



# CUSEC

**CUSEC 2010: GOTO 10**

Montréal, Québec

January 21-23, 2010

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# Welcome to CUSEC 2010!

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Welcome to CUSEC 2010! (And for many of you, welcome to Montreal!) We're thrilled that you joined us and we look forward to exploring software engineering over the next three days. This is the 9th iteration of CUSEC and we think we've put together another great round of speakers and events. We hope you agree.

CUSEC isn't designed to be experienced alone. Make sure to come out to our social events and trade war stories with software engineers from other schools. Don't be shy to talk to our speakers — we've instructed them to be extra friendly. Our sponsors will be hanging out during most of the conference and love to chat. And us organizers consider ourselves to be a friendly bunch as well.

We look forward to meeting you all this week.

— Andrew and Juan, your friendly CUSEC 2010 co-Chairs

## What are we talking about this year?

### CUSEC 2010: GOTO 10

*As trends in software come and go, we find ourselves returning to concepts from the past. As the popularity of cloud computing, dynamic languages and embedded devices continues to grow, we're experiencing a re-emergence of the same themes and constraints that were the norm not so long ago. It is in this context that CUSEC 2010 seeks to explore what solutions from the past can be used for the challenges of tomorrow.*



# The schedule

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## Thursday, January 21

8:30	Registration
9:30	Opening Remarks
10:00	Matt Knox
11:00	Pete Forde (Unspace) / David Turek (IBM)
13:30	Career Fair
15:00	Larry Gadea (Twitter) / Sergei Savchenko (EA)
16:30	Reg Braithwaite
18:30	Democamp
21:00	Social Mixer (Omni Lobby)

## Friday, January 22

9:00	Vince Silvestri (Evertz) / Rob Tyrie (NEXJ)
10:00	Mohammed Eid & Nazir Sakir / Doug Down
11:00	Greg Wilson
13:30	Career Fair
15:00	Mark Pavlidis / Dominic Duval
16:30	Douglas Crockford
19:00	The CUSEC Party! (Karina Lounge)

## Saturday, January 23

9:00	Leigh Honeywell / Marc-André Cournoyer
10:00	Thomas Ptacek
11:00	Dan Berry / Constantinos Constantinides
13:30	Jacqui Maher
14:30	Closing ceremony

# Things to do (other than the talks)

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Don't think you're attending CUSEC just to sit through talks — as awesome as this may be. Here are a bunch of other things that are going on during over the next three days.

## Follow the conference online

Want to follow the action online? Chat with other participants, see what's happening

<http://live.cusec.net>

We'll be collecting tweets, photos, and news about CUSEC as the conference goes on.

## The Great CUSEC Scavenger Hunt

We're proud to present the first ever CUSEC Scavenger Hunt! Form a team and try to score the most points by completing our challenges. We'll announce the rules, hand out the list of challenges, and announce the prizes at the opening.

## Hunt for a job at our Career Fair

Bring your resumé and smile and come chat with our sponsors at our Career Fair. It takes place on **Thursday and Friday from 1:30pm to 3:00pm** in the conference lobby.

## Game Studio Tours

We're excited to announce that both EA and Ubisoft have offered to do tours of their Montreal offices. Participants will be chosen on a first-come-first-serve basis — we'll announce how to sign up during our opening announcements.

# Show off your stuff at Democamp

Want to see what other students and professionals are hacking on? DemoCampCUSEC is an annual event where anyone can show off their stuff. Come back to the **Omni at Thursday at 6:30pm**.

There are only two rules for presenters:

- Rule #1: No powerpoints allowed. Why no .ppt? Well, do you have working software or don't you?
- Rule #2: Demos are not a second over 15 minutes each. Short and sweet!

Talk to us as early as possible to check if there are still slots available to present.

## IBM Case Study Programming Competition

We want to see how you can think outside the cubicle, so we've come up with a programming challenge for you to show us what you've got. **Show up to Democamp on Thursday night** to find out what the problem is, and see how much of it you can solve by the Friday night. Bring your creativity, skills, intuition, and of course your laptop! Winners will be announced Saturday during the Closing Remarks. You can get more information at the IBM booth during the career fair.

## Party!

CUSEC 2010 has two great social events lined up this year:

**Post-Democamp social mixer:** Afraid of Montreal's climate? You won't have to leave the conference centre after Democamp. At **9pm on Thursday**, we'll be hanging out in the **Omni hotel lobby**. We'll have a cash bar and entertainment set up.

**20 GOTO 10: A CUSEC Mixer:** The party that you don't want to miss. **At 7pm on Friday**, we head to Karina Lounge for our big party. We'll have free food and drinks, movies, games, and lots of nerdy jokes. Details and location are on the next page.

## Go out and see Montreal!

It's a beautiful city, folks.



20 GOTO 10 A CUSEC MIXER

BASIC ON TTY5003  
> 10 PRINT "A CUSEC MIXER";  
> 20 GOTO 10  
> RUN  
A CUSEC MIXER A CUSEC MIXER  
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FRIDAY  
JANUARY  
22<sup>nd</sup>  
7.00 PM @  
KARINA  
LOUNGE

1455-1459 Rue Crescent, North of St-Catherine  
(3rd Floor of Winston Churchill Pub Complex)

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CUSEC



# The CUSEC organizers

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CUSEC is a 100% volunteer-run event. Each and everyone on this page put in countless hours to bring you this conference. When you run into these organizers, make sure to give them a high-five.

<i>Chairs</i>	Andrew Louis Juan Musleh
<i>Speaker Team</i>	Phill Mendonça-Vieira William Hua
<i>Sponsorship Team</i>	Sven James Ahmed Ben Messaoud
<i>Logistics Team</i>	Thomas Hibbert Clara Choi Todd Ritchie

<i>Carleton University</i>	Denis Zgonjanin
<i>Concordia University</i>	Matthew Gallant Vijeta Patel
<i>École Polytechnique</i>	
<i>École de Technologie Supérieure</i>	Marc-Etienne M.Léveillé
<i>McMaster University</i>	Alex Aylwin
<i>McGill University</i>	Alex Daskalov
<i>Université Laval</i>	Chantal Bisson
<i>University of Ottawa</i>	Dan Godfrey
<i>University of Toronto</i>	Lori Lee
<i>University of Waterloo</i>	Dan Malakieh Kerryck Jones

## Advisors

Organizing a conference is tough work and we couldn't have done it without our CUSEC advisors. We thank each of the following mentors for their inspiration, advice, and experience:

- Eitan “Skrud” Levy
- John Kopanas
- Hugo Levasseur
- Neeraj Mathrani
- Abdullah Salim
- Linda Wang

# The story of CUSEC

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## CUSEC's Glorious History (the one we advertise)

In 2001, on a dark and gloomy night, a small group of passionate software engineering students from Concordia University held a private meeting on the top floor of one of Montreal's tallest buildings. Their purpose: to scheme about the future of software engineering students' education in Canada.

Not much is known of the meeting. Everyone who attended the meeting was sworn to secrecy and all the notes that were taken were burned. What is known though, is that at the end of the meeting, it was decided that starting in 2002, an annual conference would be held. This conference would bring the most passionate software engineering students from across Canada together under one roof to listen to and learn from the smartest and the greatest software engineers the world has ever seen.

During the private meeting, nothing was ever mentioned about the great events around the conference. We had no idea about the amazing new friendships and relationships you would forge over the best three days of your school year. Nothing was ever mentioned about the amazing parties held in John Kopanas' suite, which took place until the wee hours of the morning; where the attendees got the opportunity to play poker and exchange horror stories with some of our famous keynote presenters.

## CUSEC history redux (don't talk about CUSEC history)

In 2001, an undergrad (who remains nameless) attended a university technology conference as a head delegate for Concordia University. Starting out extremely excited to go but fell discouraged after the second day. While it was good to have the opportunity to meet with some of the brightest CEOs in business today, what he really wanted to do was meet with people he aspired to become; the Dave Thomases, David Heinemeier Hanssons, Kent Becks, Kathy Sierras and Joel Spolskys of the world.

He foolishly thought that it couldn't be that hard to organize a university conference that catered to people who were looking for the same things as him in a conference. After mentioning this to a few people who shared his excitement, the founding team that brought to you CUSEC 2002 was formed. The rest is history.

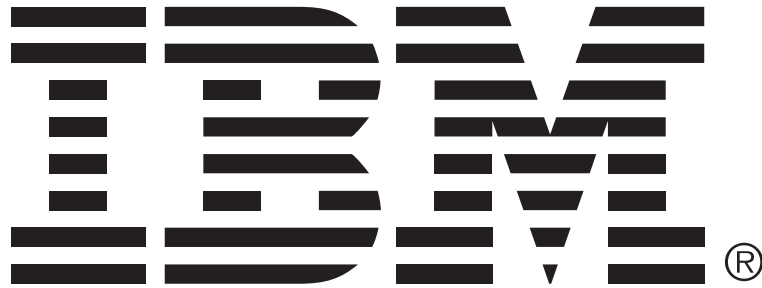
## A Little Bit From Column A, a Little Bit From Column B

Both stories have a lot of truth to them (assuming the 7th floor of Concordia University's main building was both the top floor of the building and the tallest building in Montreal). Either way, CUSEC has become what it is today because of Canadian students passion for software engineering, and nothing beats the feeling of following your passion.

# Platinum Sponsors

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On Demand Community website and, seven Canadians were among the 100 IBMers worldwide chosen to participate in the new Corporate Service Corps initiative – a program that sends employees to developing countries to assist with short-term community projects.

Our environmental efforts were also recognized last year: The IBM Canada Lab received the BOMA Go Green Plus certification for environmental performance at its software lab in Markham, which was also re-certified by the Wildlife Habitat Council for the preservation of its surrounding land; and IBM's Bromont microelectronics plant was awarded Recyc-Quebec Certificate (level 3) for its superior recycling efforts.

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For more information about the program check out our ISLDP website at [HYPERLINK "http://www.directenergy.com/isldp"](http://www.directenergy.com/isldp) [www.directenergy.com/isldp](http://www.directenergy.com/isldp), follow us on twitter (ISGradsAtDE), and search for "Direct Energy Leadership Development" on Facebook.



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Concordia University's Faculty of Engineering and Computer Science is committed to preparing its students for a professional career through the delivery of quality academic programs designed to meet today's technological

*Faculty Snapshot:*

- 3,500 undergraduate students
- 1,800 graduate students
- 123 associated support staff
- Eight undergraduate and 20 graduate programs
- Six departments and seven research centers and institutes
- 162 full-time faculty members
- Nearly 20,000 Faculty alumni worldwide



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# Keynote Addresses

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## Matthew Knox (Thursday, 10am)

Matt is currently a professional Ruby developer and instructor. He has deployed more Scheme runtime than anyone else on the planet.

## Reginald Braithwaite (Thursday, 4:30pm)

Reg is a software developer and development manager with more than twenty years of professional experience. He maintains an un-blog for programmers, and has spoken at conferences like RubyFringe, MeshU and StackOverflow's DevDays.

## Greg Wilson (Friday, 11am)

Greg Wilson is an Assistant-Professor at UofT's Department of Computer Science. In between lectures, Greg co-edited Beautiful Code, leads a Canada-wide open source project for students, and maintains a blog about software.

### **Bits of Evidence: What We Actually Know About Software Development, and Why We Believe It's True**

*By the time the Seven Years War ended in 1763, Britain had lost 1512 sailors in action, but almost 100,000 to scurvy, despite the fact that the Scottish surgeon James Lind had shown twenty years earlier that a little lemon juice every day was enough to prevent or cure the dreaded ailment. It was more than a century before medical practitioners began paying attention to controlled trials of this kind: as recently as the 1950s, many doctors rejected statistical results linking smoking to cancer, saying that what happened "on average" was of no help when they were faced with a specific patient. Today, though, most practitioners accepted that decisions about the care of individual patients should be based on conscientious, explicit, and judicious use of current best evidence.*

*The idea that claims about software development practices should be based on evidence is still foreign to software developers, who often talk as if a beer and an anecdote constituted proof. This is finally starting to change: any academic who claims that a particular tool or practice makes software development faster, cheaper, or more reliable is now expected to back up that claim with some sort of empirical study. Such studies are difficult to do well, but hundreds have now been published covering almost every aspect of software development. This talk will look at some of the*

*best of those studies, which are as elegant as classic experiments in physics, psychology, and other scientific disciplines.*

## Douglas Crockford (Friday, 4:30pm)

Douglas Crockford is a Senior JavaScript Architect at Yahoo!, well known for introducing and maintaining the JSON (JavaScript Object Notation) format. He's a regular speaker at conferences on advanced JavaScript topics, and serves on the ECMAScript committee.

*In this presentation Douglas Crockford discusses the 40-year-old Software Crisis and the grand subject of "Quality" - the processes by which we engineer quality into our software and, of course, the processes by which we often fail to do so.*

## Thomas Ptacek (Saturday, 10am)

Thomas has over ten years of experience in product development and security research. He is a co-founder of Matasano Security, an independent security research and development firm.

## Jacqui Maher (Saturday, 1:30pm)

Jacqui Maher has worked with and visited Baobab Health in Lilongwe, Malawi. Baobab is a dedicated group of programmers, clinicians and administrators developing public health and patient data administration systems. They use a variety of hardware and software technologies, but their main applications are written in Ruby on Rails.

- *OpenMRS, a framework for open medical record management, currently undergoing international standardization*
- *Using Ruby in the third world: why it makes sense to start with the new*
- *Building an infrastructure and software from the ground up*
- *Collaboration with a global network of developers using GitHub: the positives and negatives*
- *Development and deployment challenges in the third world*
- *How technology can create a common ground between disparate cultures and groups*
- *The importance of pinpointing a leader to guide the team in achieving measured goals and mapping out a strategy for incorporating external changes*

# Academic Presentations

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## Douglas Down (Friday, 10am)

Douglas Down is an Associate Professor in the Department of Computing and Software at McMaster University. He did his undergraduate and Masters work at the University of Toronto, then moved to the University of Illinois at Urbana-Champaign for his doctoral studies. Before coming to McMaster, he did postdoctoral work in The Netherlands, Finland and France and was a faculty member at Georgia Tech. His research interests mainly lie in performance evaluation and resource allocation for distributed systems.

### Cloud Computing - Some Issues from an Academic Perspective

*The cloud computing paradigm has gained momentum over the last couple of years, providing a means to perform "pay-as-you-go" computing through a service provider. In this talk, I will give a brief overview of the evolution of cloud computing, then discuss several research problems that we are considering at McMaster that involve issues in when and how it would*

## Mohamad Eid & Nizar Sakr (Friday, 10am)

Mohamad Eid joined the School of Information Technology and Engineering (SITE) at University of Ottawa, where he is currently a Ph. D. candidate. The study is supported by a full admission scholarship from the University of Ottawa. His research interests include haptic technologies and applications, haptic rendering and modeling algorithms, collision detection and response algorithms, and adaptive haptic framework. He is currently working on the design and development of an Ambient Intelligence framework for collaborative haptic environments.

Nizar Sakr received the B.A.Sc. in Computer Engineering (Summa cum laude) and the M.A.Sc. in Electrical Engineering from the University of Ottawa, Ottawa, ON, Canada in 2004 and 2006, respectively. He is currently pursuing the Ph.D. degree in Electrical and Computer Engineering at the School of Information Technology and Engineering at the University of Ottawa. His current research interests include haptics, image processing, computational intelligence: theory and applications,



machine learning and biometrics. He is a student member of IEEE. He is also the Chair of the IEEE Computational Intelligence Society - Ottawa Chapter.

## **Bring the Touch: Haptic Technologies and Applications**

*Haptics, a term that was derived from the Greek verb "haptesthai" meaning "to touch", refers to the science of sensing and manipulation through touch. The science of haptics has received significant attention in the last decade in the context of 3D virtual environments and game development. This talk traces the evolution of haptics technology from the preliminary experimental studies up to the most recent research status, including human haptics, machine haptics, and computer haptics. Furthermore, the talk reviews state-of-the-art applications such as gaming and entertainment, learning tools, medical training and rehabilitation, and biometrics. The route involves introductory concepts, basic haptic system architectures, haptics technologies, and haptics applications.*

## **Daniel Berry (Saturday, 11am)**

Daniel M. Berry got his B.S. in Mathematics from Rensselaer Polytechnic Institute, Troy, New York, USA in 1969 and his Ph.D. in Computer Science from Brown University, Providence, Rhode Island, USA in 1974. He was on the faculty of the Computer Science Department at the University of California, Los Angeles, California, USA from 1972 until 1987. He was in the Computer Science Faculty at the Technion, Haifa, Israel from 1987 until 1999. From 1990 until 1994, he worked for half of each year at the Software Engineering Institute at Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, where he was part of a group that built CMU's Master of Software Engineering program. During the 1998-1999 academic year, he visited the Computer Systems Group at the University of Waterloo in Waterloo, Ontario, Canada. In 1999, Berry moved to the the Cheriton School of Computer Science at the University of Waterloo. Prof. Berry's current research interests are software engineering in general, and requirements engineering and electronic publishing in the specific.

## **Ambiguity in Natural Language Requirements Documents**

*When requirements are written, as they usually are, in natural language, ambiguity is a major cause of their not specifying what they should and implementers implementing the wrong system. Simple misuse of the language in which the document is written is one source of these ambiguities.*

*This talk argues that even when formal methods are used, natural language is key in requirements engineering. The talk describes the ambiguity phenomenon from several points of view, including linguistics and software engineering. Several strategies for avoiding and detecting ambiguities are presented. Strong emphasis is given on the problems arising from the use of heavily used and seemingly unambiguous words, phrases, and constructs such as "all", "each", "every", and plural in defining or referencing sets; the positioning of "only" and "also"; and referents of pronouns. Many examples from requirements documents are examined*

## Constantinos Constantinides (Saturday, 11am)

Constantinos Constantinides is an Associate Professor at Concordia University. Prior to joining the faculty at Concordia he worked at Birkbeck, University of London (UK), Loyola University Chicago, Roosevelt University, and Illinois Institute of Technology. He is a licensed professional engineer with Professional Engineers Ontario. He holds a Certificate in Teaching and Learning in Higher Education from Institute of Education, University of London (UK), a Ph.D. degree in Computer Science from Illinois Institute of Technology, an M.S. degree in Computer Science from New York Institute of Technology, a Graduate Certificate in Engineering from City University (UK) and a B.Sc. degree in Electronics from Keele University (UK).

### Program comprehension in AspectJ

*AspectJ is a general-purpose aspect-oriented extension to the Java language. It is today perhaps the most notable AOP technology. Its design has influenced the design of several (if not most) other aspect-oriented languages and its constructs provide a de facto standard vocabulary to discuss the underlying paradigm. In this talk I will discuss certain maintenance problems the AspectJ language has introduced, associated with program comprehension, change impact analysis and change implementation. Comprehension in particular has shown to be very costly during maintenance. To this end, automation and tool support is vital. The Eclipse AspectJ Development Tools (AJDT) provides some level of visualization but not enough to support complex queries. I will then discuss our ongoing research to perform static program analysis through declarative reasoning.*

# Corporate Presentations

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## Pete Forde - Unspace (Thursday, 11am)

Unhindered by the constraints of any recognized education whatsoever, Pete has variously been a zine publisher, a tunnel explorer, an anarchist, a touring rock drummer, and a narcoleptic insomniac. He was a founding partner of Unspace, a successful team of Ruby hackers in Toronto. After 25 years of programming, Pete turned 31 and realized it was time for Act 2.

### NSFW

*On my birthday in 1999, I got fired from my only real job (ever) after only six months for having a 'bad attitude'. In hindsight, my attitude was fucking awesome but the path I took rendered me unemployable in any traditional workplace. In this talk, I'll tell you what I've learned in the decade since I fell asleep under my desk during a client demo and how it led to the creation of Unspace.*

## Dave Turek - IBM (Thursday, 11am)

Dave is currently the Vice President of Deep Computing at IBM with responsibility for IBM's overall high performance computing strategy. In previous executive positions Dave helped launch IBM's Grid Computing business, and started and ran IBM's Linux Cluster business. As a development executive he had responsibility for IBM's SP supercomputer program as well as the mainframe version of AIX and other Unix software. In that capacity he orchestrated the initial IBM development effort in support of the US Accelerated Strategic Computing Initiative at Lawrence Livermore National Laboratory. He has been recognized for his contributions to the Roadrunner program at Los Alamos National Laboratory in the Congressional Record and sits on the Advisory Committee to the National Simulation Center at the University of Tennessee at Chattanooga. Dave has degrees in Philosophy and Mathematics from the University of Rochester, a Masters Degree from Trinity College, and advanced study at the University of Pennsylvania in Operations Research.

## Sergei Savchenko - EA (Thursday, 3pm)

## Larry Gadea - Twitter (Thursday, 3pm)

Larry is an Infrastructure Engineer at Twitter Inc working to build distributed systems to help the service scale during its current record growth. Previous to Twitter, he was involved in an ongoing Internship at Google working on such projects as Google Desktop, Lively and Android. Larry is also a class of 2009 Software Engineering graduate from Carleton University. Follow him on Twitter at <http://twitter.com/lg!>

## Vince Silvestri - Evertz (Friday, 9am)

Vince Silvestri is currently the Director of Advanced Software Design at Evertz Microsystems -- an international engineering firm that designs and manufactures equipment for television broadcast and film production. Vince is a 2002 graduate of the Computer Science Program at McMaster University. Starting as an intern, Vince has maintained nine years of progressive employment with Evertz in an engineering capacity and has contributed to many projects as a software developer, architect and team lead. The projects have ranged in scope from embedded systems, computer graphics, signal analysis, control systems, web and other user interface applications including the ground breaking MVP video processing and analysis system.

*Creativity is often an overlooked attribute in the field of engineering, usually left to those who are in the arts (music, writing, etc). The reality is that if your work requires you to produce something that did not exist before, you are being creative! As software developers we are often called upon to come up with new and inventive ways to solve problems. While we are trained to use our logic and knowledge of software development techniques, our creative selves are often neglected. This talk will explore strategies, both old and new, to stay motivated and allow maximum creativity to be sustained while performing technical work.*

## Rob Tyrie - NexJ (Friday, 9am)

Rob Tyrie is a serial entrepreneur. NexJ is the seventh software start-up that he is helping grow. His speciality is in building and leading Professional Service Practices in enterprise software companies. He has worked in large and small companies, including Janna Systems which was purchased for \$1.4 Billion in 2000. By training he is a computer scientist, and thankfully, he leaves the heavy lifting to his team.

# Tutorials

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## Mark Pavlidis (Friday, 3pm)

Mark Pavlidis is a mobile and emerging technology consultant based in Toronto. He spent the past year creating the Kobo (née Shortcovers) iPhone eBook reader and bookstore, and is currently tackling the social networking signal-to-noise ratio problem. Mark holds a B.Eng&Mgt. and M.A.Sc in Software Engineering from McMaster University, where he teaches a course in Internet Applications.

## Dominic Duval (Friday, 3pm)

Dominic works for Red Hat as a consultant and specializes in kernel development. He started working with Linux in 1995 and co-founded the Sherbrooke University Linux User Group (GULUS) while studying software engineering. He applied his Linux knowledge to embedded systems and started teaching at Linuxcare, IBM, 8D Technologies, and Novell in various parts of the world. He joined Red Hat in 2004 becoming the first employee based in Montreal. He now spends most of his time in New York and focuses on Linux in the financial industry.

## Marc-André Cournoyer (Saturday, 9am)

Marc-André Cournoyer is a father, snowboarder & coder from Montreal, QC. He's currently bootstrapping his own startup, Talker, a revolutionary group chat app. He coded tinyrb, Thin, RefactorMyCode.com & other stuff, mostly in Ruby. You can find him online, blogging or tweeting and offline snowboarding and massacring songs on the guitar.

## Leigh Honeywell (Saturday, 9am)

Leigh Honeywell is a jane of many trades. By day she works at a major security vendor while finishing up a degree at the University of Toronto. By night (and sometimes over lunch) she is a co-founder and director of HackLab.TO, Toronto's hacker space. She also serves on the board of advisors of the SecTor security conference, is a Google Summer of Code mentor, as well as an avid cyclist, book nerd, and traveller.

# Special thanks

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CUSEC has always been foremost about the presentations. We invited each speaker because we believe that they have a unique and important message to bring you. They gave up their own time and resources to come to the conference. Many even travelled on their own dime. Speakers, we thank you all for sharing your knowledge with this new generation of software engineers.

CUSEC couldn't take place without our sponsors. Thank you all for your trust and investment in us.

Unspace, a Toronto-based web development company, arranged the evening parties. If you have a good time at the social events — and you will! — make sure to thank Meghann Millard and Pete Forde for all their work.

Thanks you, EA and Ubisoft, for inviting us into your offices and showing hospitality and inspiration to our students.

Last year, Joey deVilla delivered one of the most humorous talks in CUSEC history. We're thrilled he's back with us this year to host Democamp, hang out, and serenade us with his accordion. Thank you Joey for your humour, your music, and your faith in our event.

Abdullah Salim managed the finances of CUSEC 2010 but not only did he keep us in the financial positive, he guided us, encouraged us, and galvanized us. He also took care of some of the most tedious problems imaginable. Abdullah, a heartfelt thank-you from all of us.

John Kopanas founded this conference nine years ago and his vision still permeates every aspect of this conference. John, thank you for creating something special.