given the additional task of establishing a Department of Computing and Information Science, which I did and remained a Professor there as well as in the School of Business until 1980. In 1972 I was asked to take over the Institute of Guided Ground Transport as Executive Director in addition to teaching and I remained in that post until 1983, when I went on a mini sabbatical to IBM to study micro computers. I then returned to the School to set up Micro computing labs, as well as teaching Systems Analysis. I finally retired in 1992.



*OR lies in discerning previously unseen relationships in a decision making operation, such that new insights are found to clarify the dynamics, and to permit the executive involved to make useful decisions.*



**Q** I have searched the web in an effort to find some information about your background to help me in the interview. To my surprise, all I found are pages that are housed by the Estevan Community Access Project under the subdirectory for the South Saskatchewan Regiment. These include photos (e.g., <http://cap.estevan.sk.ca/ssr/photos/claw.html>), commentaries and articles (e.g., <http://cap.estevan.sk.ca/SSR/documents/ojlawart/ojmain.html>). It is clear that you have a rich military experience. Was that how you built your interest in the field of Operational Research? In what applications did you use OR tools in the military?

**A** I was involved with a couple of science related projects in OR as an infantry officer in NWE, including the operation of the radio station in Nordijck. I also stumbled upon a nerve gas station in the Emden area which led to my eventual posting to Suffield. In my ten years with DRB I was closely involved with the forces especially in the Arctic, I also attended the Militia Staff program, the US pre-Command and Staff program in Churchill, as well as the Joint Services School full time. I became deeply involved with the nuclear warfare programs in the UK, Canada, and the US.





Professor Cecil law addressing Grade 7 and 8 students in a Dutch school.  
Picture taken in 2000 by press in Groningen, Holland.

**Q** The birth of OR as an applied science is to a great extent accredited to military scientists. In your view is OR, as it is today, still recognizable as a military child, a foster child fed from contributions emanating from different scientific fields or did it evolve to the point that it is an independent scientific field nourished by its own followers?

**A** OR has many faces. Both the British and the Americans still retain strong OR elements in their military though the Canadian effort has declined drastically. Security considerations on the one hand, plus the development of formal OR programs in many universities, has changed the obvious focus of OR. Academic interests in particular, tend to make OR look like a branch of mathematics, which it is not.

**Q** How do you characterize the evolution of OR in Canada in the period 1950-2000?

**A** In 1950, OR was virtually exclusively a military science, though some wartime OR scientists had returned to university life and were writing about OR. Cold War pressures kept the military

involvement high. But early in the 50s, Ontario Hydro, Ontario Department of Highways, Abitibi, and certain consulting firms particularly KCS, under Dr. Josef Kates leadership, as well as the Oil companies, particularly in the US, became active and successful. They particularly played a role where use of computers was involved. Soon a few universities began to promote individual courses on both techniques and principles. By the late 50s, Linear programming (blending, mixing, transportation), inventory control, and then simulation, especially on queueing problems became popular.

**Q** What do you see as your major accomplishment while president of CORS?

**A** My major accomplishment as President of CORS was the promotion of education in and for OR and especially the application of computers to OR. (I took my first computer course under Grace Hopper in 1952, and continued on from that time.) I was involved in the evolution of CIPS, and worked on its co-operation with CORS, including the Journal. I joined CIPS, or rather its predecessor, in 1960 and have been a Life Member for some 25 years.

**Q** What are the most valuable returns you enjoyed from being a CORS member and ex-president?

**A** I joined the OR Society of the UK in 1952 and remained a member until a couple of years ago. I was also active in both ORSA and TIMS, and in IFORS, where I was CORS IFORS Rep for several years until I simply could no longer keep up with all the duties I had. OR introduced me to a world I had only peripherally touched previously. I am still fascinated by the breadth and depth of the problems and my very long term interest in biological systems and thus all kinds of systems is still a passion.

**Q** The goal of CORS is "to advance the theory and practice of O.R. It's primary purpose is to stimulate and promote contacts between people interested in the subject". What is your evaluation of CORS performance so far? What recommendations and suggestions do you offer to help CORS further pursue its goal?

**A** I still feel that the practice of OR, and even to a large extent the genuine theory of OR is very much an applied subject, subtle in its requirements, and very much a systems discipline. Mathematics, in some of its dialects at least, is still the queen of sciences and still part of the essence of OR, but it does not mean that only pure mathematicians need apply. It is all too easy to mistake the complexity of the mathematics for the meaning and purpose of OR. It is not. The Scientific method in general, observation, experiment, measurement of course, but also imagination, flexibility, and most essentially the operational components are the heart of OR. To retreat into the mathematics alone, however esoteric, or however fascinating in itself, is not OR. The OR lies in discerning previously unseen relationships in a decision making operation, such that new insights are found to clarify the dynamics, and to permit the executive involved to make useful decisions. I always found the application reports more interesting, more informative, and more representative of Operational Research than the journals themselves. The ORS(UK) publication "OR Insights" is a prime example.

# MEETINGS AND CONFERENCES

## CORS Business Meetings

September 30, 2011	CORS Council Meeting, Teleconference
November 25, 2011	CORS Council Meeting, Teleconference
January 27, 2012	CORS Council Meeting, Toronto, ON
March 30, 2012	CORS Council Meeting, Teleconference
June 10, 2012	CORS Council Meeting, Niagara Falls, ON
June 11, 2012	CORS Council Meeting, Niagara Falls, ON
June 12, 2012	CORS Annual General Meeting, Niagara Falls, ON

## CORS Annual Conferences

June 11-13, 2012	Joint CORS-Multi Objective Programming Goal Programming (MOPGP) Conference Niagara Falls, ON
2013	CORS Annual Conference Vancouver, BC

## Other Conferences

2011 Aug. 17-19	Modeling and Optimization: Theory and Applications (MOPTA 2011) Bethlehem, PA <a href="http://coral.ie.lehigh.edu/~mopta/">http://coral.ie.lehigh.edu/~mopta/</a>
2011 Aug. 21-24	FIELDS/MITACS WORKSHOP on Probabilistic Methods in Wireless Networks, Carleton University Ottawa <a href="http://people.scs.carleton.ca/~kranakis/conferences/pmnet.html">http://people.scs.carleton.ca/~kranakis/conferences/pmnet.html</a>
2011 Aug. 24-26	3rd International Conference on Applied Operational Research (ICAOR'11), Istanbul, Turkey <a href="http://www.icaor2011.bahcesehir.edu.tr/">http://www.icaor2011.bahcesehir.edu.tr/</a>
2011 Aug. 26-28	CanQueue11, Banff, AB <a href="http://www.ubc.ca/okanagan/canqueue2011/welcome.html">http://www.ubc.ca/okanagan/canqueue2011/welcome.html</a>
2011 Sept. 19-23	15th Austrian French German conference on Optimization (AFG'11) Toulouse <a href="http://www.math.univ-toulouse.fr/afg11/">http://www.math.univ-toulouse.fr/afg11/</a>
2011 October 3-4	Industry-Academic Workshop on Optimization in Finance and Risk Management, Fields Institute, Toronto <a href="http://www.optimization-in-finance.ca">http://www.optimization-in-finance.ca</a>



2011 Nov. 13-16	INFORMS 2011, Charlotte, NC <a href="http://meetings.informs.org/charlotte2011">http://meetings.informs.org/charlotte2011</a>
2011 Nov. 19-22	2011 Decision Sciences Institute Annual Conference. Boston, MA <a href="http://www.decisionsciences.org/Annualmeeting/default.asp">http://www.decisionsciences.org/Annualmeeting/default.asp</a>
2012 Oct. 14-17	INFORMS 2012, Phoenix, AZ
2013 Oct. 6-9	INFORMS 2013, Minneapolis, MN
2014 Nov. 16-19	INFORMS 2014, San Francisco

### **WWW Conference Listings**

CORS / SCRO Conference Page: [http://www.cors.ca/en/conferences/i\\_other.php](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/>



## Industry-Academic Workshop on Optimization in Finance and Risk Management

**Dates:** October 3-4, 2011

**Location:** Fields Institute, Toronto, Ontario

**Web-site:** <http://www.optimization-in-finance.ca>

**Organizers:** Antoine Deza, Matheus R. Grasselli, Thomas R. Hurd and Oleksandr Romanko

**Sponsors:** Fields Institute, Mitacs, Algorithmics Inc.

**Supporters:** PRMIA, CORS

**Workshop fee:** \$50 CAD for students/postdocs, \$100 CAD for academia/industry

The focus of this 2-day workshop is on financial and risk management optimization models that are aimed for practical implementation and use by risk managers at different financial institutions and industrial enterprises. The workshop is aimed to bridge the gap between academic research in optimization and practical financial and risk management applications of optimization techniques.

### Tentative Agenda:

- Distinguished lectures by leading academic and industrial researchers and practitioners;
- Contributed talks on recent research advances;
- Postdoctoral fellow/graduate student research poster competition;
- Panel discussion "New Trends and Challenges in Using Optimization to Improve Decision-Making in Finance and Risk Management - Industrial Perspective";
- Academia-industry connector and networking event.

### Invited Speakers:

- John R. Birge, University of Chicago
- Thomas F. Coleman, University of Waterloo
- Helmut Mausser, Algorithmics Inc.
- John M. Mulvey, Princeton University
- Robert Stubbs, Axioma Inc.
- Stan Uryasev, University of Florida and American Optimal Decisions Inc.

Submission of contributed talks and posters and workshop registration is available at <http://www.optimization-in-finance.ca>

Students/postdocs submitting a contributed talk or a poster are eligible for travel support from Fields Institute. CORS student members can also apply for travel support via CORS Graduate Student Conference Support Program.

# 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](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 the CORS GSCS Coordinator:

Fredrik Odegaard

Tel: (519) 661-4278

email: [fodegaard@ivey.uwo.ca](mailto:fodegaard@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:

Fredrik Odegaard  
CORS Education Chair  
email: [fodegaard@ivey.uwo.ca](mailto:fodegaard@ivey.uwo.ca)

## **CORS Traveling Speakers Program**

The Traveling Speakers Program (TSP) enables local sections to bring Canadian O.R. 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 \$1 000 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.

Armann Ingolfsson  
CORS TSP Coordinator  
Tel: (780) 492- 7982  
Email: [armann.ingolfsson@ualberta.ca](mailto:armann.ingolfsson@ualberta.ca)

## THE NEXT ISSUE

The next issue of the Bulletin is scheduled to appear at the end of October. Apart from the regular features and news from the local sections, it will have information about the next CORS conference. Contributions to this issue, especially news on the activities of local sections or CORS Members should be submitted by **October 17, 2011 to:**

Chirag Surti  
Editor, CORS-SCRO Bulletin  
Faculty of Business and Information Technology  
University of Ontario Institute of Technology  
2000 Simcoe St. N, Oshawa, ON L1H 7K4  
PH: (905) 721-8668 x 2341  
FX: (905) 721-3167  
E-mail: [chirag.surti@uoit.ca](mailto:chirag.surti@uoit.ca)

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

## 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, email Wendy L. Caron, CORS Membership Services at [caronwendyl@symptico.ca](mailto:caronwendyl@symptico.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 O.R. 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 O.R.

**Harold Larnder Memorial Award** to an individual who has achieved international distinction in O.R.

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

**Practice Prize** for the challenging application of the O.R. 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 O.R. through the development of methodology or to another field through the application of O.R.

**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 O.R. 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](http://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 \$75 Retired Member \$37.50 Student Member \$35

**Web site:** <http://www.cors.ca>

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

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