



CORS • SCRO

Canadian Operational Research Society  
Société canadienne de recherche opérationnelle

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## TABLE OF CONTENTS

## PAGE

In This Issue	2
CORS Council 2020–2021	3
CORS SIG, Section, and Chapter Presidents	3
President’s Message	4
CORS Annual Conference	5
Canadian Healthcare Optimization Workshop	7
Call for Nominations 2021–2022 CORS Council	8
2020 CORS Awards	9
2020 Harold Larnder Prize Winner: Anna Nagurney	9
2020 Award of Merit Winner: David Stanford	11
2020 Omond Solandt Award Winner: Canadian Tire	12
Announcements	12
2021 Eldon Gunn Service Award	13
2021 Practice Prize Competition	14
2021 Student Paper Competition	15
CORS Funding Opportunities	17
Graduate Student Funding: Annual Conference	17
Traveling Speakers Program	17
Special Interest Groups (SIGs)	18
SIG News	19
Forestry	19
Health Care Operational Research	21
Queueing Theory	22
Section and Chapter News	23
Meetings and Conferences	24
The Next Issue	25
CORS Bulletin Policies	25
About CORS	26

## IN THIS ISSUE

Dear CORS members,

Firstly, Michael Pavlin gets things started with a bright and optimistic look both forwards and backwards for CORS this year in his president's message.

Next, you'll find lots of details about the first ever virtual CORS annual conference. The conference chairs have been hard at work, adapting to the circumstances to bring you a truly great experience in 2021.

The call for nominations for 2021-2022 council positions is open. Nominations for Vice President and two-year term councillors are due by March 12.

Lastly, our 2020 CORS award winners are all featured with fantastic write ups about their contributions to CORS and OR.

Cheers,

Andrea

<u>Bulletin Editor</u>	Andrea Friars
<u>Elected Officers</u>	
President	Michael Pavlin
Vice-President	Jules Comeau
Past-President	Stanko Dimitrov
Secretary	Marco Bijvank
Treasurer	Gregory Paradis
Councillors	Erdem Coskun (19–21) Sonia Vanderby (20–21) Samira Abbasgholizadeh Rahimi (20–22) Majid Taghavi (20–22)
<u>Standing Committees</u>	
Awards	Jules Comeau, Majid Taghavi, Erdem Coskun
Education	Anjali Awasthi
Membership	Sonia Vanderby
Program	Jules Comeau, Fredrik Ødegaard, Fatma Gzara, Timothy Chan
Public Relations	Michael Pavlin
Publications	Samir Elhedhli, Elkafi Hassini, Andrea Friars
SIG Relations	Jules Comeau, Samira Abbasgholizadeh Rahimi, Erdem Coskun
Section Relations	Jules Comeau, Samira Abbasgholizadeh Rahimi, Gregory Paradis
Past Presidents Advisory Board	Michael Pavlin, Stanko Dimitrov
<u>Ad hoc Committees</u>	
Practice Prize	Mikael Rönnqvist
Award of Merit	Stanko Dimitrov, Mahmut Parlar, Mikael Rönnqvist, David Stanford
Student Paper Competition	Tamon Stephen, Anjali Awasthi
Financial Planning	Gregory Paradis, Stanko Dimitrov, Michael Pavlin, Jules Comeau
Industry	Michael Pavlin
Nominating	Stanko Dimitrov
INFOR Co-Editors	Samir Elhedhli, Elkafi Hassini
INFOR Administrator	Bev Rodgers
Travelling Speakers Program	Stanko Dimitrov
IFORS Representative	Marco Bijvank
Membership Services	Erla Anderson

## CORS COUNCIL 2020–2021

CORS Council consists of the officers of the society, four councillors, the immediate past president, and the standing committee chairs. Contact information for council representatives is below. See [www.cors.ca](http://www.cors.ca) for a complete listing.

President	Michael Pavlin, Wilfrid Laurier University, <a href="mailto:president@cors.ca">president@cors.ca</a>
Vice-President	Jules Comeau, Université de Moncton, <a href="mailto:vicepresident@cors.ca">vicepresident@cors.ca</a>
Secretary	Marco Bijvank, University of Calgary, <a href="mailto:secretary@cors.ca">secretary@cors.ca</a>
Treasurer	Gregory Paradis, University of British Columbia, <a href="mailto:treasurer@cors.ca">treasurer@cors.ca</a>
Past-President	Stanko Dimitrov, University of Waterloo, <a href="mailto:sdimitro@uwaterloo.ca">sdimitro@uwaterloo.ca</a>
Councillor	Erdem Coskun, Manulife / John Hancock, <a href="mailto:mehmeterdemcoskun@gmail.com">mehmeterdemcoskun@gmail.com</a>
Councillor	Sonia Vanderby, Saskatchewan Health Quality Council, <a href="mailto:soniavanderby@gmail.com">soniavanderby@gmail.com</a>
Councillor	Samira Abbasgholizadeh Rahimi, McGill University, <a href="mailto:samira.rahimi@mcgill.ca">samira.rahimi@mcgill.ca</a>
Councillor	Majid Taghavi, Saint Mary's University, <a href="mailto:Majid.Taghavi@smu.ca">Majid.Taghavi@smu.ca</a>

## 2020–2021 SIG, SECTION, & CHAPTER PRESIDENTS

Analytics SIG	Gregory Paradis, University of British Columbia, <a href="mailto:cors.analytics.sig@01101.io">cors.analytics.sig@01101.io</a>
Forestry SIG	Maha Ben Ali, École Polytechnique de Montréal, <a href="mailto:maha.ben-ali@polymtl.ca">maha.ben-ali@polymtl.ca</a>
Health Care OR SIG	Nadia Lahrichi, École Polytechnique de Montréal, <a href="mailto:nadia.lahrichi@polymtl.ca">nadia.lahrichi@polymtl.ca</a>
Queueing Theory SIG	Opher Baron, University of Toronto, <a href="mailto:Opher.Baron@rotman.utoronto.ca">Opher.Baron@rotman.utoronto.ca</a>
Atlantic	Claver Diallo, Dalhousie University, <a href="mailto:claver.diallo@dal.ca">claver.diallo@dal.ca</a>
Québec & Québec Student	Irène Abi-Zeid, Université Laval, <a href="mailto:irene.abi-zeid@osd.ulaval.ca">irene.abi-zeid@osd.ulaval.ca</a>
Montréal	Nadia Lahrichi, École Polytechnique de Montréal, <a href="mailto:nadia.lahrichi@polymtl.ca">nadia.lahrichi@polymtl.ca</a>
Ottawa	Dragos Calitoiu, Carleton University, <a href="mailto:calitoiu@math.carleton.ca">calitoiu@math.carleton.ca</a>
Kingston	Mohan Chaudhry, Royal Military College of Canada, <a href="mailto:chaudhry-ml@rmc.ca">chaudhry-ml@rmc.ca</a>
Toronto	Hassan Anis, University of Toronto, <a href="mailto:hassan.anis@mail.utoronto.ca">hassan.anis@mail.utoronto.ca</a>
Southwest Ontario	Joe Naoum-Sawaya, Western University, <a href="mailto:jnaoum-sawaya@ivey.ca">jnaoum-sawaya@ivey.ca</a>
Saskatoon	Hamed Samarghandi, University of Saskatchewan, <a href="mailto:samarghandi@edwards.usask.ca">samarghandi@edwards.usask.ca</a>
Calgary	Owen James, Associated Engineering, <a href="mailto:jameso@ae.ca">jameso@ae.ca</a>
Edmonton	Armann Ingolfsson, University of Alberta, <a href="mailto:armann.ingolfsson@ualberta.ca">armann.ingolfsson@ualberta.ca</a>
Vancouver	Currently vacant
Winnipeg	Currently vacant
Waterloo Student	Khaled Shah, University of Waterloo, <a href="mailto:khaled.mostafa.shah@uwaterloo.ca">khaled.mostafa.shah@uwaterloo.ca</a>
Montréal Student	Gabriel Vanasse, Concordia University, <a href="mailto:or.students.montreal@gmail.com">or.students.montreal@gmail.com</a>
Toronto Student	Kyle Booth, University of Toronto, <a href="mailto:kyle.booth@mail.utoronto.ca">kyle.booth@mail.utoronto.ca</a> Christopher Sun, University of Toronto, <a href="mailto:christopher.sun@mail.utoronto.ca">christopher.sun@mail.utoronto.ca</a>

## **PRESIDENT: MIKE PAVLIN**

Dear Fellow Members of CORS,

Here is to a happy and productive 2021! We are well into February; the days are getting longer and hopefully some sunshine is brightening your spirits. Spring is around the corner – literally and hopefully also as a metaphor for this pandemic. This is a fun President’s Message to write because a lot of great stuff is happening, and it is a pleasure to get to be the bringer of some of the highlights.

We just finished our annual January council meetings. This year the normal in-person meeting was replaced with a pair of virtual meetings on back-to-back Fridays. Zoom-fatigue has not slowed down this council. These meetings covered topics ranging from the minutiae of our financial position to discussions of the 2021 and 2022 conferences with the conference chairs. I am pleased to be able to say that we remain financially healthy thanks to the stewardship of previous councils and our financial management continues to improve through the work of our Treasurer Greg Paradis and Erla Anderson. Of all the reports during these meetings, the membership report was a highlight – it’s great to see that our numbers remain strong despite the pandemic.

In these meetings I always look forward to the discussion of the upcoming conference. The 2021 conference chairs Fatma Gzara and Timothy Chan are taking advantage of all that has been learnt in the past year about virtual events to painstakingly put together what is shaping up to be a masterpiece among virtual events. Among the highlights are keynotes from Susan Athey and Georgia Perakis and Harold Larnder prize winner Anna Nagurney. If your abstract hasn’t already been submitted, the deadline is February 26.

At the close of 2020, we held our New OR PhDs Micro-Event. This second microevent was chaired by Jules Comeau who did a great job of balancing a set of research talks by graduating PhD students with an insightful discussion on the academic and industry job-markets. A special thanks to the student speakers, all the attendees and the panel members Fredrik Odegaard, Peter Van Berkel and Amie Tam. I think one of the most important jobs CORS does is introduce students to the broader OR community. This event was well aligned with that goal.

This is a good opportunity to give credit to journal editors Elkafi Hassini and Samir Elhedhli for their progress improving the quality and operations of the INFOR journal. Their hard work over many years has culminated in some major successes in the past year. The impact factor has improved to 0.97 (so tempted to round it up to 1). The journal is also now listed as a B journal on the Australian Business Deans Council (ABDC) Journal Quality List, alongside Naval Research Logistics and the INFORMS Journal of Applied Analytics. At CORS we’ve known for a while that the journal is on an upward trajectory, but a little outside validation never hurts!

I’ll end this message with a last piece of happy news that just dropped into the inbox. CORS Emeritus member Gilbert Laporte has been awarded the Killam Prize by the Canada Council for the Arts. The prize announcement notes that “this distinguished program recognizes the work of active researchers who have devoted their careers to pushing the boundaries of knowledge and finding solutions to the issues we face every day.” I can’t sum up Professor Laporte’s contributions to OR and scholarship any better than that. CORS is the sum of the contributions of individuals. I’d like to thank all those that are making those contributions and encourage all to get involved and stay involved. This can mean letting us know your ideas and what we can do better. I hope to hear from you and to see you at CORS 2021!



# CORS 62<sup>nd</sup> Annual Conference

## June 7–10, 2021

The first virtual CORS annual conference is fast approaching. The conference will take place over four days, June 7-10, with most activities scheduled between 10AM and 5PM Eastern Standard Time. The conference will feature presentations, plenaries and tutorials and will provide opportunities for online networking and live interaction between attendees. We will celebrate award winners in a live awards ceremony. New this year is a hands-on workshop on neural networks and returning are CHOW and Analytics Day.

We look forward to welcoming you to a captivating virtual conference experience!

Fatma Gzara, Conference general chair  
Timothy Chan, Program chair

### PLENARIES

- Harold Lardner plenary: Anna Nagurney, University of Massachusetts, *Trade Wars: OR in the Economic Battlefields*
- Susan Athey, Stanford University
- Georgia Perakis, MIT

### TUTORIALS

- Andre Cire, University of Toronto  
*Decision Diagrams for Optimization: Theory and Application*
- Adam Elmachtoub, Columbia University  
*Contextual Optimization: Bridging Machine Learning and Operations Research*
- Phebe Vayanos, University of Southern California  
*Robust Optimization for Social Good: Fairness, Efficiency and Transparency in Social Interventions*

### LINKS

- Abstract submission - <https://uwaterloo.ca/cors2021/abstract-submission>
- Registration - <https://uwaterloo.ca/cors2021/registration>
- CHOW - <https://uwaterloo.ca/cors2021/canadian-healthcare-optimization-workshop-2021>

### IMPORTANT DATES

- Abstract submission deadline: February 26, 2021
- Confirmation of abstracts: March 19, 2021
- Registration deadline for presenters: April 9, 2021

### INQUIRIES

- Conference related inquiries: [fgzara@uwaterloo.ca](mailto:fgzara@uwaterloo.ca)
- Program related inquiries: [cors2021program@gmail.com](mailto:cors2021program@gmail.com)

## **Neural Networks for OR Professors, Researchers and Practitioners**

CORS2021 Joint Education Cluster & AI/ML Cluster Workshop co-organized by Daniel Frances (University of Toronto), Daria Terekhov (Concordia University), and Elias Khalil (University of Toronto).

Are you an OR professor, researcher or practitioner who wishes to be more up to date on machine learning? Do you feel like your students/interns know more about neural networks than you do? Have you been thinking of taking an online machine learning course but have no time? Then this workshop is for you! In two 90-minute sessions, we will teach you the fundamentals of neural networks ... and get you to implement some too!

- In the first session, Maxime Gasse will provide you with the foundations of deep learning (60 minutes), followed by a 30-minute overview of the current research directions in the field (speaker to be confirmed).
- In the second session, you can try your hand at implementing neural networks in Python, guided by instructor Maxime Gasse and several experienced teaching assistants.
- The second session is by registration only and is limited to 50 participants -- so don't delay, register today! Registrants will receive additional setup instructions closer to the event. Registration for the event is included in the registration form for the main conference. There is no additional fee.

## CHOW 2021 – Waterloo/Toronto

The Health Care Operational Research Special Interest Group (HCOR SIG) of the Canadian Operational Research Society (CORS) is excited to announce that the 4<sup>th</sup> annual Canadian Healthcare Optimization Workshop (CHOW) will be held ***virtually*** on **Monday June 7<sup>th</sup>, 2021**. The workshop brings together academics from several disciplines including operations management, management science, and artificial intelligence/machine learning. It also connects academic researchers with healthcare practitioners to discuss innovative solutions, data-driven decision support tools, and best practices to improve the efficiency and effectiveness of healthcare systems. The workshop also promotes the research of young scholars with a common interest in sharing scientific approaches to identify operational issues in the management of health services and the improvement of healthcare delivery.

For additional information, please see the conference website at <https://uwaterloo.ca/canadian-operational-research-society-conference/canadian-healthcare-optimization-workshop-2021>

This year, CHOW will feature three plenary and three technical talks designed to highlight three different methodological areas in healthcare operations: ***operations research***, ***econometric modeling***, and ***machine learning***. The plenary talks are designed to showcase prominent researchers in the field of healthcare operations that have made significant contributions to the advancement of knowledge in the area. The technical talks will feature junior academics (pre-tenure faculty members, graduate and undergraduate students, and post-doctoral fellows). All papers accepted for a technical session represent finalists in the inaugural CHOW best paper competition; the winner will be announced on the day of the conference.

The plenary sessions cover the three leading areas of healthcare operations:

- **Operations Research Plenary Speaker:** Professor Oguzhan Alagoz
- **Econometric Modeling Plenary Speaker:** Professor Anita Tucker
- **Machine Learning Plenary Speaker:** Professor Frank Rudzicz

To submit a paper to present in a technical session, please use the following email address...

[chow2021toronto@gmail.com](mailto:chow2021toronto@gmail.com)

Manuscripts, including the abstract and all references, should be less than 38 pages double-spaced (this is defined as having at most, 33 lines per page) with size 11 font and one-inch margins on all sides. The deadline for submission is **February 26, 2021**. For additional information, please feel free to contact the workshop chairs at the following emails:

Adam Diamant <[adiamant@schulich.yorku.ca](mailto:adiamant@schulich.yorku.ca)>  
Andre A. Cire <[andre.cire@utoronto.ca](mailto:andre.cire@utoronto.ca)>

# CALL FOR NOMINATIONS

## 2021–2022 CORS COUNCIL

There are three positions to fill for the 2021–2022 CORS Council. To nominate a CORS member to serve in one of these positions send their name and contact information by **March 12, 2021** to **Stanko Dimitrov**, Past President ([sdimitro@uwaterloo.ca](mailto:sdimitro@uwaterloo.ca)); please make sure your nominee is aware of the nomination. Note that self-nominations are welcomed.

For more details regarding the various positions visit: [www.cors.ca](http://www.cors.ca) in particular see the Bylaws and Administrative Handbook documents online at [www.cors.ca/?q=content/library](http://www.cors.ca/?q=content/library)

All nominees will be contacted and asked to provide a write-up for the May edition of the Bulletin.

### **Vice-President (President Elect)**

The Vice President (one-year term) assists the President, participates in special projects and ad-hoc committees through the year, and takes over the role of President at the following Annual General Meeting (AGM). Only those who have served at least one year on Council are eligible for the office of Vice-President.

### **Two Councillors (Two-year term)**

A total of four councillors sit on council and participate in the management of the society. Often, councillors are called upon to chair or serve on ad hoc or standing committees and to work on special projects.



## 2020 CORS AWARDS

### 2020 Harold Larnder Prize Winner: Anna Nagurney



Anna Nagurney is the John F. Smith Memorial Professor at the Isenberg School of Management at the University of Massachusetts Amherst and the Director of the Virtual Center for Supernetworks, which she founded in 2001. She holds ScB, AB, ScM, and PhD degrees from Brown University in Providence, RI. She is the author of 14 books, more than 200 refereed journal articles, and over 50 book chapters. She presently serves on the editorial boards of a dozen journals and two book series and is the editor of another book series.

Professor Nagurney has been a Fulbrighter twice (in Austria and Italy), was a Visiting Professor at the School of Business, Economics and Law at the University of Gothenburg in Sweden, and was a Distinguished Guest Visiting Professor at the Royal Institute of Technology (KTH) in Stockholm. She was a Visiting Fellow at All Souls College at Oxford University during the 2016 Trinity Term and a Summer Fellow at the Radcliffe Institute for Advanced Study at Harvard in 2017 and 2018. Anna has held visiting appointments at MIT and at Brown University and was a Science Fellow at the Radcliffe Institute for Advanced Study at Harvard University in 2005–2006. She has been recognized for her research on networks with the Kempe Prize from the University of Umea, the Faculty Award for Women from the US National Science Foundation, the University Medal from the University of Catania in Italy, and was elected a Fellow of the RSAI (Regional Science Association International), an INFORMS (Institute for Operations Research and the Management Sciences) Fellow, and a Network Science Society Fellow. In 2019, she became the first female recipient of the Constantin Caratheodory Prize from the International Society of Global Optimization. Anna has also been recognized with several awards for her mentorship of students and her female leadership with the WORMS Award, for example, and the Moving Spirit Award. Anna was one of 44 Women in STEM featured in the STEM Gems book as a role model for young women. Her research has garnered support from the AT&T Foundation, the Rockefeller Foundation through its Bellagio Center programs, the Institute for International Education, and the National Science Foundation. She has given plenary/keynote talks and tutorials on 5 continents. She is an active member of several professional societies, including INFORMS, POMS, and RSAI and was the Omega Rho Distinguished Lecturer in 2018 and is a 2020 IFORS Distinguished Lecturer.

Anna's research focuses on network systems from transportation and logistical ones, including supply chains, to financial, economic, social networks and their integration, along with the Internet. She studies and models complex behaviors on networks with a goal towards providing frameworks and tools for understanding their structure, performance, and resilience and has contributed to the understanding of the Braess paradox in transportation networks and the Internet. She has been researching sustainability and quality issues with applications ranging from pharmaceutical and blood supply chains to perishable food products and fast fashion,

to humanitarian logistics and disaster management. She has advanced methodological tools used in game theory, network theory, equilibrium analysis, and dynamical systems. She was a Co-PI on a multi-university NSF grant with UMass Amherst as the lead: Network Innovation Through Choice, which was part of the Future Internet Architecture (FIA) program, and she was recently a Co-PI on an NSF EAGER grant.

## **Harold Larnder Memorial Lecture**

### **Trade Wars: OR in the Economic Battlefields**

OR, from its military origins, has evolved to impact virtually every economic sector from agriculture to manufacturing to services. When it comes to war between nations, the weaponry is apparent - from flying missiles and bombs to stealth cyber weapons. The weapons of trade wars are, in contrast, economic, imposed by countries on products produced by other countries. Powerful trade war weapons used by governments include tariffs, quotas or combination thereof, known as tariff rate quotas. They affect not only the prices that you and I pay for our favorite foods such as avocados, cheeses, and maple syrup but even their quality!

Global supply chains are the networks that enable fresh produce year-round, smart phones at our fingertips, the latest fashions on demand, household appliances that we have come to depend on, and raw materials for crucial manufacturing processes. The resulting trade flows from origins to consumption are essential to the prosperity of nations and to the well-being of their citizenry.

Game theory allows us to quantify the effects of decisions of one adversary (or competitor) on others and has a long history of being applied by the military during war games; used by businesses to determine strategy, and now central to the understanding of the effects of trade wars. Proper use of game theory can quantify a priori what the impacts of trade barriers will be on producers (both domestic and foreign), on consumers, and on governments. In addition, using game theory, embedded with algorithms, different scenarios and responses of governments, such as the tightening or loosening up of trade barriers, can be simulated. The need for such a framework is extremely relevant given the prevalence of tariffs and quotas in the news, with the coupled uncertainty.

In this talk, I will discuss how OR is contributing to the methodological arsenal for the analysis of trade wars. In particular, I will describe recent modeling and algorithmic research and advances motivated by various economic trade policies that have been imposed on a spectrum of products by various countries across the globe. I will present both perfectly competitive and oligopolistic supply chain network models and associated applications, focusing on food, as well as food quality, and demonstrate who benefits and who loses under a spectrum of trade policies.

## 2020 Award of Merit Winner: David Stanford

Dear Colleagues,

The Award of Merit acknowledges significant contributions of a current or past member of CORS to the profession of operational research (OR). These contributions may include but are not limited to practice of OR, theoretical development of OR, supervision and development other people in OR, promotion of OR and service to CORS. And our 2020 recipient of the Award of Merit, Professor David Stanford from University of Western Ontario, checks each and every box for these contributions.

Professor Stanford obtained his PhD from Carleton University in 1981. His areas of research interest are quite diverse, with particular emphasis in applied probability, insurance risk/ruin theory, stochastic processes, forestry, and of course, queueing theory. Dr. Stanford has published approximately 100 articles in a broad range of peer-reviewed academic journals, including Operations Research and Queueing Systems. He has supervised many graduate students and postdocs over his career, some of whom are prominent OR academics.

Over the course of the last decade or so, David has been a strong advocate of applying queueing theoretic techniques to real-world problems in healthcare, such as emergency department wait times and organ donor priority lists. His work has generated great interest from those working in queueing theory and healthcare modelling as well as media. For example, one of his publications in Queueing System from 2014 (“Waiting time distributions in the accumulating priority queue”) is one of the most popular papers from Queueing Systems with over 6000 downloads.

Dr. Stanford has been an important and esteemed member within the queueing and OR community in Canada. He is a long-standing CORS member who has served CORS and the OR profession in great capacity over the decades. Professor Stanford was the president of CORS in 1995, received the CORS Service Award in 1997 and the CORS Practice Prize in 2017. He gave a keynote at IFORS 2017 in Quebec City. He served the CORS journal, INFOR, as a guest editor and as associate editor. He also took on the role of program chair for the CORS Annual Conference in 1999.

Please join me in congratulating Dr. David Stanford for this important and well-deserved recognition.

Mehmet A. Begen



## 2020 Omond Solandt Award Winner: Canadian Tire

Established nearly 100 years ago, Canadian Tire is an iconic Canadian retailer, shopped by more than 3 million customers every week. Canadian Tire Corporation (CTC) operates the largest supply chain network in Canada with a vast array of vendors, suppliers and retail stores across all its banners.

CTC's Operational Research Supply Chain team has tackled strategic, tactical and operational optimization challenges for the past 15 years. Decision optimization tools manage SKU deployment decisions and daily scheduling of pickups and deliveries to more than 500 stores. With this early success, the use of OR and machine learning has expanded across the company, with teams now supporting marketing, loyalty, forecasting, and in-store operations across all CTC banners.

Over the years, CTC has collaborated with academia through NSERC, Capstone MIE, and guest lectures to continue to learn from and inspire the next generation of OR practitioners.

## ANNOUNCEMENTS

### CORS Membership

Membership fees for **April 1, 2021 to March 31, 2022** are due. Invoices were emailed to members in January. You may be able to use an NSERC grant to pay dues.

Renew your membership at ([http://www.cors.ca/sites/cors\\_php/en/membership/renewal.php](http://www.cors.ca/sites/cors_php/en/membership/renewal.php))

If you have questions, contact Membership Services at [members@cors.ca](mailto:members@cors.ca)

### Access the INFOR Journal

Current members receive an email message from Taylor and Francis with instructions to access the INFOR Journal.

If you have questions, contact Membership Services at [members@cors.ca](mailto:members@cors.ca)

## 2021 ELDON GUNN SERVICE AWARD: CALL FOR NOMINATIONS

The Eldon Gunn Service Award is presented to Members of the Society who have made outstanding contributions of time and service to the Society, at the national or local level, as conference organisers or as editors of CORS publications. Eldon Gunn was a major contributor to the Society since the early 1980s and to operational research in Canada since the 1970s. He was one of the first recipients of the service award in 1987 after serving in Council and acting as conference chair for the 27<sup>th</sup> CORS Annual Conference in Halifax in 1985. He went on to serve as president of the Society in 1991 and continued his service with passion up until his passing in 2016.

If you know of anyone who has dedicated their time to CORS and who has a longstanding service record, please consider nominating him or her for the Eldon Gunn Service Award. CORS Council urges all local sections to consider and nominate their best candidates. Nominations should include the candidate's name, activities, positions and corresponding years of service. The Awards Committee will evaluate the submissions and bring forward potential recipients to Council for approval. Nominees will be evaluated based on a point system. As a guideline, winners should have 2000 or more points. Previous winners are not eligible for additional service awards. A list of past recipients can be found at [www.cors.ca](http://www.cors.ca)

Please submit nominations by **March 6, 2021** to:  
**Jules Comeau**, Awards Committee Chair ([vicepresident@cors.ca](mailto:vicepresident@cors.ca))

### POINT SYSTEM

<b>Responsibility</b>	<b>Points</b>	<b>Responsibility</b>	<b>Points</b>
<b>CORS Council</b>		<b>Publications</b>	
President	500	Bulletin Editor	200
Vice-President	350	INFOR Editor	350
Secretary	300	INFOR Special Issue	250
Treasurer	300	Others	150
Councillor	250		
Appointed Member	200	<b>Local Council</b>	
Past-President	250	President	250
		Vice-President	175
<b>International Conference</b>		Secretary	150
Conference Chair	350	Treasurer	150
Committee Chair	300	Others	100
Committee Member	200	Past-President	100
<b>National Conference</b>			
Conference Chair	300		
Committee Chair	250		
Committee Member	200		

## 2021 PRACTICE PRIZE COMPETITION

The Practice Prize Competition recognizes the outstanding application of OR by practitioners in Canada and it attracts quality papers to the CORS Annual Conference.

**Award:** The Prize Committee will determine, at its discretion, First, Second and Honourable Mention awards and the distribution of up to \$1800 in prize money according to the extent to which the finalists have reported on a completed, practical application with results that had a significant, verifiable and (preferably) quantifiable impact on the performance of the client organization. Every member of the winning teams receives a certificate.

**Eligibility:** The applicant must be a resident of Canada. The submission must include work completed over the last two years, but the entire project may have taken place over a longer period. The project may include published work, but it cannot have been previously submitted to this competition.

### Application Instructions:

**By March 8, 2021** submit e-copies of the following to Mikael Rönnqvist, Committee Chair ([mikael.ronnqvist@gmc.ulaval.ca](mailto:mikael.ronnqvist@gmc.ulaval.ca)):

1. An abstract, not exceeding 500 words, outlining the successful application of OR;
2. A letter from an executive of the client organization attesting that the application had an impact and giving permission for the project to be presented at the CORS Annual Conference;
3. The names, titles, phone numbers and email addresses of all authors and of at least one executive of the client organization.

**By March 29, 2021** the judging committee will select up to four finalists according to these criteria:

1. The challenge of the application of OR and the significance of the problem.
2. The quality of the analysis and modeling, and implementation of the results.
3. The impact on the client organization.

**By May 10, 2021** the finalists must:

1. Submit a detailed written report, not exceeding 25 pages in the body, presenting a "case history" of the project describing its development from start to finish and focussing on the challenges and results.
2. Submit a one-page project summary including key messages and best practices, suitable for publication in the CORS Bulletin and on the CORS website.
3. Present the project at the Practice Prize Sessions at the CORS Annual Conference.

**On the basis of the written report and the oral presentation, the judges will determine the prizes to be awarded and announced at the banquet. The committee reserves the right not to award any prize.**

## 2021 STUDENT PAPER COMPETITION

### Description:

Each year CORS conducts a student paper competition to recognize the contribution of a paper either directly to the field of operational research through the development of methodology or to another field through the application of operational research. The competition serves to showcase the high quality of OR education in Canada as well as the excellence of the new generation of operational researchers. Prizes are awarded in two categories: Undergraduate and Open.

### Requirements:

The applicant must be enrolled as a full-time student in a Canadian institution, in an undergraduate, masters, or PhD program during the school year 2020–2021. Canadians who are studying outside of Canada are also eligible. Papers where all applicants are undergraduates may be submitted to either category: Open or Undergraduate, but not to both. Papers where some authors are graduate students must be submitted to the Open category. MBA students (and other specialized master students) need to submit to the Open category with their applied projects. Published papers are eligible for the competition only if their initial submission date (for publication) is after the previous year's CORS Annual Conference.

### Instructions:

#### Open Category

Chair: Tamon Stephen

Application deadline: **April 1, 2021**

Fill out the online application form (<https://cors.ca/?q=content/student-paper-competition>). The form is automatically submitted to the Chair of the competition.

#### Undergraduate Category

Chair: Anjali Awasthi

Deadline to indicate your intent to participate: **March 1, 2021**

Submit your intent to participate by sending an email with the title and abstract to [spc@cors.ca](mailto:spc@cors.ca). Fill out the online application form (<https://cors.ca/?q=content/student-paper-competition>). The form is automatically submitted to the Chair of the competition.

Deadline to submit your full paper: **April 1, 2021**

## 2021 STUDENT PAPER COMPETITION

### The entry includes:

1. Abstract of 200 words or less. Author's name, address, phone number, and email address. Make sure the abstract clearly highlights the motivation, contribution, and potential impact of the paper.
2. Academic institution and supervisor's name, if applicable.
3. Indication of whether the team is planning to attend the CORS Annual Conference if selected as Finalists. Note that papers selected as Finalists must be presented at the conference in order to further be considered for First Prize or Honourable Mention.
4. A PDF copy of the paper:
  - No longer than 35 pages (with minimum 1-inch margins, maximum 34 lines per page, and minimum font size of Times 11) including all figures, tables, appendices, and references.
  - With separate title page containing the name of the authors, their coordinates and affiliations. Please ensure there are no identifiers on the other pages.
5. An email from the supervisor indicating that the participant is the first author of the paper should be sent to the Competition Chair.

### Selection Criteria:

- Contribution of the paper either directly to the field of operational research through the development of methodology or to another field through the application of operational research
- Originality
- Writing style, clarity, organization, and conciseness of the paper

### Awards:

- Prizes are awarded per paper. Cheques are sent to the first authors (unless otherwise specified), and allocation of prize money is up to the co-authors.
- Open Category: First Prize \$500, Honourable Mention \$100. One award per team.
- Undergraduate Category: First Prize \$200, Honourable Mention \$50. One award per team.
- All papers selected as Finalists receive a certificate.
- If an undergraduate student wins the open competition, no undergraduate prize will be awarded. Honourable mentions will be provided if there is no winner.
- Finalists selected for the undergraduate category will be eligible to apply for partial funding to attend the CORS Annual Conference. The Education Chair will contact finalists with details. All competitors should apply for CORS student funding by the deadline, in case they become a finalist at (<https://cors.ca/?q=content/graduate-student-funding>).



## CORS FUNDING OPPORTUNITIES

### GRADUATE STUDENT FUNDING: ANNUAL CONFERENCE

CORS funds graduate students attending the CORS Annual Conference, using funds from SSHRC, when available. This funding is subject to availability and the following eligibility criteria:

- Student is a member of CORS, enrolled in a graduate program in a field related to operational research, studying at a Canadian university, or student is a Canadian citizen or permanent resident studying abroad
- Student must attend the CORS Annual Conference and present their registration receipt to receive any funding

The following criteria will be used to determine the amount awarded to each eligible applicant:

- If the applicant is presenting a paper at the conference.
- Travel cost from student's home city to the conference.

The application deadline is **March 31, 2021**

**Anjali Awasthi**, Education Chair ([anjali.awasthi@concordia.ca](mailto:anjali.awasthi@concordia.ca))

### TRAVELING SPEAKERS PROGRAM (TSP)

The 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 form (<http://www.cors.ca/?q=content/traveling-speakers-program>).

**Stanko Dimitrov**, TSP Coordinator ([sdimitro@uwaterloo.ca](mailto:sdimitro@uwaterloo.ca))



## CORS SPECIAL INTEREST GROUPS

CORS Council 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.

### **Analytics SIG**

Gregory Paradis ([cors.analytics.sig@01101.io](mailto:cors.analytics.sig@01101.io))  
University of British Columbia  
[www.cors.ca/SIG/Analytics](http://www.cors.ca/SIG/Analytics)

### **Forestry SIG**

Maha Ben Ali ([maha.ben-ali@polymtl.ca](mailto:maha.ben-ali@polymtl.ca))  
École Polytechnique de Montréal  
[www.cors.ca/SIG/Forestry](http://www.cors.ca/SIG/Forestry)

### **Health Care Operational Research SIG**

Nadia Lahrichi ([nadia.lahrichi@polymtl.ca](mailto:nadia.lahrichi@polymtl.ca))  
École Polytechnique de Montréal  
[www.cors.ca/SIG/HCOR](http://www.cors.ca/SIG/HCOR)

### **Queueing Theory SIG**

Opher Baron ([Opher.Baron@rotman.utoronto.ca](mailto:Opher.Baron@rotman.utoronto.ca))  
University of Toronto  
[www.cors.ca/SIG/Queueing](http://www.cors.ca/SIG/Queueing)

If you would like to join a SIG, contact the people listed above, or 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 [www.cors.ca/?q=content/communities](http://www.cors.ca/?q=content/communities)

If you are interested in forming a SIG in a particular area, contact:

**Jules Comeau**, SIG Committee Chair ([vicepresident@cors.ca](mailto:vicepresident@cors.ca))

## SIG NEWS

### FORESTRY SIG

#### **Prof. Mikael Rönnqvist has been appointed honorary doctor**

We are delighted to inform you that Mikael Rönnqvist has been appointed honorary doctor at the Faculty of Forest Science at the Swedish University of Agricultural Sciences (SUL) for his remarkable contribution to the forest industry and research.

For more details:

Faculty of Science and Engineering (Université Laval):

<https://www.fsg.ulaval.ca/faculte/actualites/un-doctorat-honorifique-pour-mikael-roennqvist-3647/>

SLU: <https://www.slu.se/en/about-slu/academic-ceremonies/honorary-doctors-lectures/honorary-doctors-2020/mikael-ronnqvist/>

Researcher profile: <https://www.gmc.ulaval.ca/departement-et-professeurs/professeurs-et-personnel/professeurs/fiche/show/roennqvist-mikael/>

**Congratulations Mikael!**

#### **Prof. David Martell has received the 2020 Ember Award for Excellence in Wildland Fire Science**

We are pleased to inform Professor Emeritus David Martell has received the 2020 Ember Award for Excellence in Wildland Fire Science from the International Association of Wildland Fire.

For more details: <https://www.utoronto.ca/celebrates/david-martell-receives-2020-ember-award-excellence-wildland-fire-science>

Researcher profile: <https://academic.daniels.utoronto.ca/forestry/martell-d-l/>

**Congratulations Dave!**

## **7<sup>th</sup> David Martell Student Paper Prize in Forestry**

The David Martell Student Paper Prize in Forestry (DMSPPF) recognizes outstanding scientific contributions on the theory, methodology, and/or practice of OR in forestry by an undergraduate, a graduate student, or a postdoctoral. The competition is for the best student paper submitted, published, or accepted for publication in a peer-reviewed journal in the two years before the year of the competition. The award was named in honor of Professor Martell for his outstanding contributions to the development and application of OR in forestry in Canada and beyond as well as for his many contributions to the CORS Society. (FSIG bylaw articles 8a, 8b, and 8c)

Here are some important dates:

Paper submission deadline: **March 31, 2021**

Announcement of finalists: **April 30, 2021**

Presentation of the finalist papers at the CORS annual conference: **June 7–10, 2021** (the precise date will be announced later).

You are all encouraged to submit your papers.  
Please, send your paper by e-mail to: [maha.ben-ali@polymtl.ca](mailto:maha.ben-ali@polymtl.ca)

To be eligible to participate in the competition, you must satisfy bylaw articles 8c, 8d, 8e, and 8g:

8c) The competition is for the best student paper submitted, published or accepted for publication in a peer-reviewed journal in the two years before the year of the competition.

8d) At the time the paper was written, applicants should have been an undergraduate, a graduate student or a postdoctoral at a Canadian university or a Canadian studying in a university outside of Canada.

8e) No paper can be submitted more than once.

8g) (...) The finalists must be prepared to present their work in a special session at the annual conference (...)

We strongly encourage CORS members and FSIG members to submit their papers for this well-recognized competition.

## HEALTH CARE OPERATIONAL RESEARCH SIG

### Student Presentation Prize

The CORS Health Care Operational Research SIG oral presentation competition for graduate students emphasizes the importance of presentation skills and provides an opportunity for students to receive formal feedback, learn best practices from their peers, and be recognized for excellence in this area.

The goal is to have students demonstrate mastery of coherent and engaging presentations describing a completed research project on a significant healthcare topic within a five-minute time limit.

The competition will involve self-videotaped presentation submissions judged on the presentation quality and quality of the research.

Judge-chosen finalists will be invited to present their presentation at the 2021 CORS Annual Conference (June 7 to 10).

The deadline for self-videotaped presentations is **April 1, 2021**

The announcement of finalists is expected by **April 30, 2021**

The link to access the self-videotaped presentation should be submitted by email to [valerie.3.belanger@hec.ca](mailto:valerie.3.belanger@hec.ca)

Further information will be available on the website at <http://www.cors.ca/SIG/HCOR>

## QUEUEING THEORY SIG

### 9<sup>th</sup> Annual Student Prize Competition

The CORS Queueing Special Interest Group (SIG) is pleased to announce the ninth annual student prize competition, to be awarded at the CORS Annual Conference.

**The submission deadline for this year's competition is extended to February 28, 2021**

Please send your submission to selection committee chair Dr. Vahid Sarhangian ([sarhangian@mie.utoronto.ca](mailto:sarhangian@mie.utoronto.ca)).

#### Instructions:

Students should submit a copy of their paper, plus a letter from their supervisor attesting to their pivotal role and contributions to the results.

#### Requirements:

The competition is for the best student-led paper submitted to a refereed publication, either a journal or the proceedings of a conference. Papers entered in the competition must have already been submitted by December 31, 2020. Papers do not need to be published at the time of submission; however, a letter indicating acceptance or soliciting a revision may be submitted along with the paper, as supplementary evidence of its merit. Papers that have appeared in print prior to 2020 will not be considered. A student may submit only one paper for consideration in any year.

#### Eligibility:

Eligibility is restricted to: (i) full-time students (either at a Canadian institution or a Canadian studying outside of Canada) in good standing who do not yet hold their degree on the application deadline and (ii) students who are not previous recipients of a CORS Queueing SIG student prize.

**Application deadline: Extended to February 28, 2021**

#### Judging:

Work will be judged by a three-member committee: Dr. Yichuan Daniel Ding, Dr. Rouba Ibrahim, and Dr. Vahid Sarhangian (chair).

All applications and questions should be sent to [sarhangian@mie.utoronto.ca](mailto:sarhangian@mie.utoronto.ca)

## CanQueue 2021

The CanQueue 2021 conference will be in Montreal on August 13 and 14. It will be hosted by GERAD and the Management Science Research Center at McGill University.

This will be the 23<sup>rd</sup> annual meeting of the series of Canadian workshops on the theory of queues and their applications, and the first one held in Montreal. These workshops emphasize presentations of ongoing research by graduate students.

A formal call for presentations will be sent out in the spring. Until then, we encourage you to save the date.

At this point, we are hoping that we can have an in-person meeting, but if it becomes necessary to consider a remote format, then we will do so.

CanQueue 2021 Conference Chairs:

Daniel Ding, McGill University, [Daniel.ding@mcgill.ca](mailto:Daniel.ding@mcgill.ca)

Armann Ingolfsson, University of Alberta, [armann.ingolfsson@ualberta.ca](mailto:armann.ingolfsson@ualberta.ca)

## SECTION AND CHAPTER NEWS

### SASKATOON

The Saskatoon Section had two presentations as follows:

November 4, 2020

*Risk and Life Cycle Cost-Based Asset Management Framework for Municipal Infrastructure*

Dr. Golam Kabir

December 8, 2020

*Improving Stroke Routing Protocol Using Data-Driven Optimization Framework*

Dr. Amir Ardestani-Jaafari

Both presentations were online.



## MEETINGS AND CONFERENCES

### CORS Business Meetings

Jun 10, 2020	Council Meeting, Teleconference
Sep 18, 2020	Council Meeting, Teleconference
Nov 20, 2020	Council Meeting, Teleconference
Jan 22, 2021	Council Meeting, Teleconference
Jan 29, 2021	Council Meeting, Teleconference
Mar 19, 2021	Council Meeting, Teleconference
May 7, 2021	Financial Planning Committee Meeting
Jun 7–10, 2021	Council Meeting (Conference)
	Council Meeting (Conference with SIGs, Sections, Chapters)
	CORS AGM (Conference)

### CORS Annual Conferences

Jun 7–10, 2021	Annual Conference, virtual format
Date TBA 2022	Annual Conference joint with INFORMS International, Vancouver, B.C.

### WWW Conference Listings

CORS: [www.cors.ca/?q=content/cors-annual-conferences](http://www.cors.ca/?q=content/cors-annual-conferences)

INFORMS: <https://www.informs.org/Meetings-Conferences>

IFORS: [www.ifors.org/web](http://www.ifors.org/web)

Netlib Conference Database: <ftp://ftp.cc.ac.cn/netlib/confdb/Conferences.html>

SIAM: [www.siam.org/meetings/calendar.php](http://www.siam.org/meetings/calendar.php)

POMS: <https://pomsmeetings.org>

EURO: [www.euro-online.org/web/pages/460/calendar](http://www.euro-online.org/web/pages/460/calendar)



## THE NEXT ISSUE

The next issue of the Bulletin will be published in **May**. Along with regular features and news from local sections, this issue will include up-to-date information on the virtual Annual Conference. Contributions to this issue, especially news on the activities of local sections or CORS members, should be submitted by **April 23, 2021** to:

Andrea Friars  
Editor, CORS Bulletin  
Email: [AndreaFriars@gmail.com](mailto:AndreaFriars@gmail.com)

The preferred method of submission is by an MS Word attachment to an email.

## 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 Mailing List. Direct inquiries to the Editor.

## CORS MAILING LIST

As a benefit of membership, members may use the CORS Mailing List 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 Mailing List is not used for commercial purposes, and all messages are vetted before they are sent out. To submit items to the Mailing List, email CORS Membership Services at [members@cors.ca](mailto:members@cors.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.

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 an award ceremony, occasionally organized jointly with an international society (IFORS, INFORMS), and numerous local events organized by local sections.

**Local Sections & Chapters:** CORS has twelve local sections located throughout Canada and four student chapters.

**Awards and Prizes:** CORS presents the following annual awards and prizes at its conference:

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

**Harold Larnder 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.

**Eldon Gunn 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 its conference 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 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 and join online by credit card using the form found under membership 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 \$45 (including post-doctoral fellows)

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

**INFOR:** [www.tandfonline.com/loi/tinf20](http://www.tandfonline.com/loi/tinf20)

**LinkedIn:** [www.linkedin.com/company/canadian-operational-research-society](http://www.linkedin.com/company/canadian-operational-research-society)

**Twitter:** @CORS\_President