



# CORS TIMES

W E L C O M E T O E D M O N T O N

## Today's CORS Events

### Plenary & Public Lecture

**Data** by Nando de Freitas, University of British Columbia | @ 9:00

**Mathematics and Counterterrorism: How Terrorists Can Use Mathematics to Build Cells That Are Provably the Most Difficult for Law Enforcement to Disrupt** by Dr. Jonathan D. Farley, | @ 17:30

### Tutorials & Workshops

**Teaching Operational Research** by Peter Bell | @ 10:30 @ Salon 5

**Column Generation** by Guy Desaulniers | @ 1:30 @ Salon 5

**Benders Decomposition** by Jean-François Cordeau | @ 3:15 @ Salon 5

### CORS Meetings

**CORS Constitution** | @ 1:30 @ Salon 19

### Social Events

**Student Social** | @ 19:00 @ Grant MacEwan Residence



Edmonton looking south across the North Saskatchewan River.

([Vahid Zahedzadeh](#))



**MITACS and OR** – MITACS CEO Arvind Gupta speaks with Editors Mohammad Delasay and Amir Rastpour

#### What is MITACS' mission?

Originally, the idea was to figure out mechanisms for practicing mathematicians in our universities to interact with each other, to breakdown the silo between academia and industry, for mathematics. And the impetus for that was that our students didn't have a lot of different job opportunities, especially in Canada. So if we could figure out how to interact with society, the hope is that they would want to hire our students. As we developed MITACS we realized that the problem that we were seeing with mathematics was not isolated. It cuts across almost all the university disciplines, and you can't really solve it in isolation. We then expanded our mission to start developing programs where we could get university professors and students to interact with society broadly, because that's what we believe is the right way to help university.

#### Where did the idea of holding a joint MITACS/CORS meeting come from?

I think that 20% of MITACS's projects are

directly in OR. And if we consider the broader definition of optimization, I'd say that 50% of MITACS are in OR. There is a big overlap. Also, I've been a proponent of CORS looking outside the big OR areas into new and emerging areas like techniques in continuous optimization, dynamical systems, artificial intelligence. It's slowly happening, but if I go to INFORMS I see it a little bit more than I see at CORS. Hopefully people here will come to some of the talks that MITACS has and see those relationships. The flip side is that MITACS will finish its major funding in 2012. But I think that combinatorics, discrete math, and OR are big strengths in this country, and if that community could come together and build something like its own MITACS there would be huge benefits.

#### In your opinion, what are the main barriers for OR students entering industry?

I think that OR has a slightly easier time than other areas in mathematics because it is much easier to explain to industry the benefits of optimization. But still the main thing I see,

## From the Editors

We would like to welcome you to Edmonton for the 52nd Annual Conference of CORS held jointly with the MITACS Conference. CORS Times was established to help provide context for the 50th anniversary of CORS during the 2008's annual conference. The continuing positive response from the members to the newsletter prompted us to keep it going.

CORS Times will also be providing coverage of the CORS events and competitions at this conference. We hope that you have a great stay in Edmonton and enjoy the joint conference.

## INTERVIEW WITH ARVIND GUPTA CONT'D

especially in Canada, is that companies do not necessarily want to develop new techniques. They want short-term solutions to problems. I think in some sense the real challenge for OR is how to develop a culture in the industry where they understand that by doing new things and seeing problems in new ways they might get much better solutions, even though it takes a longer time.

For example, financial optimization should be a very interesting thing to OR, and we have such big banks in Canada. But for the most part they buy their research from the big US or European banks. They don't do as much research in Canada as one would hope. The question to answer for banks is: why would they do the research themselves instead of buying it from someone else? And the advantage is that you developed the solution and you have a tool that a) makes you more efficient, since it was developed for you, and b) you can sell. You now have expertise that you can market. And this is something that I think is a little foreign to Canadian companies; that it is actually useful to have people with certain types of expertise in the company.

#### **What are your recommendations for students who want to get closer to the industry?**

One thing that many people said to me 10 years ago is that our professors and our students are not interested in talking to the industry, and vice-versa. I found both are false. It looks like they're not interested because they don't know how to find the right partners. We have to recognize that it's very hard for them to do it. Canada is a big place. So if you have a company here in Edmonton whose best academic partner would be at Queen's, how would they find each other? If you are in Silicon Valley, you have 10 universities close by and you can find people very quickly. That's

the first thing: you have to create mechanisms for people to find each other. The second thing is that we have to make the business case for these interactions, both for professors and for companies. Professors have to see that by working with the industry they can find really intellectually challenging problems. Companies have to see that doing research is going to help them make profits. We need to work on this. And we've spent so much time not doing it, that now it's going to take us time to fix it.

#### **What programs does MITACS offer to graduate students?**

I'd argue that most of our programs are for graduate students. The big one that will hopefully survive beyond MITACS is our graduate internship program, where we research problems from companies and students work on them, I'd say usually  $\frac{3}{4}$  of the time towards their theses. We have a whole team of professional people who go to companies and find these kinds of problems, which I think is something really unique in the world. We have about 1000 of those every year across the country.

This morning there was a STEP workshop, which is a new program designed to expand professional skills for graduate students, so that they satisfy industry needs. We're also launching a new post-doc program. Currently we have a problem in this country that we are graduating far more PhD students than are jobs in universities. Our strategy so far has been to create post-docs. We have about 5000 post-docs, 1800 faculty positions, and we'll graduate another 4000 students this year. We have to create alternative career paths for students. In our new post-doc program we introduce post-docs to companies, so that they have two possible career paths: either academia or industry. We also have other smaller programs such as summer schools and mobility funds for student travel.

## What's good nearby?

### ARTS DISTRICT

Centred on Churchill Square, this area is located just two blocks north west of the Shaw Conference Centre. Around the square you will find City Hall, the newly renovated Art Gallery of Alberta, the Winspear Centre, Citadel Theatre, Edmonton Public Library and City Centre mall (home to CBC Edmonton).

### RIVER VALLEY

The River Valley forms a "Ribbon of Green" that winds its way along the North Saskatchewan River and through the heart of the city, featuring natural areas, paved and natural trails and amenities. The closest access to the River Valley is right across the street from the Shaw Conference Centre, through Louise McKinney Park.

### OLD STRATHCONA

An historic district located on the south side of the North Saskatchewan River, Old Strathcona is home to many shops, live theatre, repertoire cinema, restaurants and bars along with is a year-round farmer's market on Saturdays. The historic High Level Bridge Streetcar is in operation for the summer – you can ride it between the Alberta Legislature and Old Strathcona.

### 124TH STREET

At the west end of Jasper Avenue, this area is home to many shops, galleries and restaurants. Seven art galleries along started the Gallery Walk here in 1981 to promote both the community and art and artists.

### *OR in the Blogosphere*

*Today's Featured Blog is  
Michael Trick's Operations  
Research Blog*

*<http://mat.gsia.cmu.edu/blog/>  
He gets first mention for his post  
on the final Olympics results. It  
seems we owned 45.25% of the*

### NOTES

Vous cherchez une version française? Michael Morin et Daniel Kreeft travaillons dur pour fournir un. Il devrait sortir plus tard aujourd'hui.

Send feedback, story leads, photos or comments about the newsletter to [CORSTimes@gmail.com](mailto:CORSTimes@gmail.com)