

### THE VIEW FROM GOODWIN HALL

Dear Friends,

The past year has been a busy one in the School of Computing. Thanks to your support, we have been able to maintain the highest standard of excellence in accomplishing our mission of education, research, and service.

It has also been a year of self-examination, planning, and setting goals. In February, the School submitted its vision statement to the University. The document identified information technology as the keystone of modern society. It reaffirmed the School's intent to build on the extraordinary spirit, talent, creativity, and dedication of its members, in order to provide an education that produces the best qualified professionals in our discipline.

Here, I would like to share with you an excerpt from the Executive Summary of our vision statement:

"The Queen's School of Computing is dedicated to fostering creativity within our new information-based economy... At its core, computing is a creative discipline, limited only by our imagination. Our research has led to new techniques for carrying out surgery, enabling people to do physical exercise together at distance, determining when politicians are bending the truth, helping people learn French, and inventing rugged sensor networks that allow people to monitor hazardous environments at a distance. Computing represents the university's crossroads for technology; we are experts in identifying problems from other disciplines, and extending the frontiers of information technology to resolve them. We represent an engine of Ontario's new creative economy, by training young researchers and practitioners in creative technological invention."

The articles in this newsletter will, I trust, demonstrate to you, dear friends, that the School of Computing is well on its way to achieving this vision. I hope that you will enjoy reading it. As always, I look forward to hearing from you.

Happy holidays and best wishes for 2011.

Selim



ONCWIC 2010

### CLASS OF 2010 School of Computing



**SELIM G. AKL**

Director, School of Computing



## Letter from the COMPSA President

Eril Berkok

Computing Students' Association

[www.compsa.queensu.ca](http://www.compsa.queensu.ca)

Dear alumni and friends,

It gives me great pleasure to be able to address all of you as the new representative of the Computing Students' Association. This year brings with it many changes and new initiatives to forge a more sustainable, all-encompassing computing student government, so stay a while and listen as I present our goings-on for the 2010-2011 year.

On the orientation front, we had one of the highest turnouts of incoming students in years. After a long and trying road of intensive planning, the Tech Committee pulled off a spectacular week. The Class of 2014, it is safe to say, has been successfully introduced to the School of Computing, to their student government, and to their new family here at Queen's University. Don't believe me? Just ask any of them. Their anecdotes will make you shed a tear of pride and joy.

To go along with what was started last year, that is to say, the position of Alumni Class Representative, we are looking to build on that by laying the groundwork for an alumni speaker program. Interested in speaking to our students? Feel free to drop me a line. We are ecstatic to learn the experiences

of our forebears, and to soak up information on life after graduation.

In order to expand and provide even better services and events, we have struck the Sponsorship and Fundraising Committee (name very much subject to change). Aside from providing us with the capital and connections necessary to continue improving and expanding our offerings, it will also allow us to become a financially independent and sustainable association.

Finally, of course, we are continuing to offer our usual slate of services and events – Fall Semi-formal, End of Year Banquet, the Annual LAN Party, Coffee with Profs, the Buddy Program, conferences, and more. Additionally, we aim to introduce a new slew of events, including Secret Santa, Pot Lucks, Movie Nights, and more. The sky is the limit!

Our council and committees this year are bursting with talent, and are as enthusiastic as I am to bring you and our students another great year. You can bet on us.

Cheers,

Eril



Orientation 2010: A Resounding Success



## Selim Akl Speaks at the Inaugural Graduate Studies Convocation

*The following is an excerpt from a speech delivered by School Director Selim Akl at the first Queen's Convocation devoted to graduate students.*

Today we witness the renewal of a tradition in Convocation Ceremonies at Queen's University, where all graduating Master's and Doctoral students assemble in a single Convocation in order to receive the degrees that they have earned. I would like to thank the School of Graduate Studies, and in particular Dean Janice Deakin and Dean Brenda Brouwer, for giving me the distinct privilege of addressing you in this auspicious occasion.

Fellow graduates, congratulations! Today it's all about you. You are our stars. This University's best. We are here to celebrate your achievements and rejoice in your success. Your parents, your friends, your supervisors, and everyone who was in one way or another involved in your journey, take great pride today in what you have accomplished.

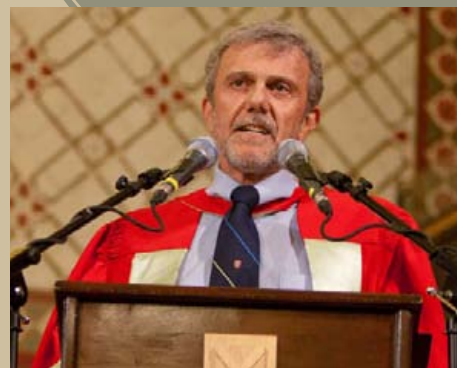
When you look back, I hope that you will remember these years as some of

the best in your lives. The days when you experienced the thrill of discovery, the joy of invention, the self satisfaction of having mastered your subject. These were the true rewards of your journey.

Nothing worthwhile is ever easy. You did it as a labor of love in pursuit of knowledge. You did it, not because you needed to. You already had a degree or two under your belt. You did it because you had a passion for your subject: history, chemistry, engineering, philosophy, and many other disciplines.

Graduate students are the soul and the engine of this University's research enterprise. They also teach, they publish, they organize conferences, and they shine at every opportunity, receiving fellowships, winning prizes, and bringing honour and fame to Queen's. We are fortunate to be at Queen's, a university with a well-deserved, stellar reputation in undergraduate education, but also with a strong commitment to graduate studies. For a university must have a vision of the future.

In fact, it is not enough to have a vision. You need the means to realize your vision. Graduate students make



the vision a reality. Thanks to graduate students, at Queen's University the future is here today. Because of you, the grants keep coming, and I thank you on behalf of your supervisors.

Whatever you do, remember what you did when you were here at Queen's. Whatever you do, do it because you love it, do it because you are making a contribution to the world around you, however small that world might be.

Take risks worth taking, be the first when it matters. Show them it can be done. And always, always remember who you are and what you can do. It has been a great honour for me to address you today. Once again congratulations and best wishes for the future. Thank you.

## THE ANNUAL SCHOOL OF COMPUTING AWARDS

This annual ceremony held in April is an occasion to celebrate excellence in the School and an opportunity to take pride in the achievements of our students and colleagues. The awards recognize individuals who went a little further to establish a higher standard in research, service, and supervision.

The School applauds the 2010 recipients and thanks them for their contributions and for leading the way as role models and inspiration to their peers.

Congratulations to this year's award recipients:

- COMPSA Howard Staveley Award for Teaching Excellence: Dave Dove Runners-up: Jim Cordy and Doug Wightman
- COMPSA First Honorary Member: Irene LaFleche
- Excellence in Teaching Assistance Award: Ian Bentley
- Ph.D. Research Achievement Award: Manar Alalfi
- Distinguished M.Sc. Thesis Award: Adam Clarridge
- Graduate Student Distinguished Service Award: Sharief Oteafy
- Distinguished Graduate Supervision Award: Juergen Dingel and Hossam Hassanein
- Distinguished Service Award: Karilee Reinbold

## Laura Bartha: An Outstanding Undergraduate Researcher



The School is delighted to announce that Queen's School of Computing undergraduate student Laura Bartha (4th year, Biomedical Computing) has been selected by the Computing Research Association as a recipient of a 2011 CRA Outstanding Undergraduate Researcher Award, for her work on thermal ablation in percutaneous surgery, under the supervision of Gabor Fichtinger.

Laura's achievement is all the more impressive when one notes that other top award recipients come from Princeton, Harvard, Rice, Tufts, Yale, Brown, Berkley, and Vanderbilt.

Congratulations Laura, we are very proud of you.

## Promotion to Full Professor for Nick Graham and Gabor Fichtinger

Dr. Gabor Fichtinger promoted to the rank of Professor with tenure, and Dr. Nick Graham to the rank of Professor (with tenure, awarded previously), both effective July 1st, 2010.



Gabor Fichtinger



Nick Graham

## IBM CENTRE FOR ADVANCED STUDIES STUDENT OF THE YEAR



Hua (Michael) Xiao, Ph.D. student under the supervision of Dr. Ying Zou at the School of Computing won the IBM Centre for Advanced Studies (CAS) Student of the Year award.

The award recognizes the student who has shown outstanding insight and perspective, and who has contributed to IBM in a matter of great importance. This award specifically recognizes the breadth of interactions that Michael has had with IBM and his valuable research contributions to the smart services research project with IBM CAS.



Basia Palmer

## Welcome Basia Palmer and Angel Schur

The School of Computing welcomes Angel Schur and Basia Palmer. Basia joins the Telecommunication Research Lab as a Research Technician, Angel joins the Human Media Lab as Project Manager



Angel Schur

## EMAD SHIHAB (SUPERVISOR AHMED HASSAN) AWARDED A TOP CANADIAN NSERC (CGS)

Alexander Graham Bell Canada Graduate Scholarships (CGS) and NSERC Postgraduate Scholarships (PGS) provide financial support to high-calibre scholars who are engaged in a master's or doctoral program in the natural sciences or engineering. The CGS is offered to the top-ranked applicants at each level (master's and doctoral) and the next tier of meritorious applicants will be offered an NSERC PGS. This support allows these scholars to fully concentrate on their studies and seek out the best research mentors in their chosen fields.



## Annual Queen's Fall Preview

The School presented an amazing display at the Annual Queen's Fall Preview. Over twenty members of the School were on hand to promote our programs, and the discipline of computing in general. Their beautiful demos and eloquent presentations to high school students and their parents attracted a great deal of attention. There were approximately 2,400 visitors, and one could see a renewed interest in the excitement and wonder of computing.



## MITACS ELEVATE / CA CANADA INDUSTRIAL FELLOWSHIP FOR FARHANA ZULKERNINE

Dr. Zulkernine was awarded a MITACS Elevate / CA Canada Industrial Fellowship for her research "Decision Support for Database Administrators using Warehouse-as-a-service (DSDAware)."



Farhana Zulkernine



# NEWS BYTES

## QUEEN'S RESEARCHERS BOOST AUTOMOTIVE SOFTWARE QUALITY

School of Computing professors James Cordy and Juergen Dingel, Electrical and Computer Engineering professor Thomas Dean and collaborators at seven other Canadian universities today received a five-year, \$10.5 million grant from NSERC as part of the government's Automotive Partnership Canada (APC) initiative. Led by Profs. Tom Maibaum of McMaster University and Joanne Atlee of the University of Waterloo, the Network on Engineering Complex Software Intensive Systems for Automotive Systems (NECSIS) is backed by an additional \$6.1 million from General Motors of Canada and IBM Canada for a total investment of \$16.6 million over five years, making it the largest APC grant yet to be awarded.



James Cordy



Juergen Dingel



Tom Dean

NECSIS focuses on a new computer software methodology called model-driven engineering (MDE), which promises dramatic improvements in automotive software developer productivity and product quality. MDE reduces the complexity of the designs and documents that developers work with, enabling them to test and verify models of automotive software before the computer code even exists, exposing safety, security and usability issues long before they make it to the product stage.

Profs. Cordy and Dean will work with their industrial colleagues on Model Pattern Engineering, which seeks a better understanding of the common patterns and structures of model use in automotive systems in order to allow for more disciplined synthesis, analysis and deployment of automotive software. Prof. Dingel will collaborate with colleagues at McGill University on Model Transformation, the problem of analyzing and relating automotive software models at the industrial scale, in order to allow for more effective analysis of complex interactions between subsystems that can lead to safety, reliability and usability issues.

## The School of Computing bids welcome to five new Adjunct Assistant Professors

- Audrey Girouard – Human Media Laboratory
- Kibum Kim – Human Media Laboratory
- Nancy Salay – Department of Philosophy, Queen's University
- Farhana Zulkernine – Database Laboratory
- Abd-Elhamid M. Taha – Telecommunications Research Lab



Audrey Girouard



Kibum Kim



Nancy Salay



Farhana Zulkernine



Abd-Elhamid Taha

# Queen's School of Computing - A Leader in Attracting Women to Computing

The number of women pursuing degrees and careers in Computer Science is alarmingly low and, in fact, has been on the decline. According to the latest Computing Research Association (CRA) Taulbee Survey (2008-2009), only 11.2% of bachelor degrees were awarded to women in North America. The attrition rate of female Computer Science students and female employees in the industry is high due to the lack of successful female role models and mentors, negative perceptions and stereotypes, unfavorable work conditions, and teaching methodologies that are not well suited to females. The female perspective in the software industry is vastly under-represented and is desperately needed to maximize the innovation, creativity, and competitiveness that Canadian companies require for success.

The Queen's School of Computing has been consciously addressing this situation over the past five years, and our efforts are now paying off. This year the numbers reported to Queen's Senate indicate a female undergraduate enrollment in Computer Science programs of 35.8%, probably the largest in Canada, and possibly the largest in North America.

Several efforts have contributed to our success. In 2005 the Women in the School of Computing (WISC) group was formed to support, involve, and engage the women in the School. The formation of this group brought women's issues to the forefront in the School and initiated action to address the need to attract more women to the field. Several WISC events are held each year to help develop a community among the women in the School and members are encouraged to participate in our many recruiting and outreach events designed to educate and encourage young girls about the career opportunities available in the high tech field.

We ensure a large representation of females at all recruiting events including (among others) the Ontario University Fair held in Toronto each September, and the Queen's Open House Events. In many cases, high school girls are lone females in their computing classes. They are excited to see female role models at these events, and to learn that if they choose to enter the field, they will have plenty of support (and female company) at Queen's.

Other contributing factors include the emphasis on role models in our classrooms - this year, for example, 34.6% of our undergraduate courses are taught by female instructors (12 of our 32 instructors are female) - and the

introduction of the biomedical computing and cognitive science programs which appeal to many women. In addition, the sense of community that is fostered within the School by the many student-initiated events and the Computing Frosh Week activities cultivate a positive, rich, social environment that benefits all students.

The measured impact of conferences focused on women in computing such as the Grace Hopper Conference (which draws close to 2000 attendees each year)

is highly beneficial in inspiring and retaining women in the field. At these conferences, negative stereotypes are broken down by celebrating the accomplishments of women in the field and highlighting their technical success, positive role models (speakers and attendees) encourage and inspire the younger generation, collaboration and discussion spurs innovation, and the sense of community that is formed increases collaboration and reduces feelings of isolation experienced by many women in the field.

After attending the 2008 Grace Hopper Conference, Wendy Powley, founder of WISC, was determined to provide a similar experience not

only for the students in the School of Computing, but to extend this opportunity to women across Ontario. As a result of this vision, volunteers from WISC were proud to organize and host the first Canadian ACM-W Regional Celebration of Women in Computing; the Ontario Celebration of Women in Computing (ONCWIC 2010). The conference was held on October 22/23, 2010 at the Radisson Hotel on the waterfront in downtown Kingston. Close to 150 delegates from 22 different institutions (universities and industry) took part.

The ONCWIC program featured a number of renowned keynote speakers including Debra Danielson (Senior VP of the Center of Excellence, CA Technologies), Valerie Davidson (NSERC/RIM Chair for Women in Science and





Engineering - Ontario Region) and Kim McLeod (Anita Borg Institute). Alain Chesnais (ACM President) provided welcoming remarks on behalf of the ACM. In a series of panels we explored future technology career paths, communicate in a environment, disabilities, and Impostor Syndrome were given the opportunity to showcase their research work and projects through posters and presentations.



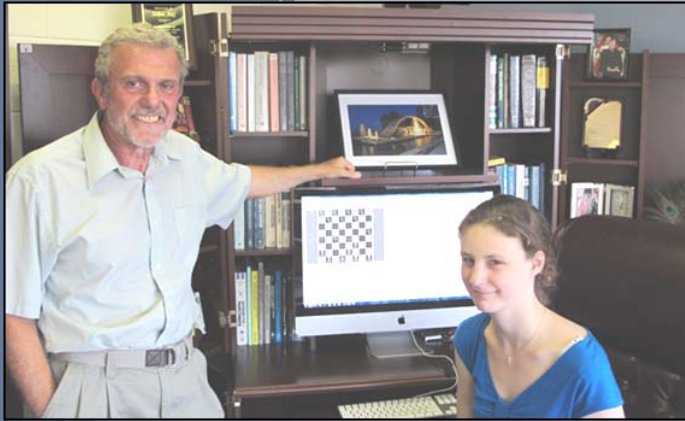
Due to the generosity of our sponsors, CA Technologies, IBM, RIM, Microsoft, NSERC, MITACS, ACM-W and the School of Computing, the conference was accessible to students and professionals alike with the majority of the cost, including accommodation for students, subsidized.

Although we are encouraged by our current statistics, we will strive for continued success and for further improvements. We must now maintain our numbers and to educate and encourage computing faculties across Canada to follow our lead.

If you would like more information about ONCWIC or WISC, please visit: <http://www.cs.queensu.ca/wisc> or contact Wendy Powley at [wendy@cs.queensu.ca](mailto:wendy@cs.queensu.ca).



QUANTUM PHYSICS ADDS TWIST TO CHESS -- Queen's University computer scientists invent a new version of chess



For a long time, chess has been considered the ultimate game of strategy. But computers, like IBM's Deep Blue, have become stiff competition for humans.

Now, researchers at the Queen's School of Computing have come up with a game that puts the person and the machine on equal footing. It's called Quantum Chess, and it throws the conventional rules of chess out the window.

"We are bringing an element of unpredictability to chess," says Director Selim Akl, who authored a paper on how to bring "quantum weirdness" to the traditional game.

Developed by undergraduate student Alice Wismath, who selected the new rules from the endless possibilities suggested in Akl's paper, the electronic game has the same number of squares and the same pieces as original chess. But each piece has both a primary and a secondary type – a rook can also be a pawn, a queen can also be a knight, and so on. When the pieces are on white squares, the player can see what the piece is at that particular moment. But when moved to a black square, the piece shifts to a quantum state. The player has no way of knowing what the piece will be until he or she attempts to move it.

Because of this, it's possible for there to be as many as four queens – or as few as none – on the board at a time. It also means that the forethought that is so coveted in traditional chess is not nearly as effective in the quantum version.

The game has so many variations and possibilities that it is nearly impossible, the researchers say, to program a computer that could play the game consistently well.

"You can throw away all the strategies you used before, because this is a completely new game and it puts the player and the computer on equal footing," says Dr. Akl.

The Quantum Chess project is part of the on-going research on quantum computation being carried out in the Queen's School of Computing. The current computer program is only a simulation; the ultimate goal of the project is to produce a true physical board for the game.

*Kristyn Wallace  
News and Media Services, Queen's University*

Try your hand at Quantum Chess at: <http://www.cs.queensu.ca/chess/>



HIGH SCHOOL PROGRAMMING CONTEST HOSTED BY THE SCHOOL OF COMPUTING

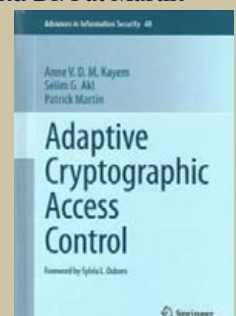
The 2010 edition of the Kingston Area High School Programming Contest was hosted by the School of Computing on March 30th. Teams of up to four students each from the area's high schools attempted to solve four challenging programming problems in three hours. The event, part of the Educational Computing Organization of Ontario's annual Computer Programming Contests series, was organized by Computing's Richard Linley with the cooperation of the Limestone District School Board and the Algonquin and Lakeshore Catholic District School Board.

Congratulations to coach Mark Lee and the Frontenac Secondary School team who were this year's winners.

Richard Linley with the winning team from Frontenac



School alumna Dr. Anne Kayem is lead author of a new book on database security co-authored by Dr. Akl and Dr. Pat Martin





## The Graduate Computing Society *Realizing an idea...establishing a presence!*

The School of Computing has evolved both in research capacity and graduate enrollment; a reputation we proudly celebrate. A natural evolution was to give voice to graduate students within the School.

In August 2008, a new council was formed with the main goal of establishing a student body to voice the concerns of its graduate members, while also accommodating different academic, social and organizational activities. The first step was an approval by School Director, Dr. Selim Akl, who encouraged the step forward. The intent was relayed to the School, starting in September 2008, preceding a series of meetings with SGPS executive.

Many meetings resulted in a list of goals for this student body: with strong presence and acknowledged hierarchy topping the list, among other organizational concerns. Establishing a permanent and notable source of funding was also a necessary challenge.

Our first round of discussions with the SGPS executive directed us towards establishing an SGPS "club" that would provide a source of funding and representation on campus. The application to establish the "Graduate Student Association of Computing" meant forming a constitution, collecting signatures of potential members, and an activity/budget plan. Moreover, being a club meant that our activities, constitution, funds and major logistics were to be overseen by the SGPS.

After further discussions with our council and SGPS, we decided to embark on establishing the third graduate society at Queen's, granting us a high level of sovereignty and access to greater funds. This step required a full constitu-

tion, a detailed budget plan and a vote run by the SGPS.

The next major step was securing funds to realize our plans for an active society.

First, the School manager, Dean McKeown, established a fund for the Society. Then, on April 30th, 2009, a majority of votes approved both the establishment of the first Graduate Computing Society (GCS), and annual fees from its members. In April, the GCS was ratified and recognized by the SGPS and Queen's, and celebrated at its home: the School of Computing.

Today, we celebrate achievements since the establishment of the GCS. The councils in 2009 and 2010 have organized many social activities (movie nights, kayaking trips, gaming activities,...) and this May, the first Queen's Graduate Computing Society Conference was realized and well received.



Much effort has been devoted to the establishment and sustenance of the GCS. Many graduate members of the School have volunteered their evenings, weekends and holidays. The tasks were fulfilling, and the results were a key source of pride!

On a personal note, I wish to thank all the members who worked so hard. May this effort continue with the students who follow, and carry forward and expand on what we have accomplished.

Sincerely,

Sharief Oteafy

Former president of the GCS (2009-2010)

### Computer Science for Girls

An integral part of attracting more women to careers in science and technology is introducing them to the fun and challenging aspects of the subject at a young age. With help of an NSERC Promoscience grant (jointly held with Trent University and Mount Allison University), the Women in the School of Computing group (WISC) has been able to do just this. Over the past three years several women in WISC have organized workshops for elementary school aged girls at local schools. At these workshops, the girls had the chance to learn about the fun and challenging sides of technology through Lego Mindstorms robots.

The girls were faced with a variety of tasks such as making their robot follow a line or swing its arm, navigating an obstacle course and a sumo-bot competition – trying to push another robot out of a specified battle zone while trying to make their own robot stay in. This summer, a series of one and two-day camps were held in the School of Computing. The girls had a great time as they built and programmed their robots, finally competing in a robot talent show.

The next lego camps are planned to promote Computer Science Education week December 5 - 11, 2010.





**Julian Tam - BMCO 2005**

I recently had the honour of meeting Julian Tam, a student who graduated from the Biomedical Computing program at Queen's in 2005. Julian completed his medical degree at McMaster University in 2008 and is currently in his third

and final year of an Internal Medicine residency at the University of Saskatchewan.

As a third year Biomedical student myself, it was very encouraging and enlightening to meet someone who had similar goals and aspirations in his undergraduate studies. As students in the Biomedical Computing Program, my classmates and I often ask ourselves, "What next?", and wonder if we'll even make it through the application process to get into medical school or graduate school. And we are not alone; all upper year undergraduates begin to ask themselves questions about their futures as they get closer to graduation.

As the number of students graduating from the Biomedical Program is increasing, more graduates are coming back to the School of Computing to say, "Hey, this is where I am now, and these are my achievements".

This gives me a lot of motivation and confidence to continue with my studies and to work hard to reach my goals. Julian's ultimate goal is to pursue a subspecialty fellowship in Respiriology and he has recently been accepted to do his Respiriology training at the University of Saskatchewan, his first choice!

*Charlotte Blinston*



**Kirk Robinson - Entrepreneur**

Kirk Robinson is CEO and founder of Thoughtcorp, a business consulting company based in Toronto.

Graduating from Queen's University with a B.Sc (hons) in Computing Science in 1989, Kirk had always known that he would make a better entrepreneur than employee, and that one day he would run his own business. But for starting out, a desk job was the most practical route. Kirk first worked as a Junior Programmer in Ottawa before leaving for a position with a Toronto company, ultimately leading a soft-

ware division. A few years later he moved to New York to set up development, sales and marketing teams for the Toronto company and it was there that the idea for Thoughtcorp formed.

"The idea came to me while working on an RFP with a team in Virginia. I was part of a collective team of retired US intelligence folks along with several firms from around the world. Although we were a team of about 25 people, most of the work came from three of us. The concept of Thoughtcorp really came from the question of how productive we could be if all 25 of us contributed at a high level."

Six months later, in 1995, Kirk resigned and moved back to Canada to start Thoughtcorp.

Thoughtcorp is now a successful consulting company that uses "high-value, performance-improvement technology to solve complex business problems for organizations across multiple industry verticals." Thoughtcorp has over 125 senior consultants, and their client portfolio includes 7 out of the top 10 companies in Canada.

Thoughtcorp's business practice includes: Business Architecture and Process Re-engineering, System Development and Integration, Data Warehousing and Business Intelligence and Application Maintenance Support.

Like any other start-up company, Thoughtcorp initially had difficulty trying to find customers willing to take the risk with them. Kirk's advice on starting a new company is to first decide what you're really good at. Build a 5 or 10 year plan, and look for the right environment to execute the plan. Having one or more mentors for advice and guidance is an invaluable resource, and finally, find out how to balance enthusiasm with patience.

Kirk says there are three things you need to have what it takes to be a good entrepreneur: you have to be willing to take risks, you have to want to be the best at something, and you have to be prepared to do whatever it takes to reach your goals.

*Rachel Tigner*



## Aran Donohue -- From Queen's to Facebook

Aran Donohue started out like most students, not knowing clearly what he wanted to do after graduation. After participating in the Shad Valley program, Aran had several summer internships at IBM. After graduating from COGS '07 with a Bachelor of Computing, he was hired on full-time at the software lab in Markham.

With the opportunity to go to grad school with NSERC support under an admired supervisor, Aran left IBM to pursue a Master of Computer Science at the University of Toronto. He wrote his thesis on the maintainability of DSL programs.

Aran emphasizes the importance of side-projects, saying that "some of the best parts of my grad school experience were the unofficial side activities." It was one such activity that started a chain of events that led to Aran landing a job at Facebook. This was a competition from Yahoo! called HackU at the University of Toronto and Waterloo. This coding competition's objective was to code the coolest thing possible in 24 hours. Aran's team won and flew to California to pitch an expanded version of the project to Y Combinator for funding.

They were unsuccessful in their quest, but on that trip, the team had lunch at Facebook with an alumnus from U of T. Aran recounts, "Almost as a joke, our host suggested we apply to work at Facebook. I applied, not really thinking anything would come of it." Aran is now a Facebook employee and lives in California.

What is it like working at Facebook? Free gourmet meals three times a day, snacks and laundry service are not the only reasons why working at Facebook is so great. Aran believes that it's the highly-motivational work culture that makes Facebook the best company to work for. "Facebook has a deep

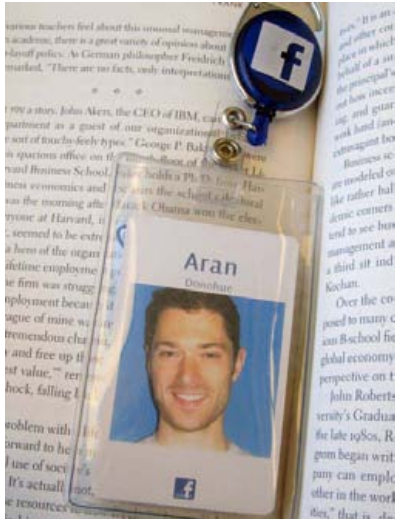
dedication to do everything possible to make people more productive. Its culture is to focus on high-leverage activities; our to-do list is far bigger than we could possibly accomplish, so we need to only work on high priority issues. It's a hacker culture that rewards independence, creativity and useful side-projects. Engineers have a wide latitude and lots of decision-making authority."

"In some sense, in choosing your environment, you choose your habits," Aran commented about working in Silicon Valley, and being so close to so many successful people. "Here, it's normal to be hard-working and successful, so it's more natural to work to get to that level."

Aran's advice for undergrads looking to get a job at a company like Facebook is that activities outside the classroom are key: "For aspiring engineers, probably 40%-50% of your technical skills should come from learning stuff outside of classes: side projects, programming exercises, working through programming books, etc." Since most technical interviews are algorithmic puzzles, it is extremely valuable to spend time practicing fast coding; competitions such as ACM-ICPC and TopCoder are good practice. "In particular, building and completing side coding projects is probably among the highest-leverage activities a person could do."

Any students interested in learning more about working in industry, the benefits of grad school or getting jobs at Microsoft/Apple/Google/Facebook-tier companies should not hesitate to email Aran at aran@facebook.com. "I'd like to help, and if you're smart and you like building things, I'll probably ask for your resume."

*Rachel Tigner*



## Cancer Care Ontario Announces 2010 Research Chairs



DR. GABOR FICHTINGER of the Queen's School of Computing is one of six Ontario researchers to receive funding to further cancer research over the next five years under Cancer Care Ontario's Research Chairs Program. The Program, funded by the Ministry of Health and Long-Term Care, is designed to attract new leading scientists to Ontario and support outstanding scientists already working in the province. The Program focuses on quickly turning research findings into improvements in cancer services and clinical care for patients.

Dr. Fichtinger, named a Level 1 Research Chair in Medical Imaging, achieved a worldwide reputation in needle-based interventional oncology system development through his prior work at the Johns Hopkins University, one of the world's most renowned medical institutions. He was recruited to Queen's in 2007 and given the mandate of creating an advanced technology development program for interventional oncology. Dr. Fichtinger will work on creating a reusable platform for image-guided and robotic cancer interventions.

In the past two-years, CCO's Research Chairs program has funded the research of 13 scientists. The 2010 awards will build Ontario's research capacity in three priority areas – cancer imaging, experimental therapeutics and health services research.

# MANY THANKS TO OUR ALUMNI AND FRIENDS

We wish to thank the following alumni, faculty, staff and friends who directed their Queen's University gifts to the School of Computing. Listed below are our benefactors over the past 12 months. These donations are making a difference! Annual Giving helps us attract outstanding students and continue our outreach programs.

Joe Abounader  
Selim Akl  
Yolande Akl  
Annamaria Bamji  
Perry Bamji  
Alan & Diane Booth  
Frances Booth  
John Calvert  
Jing Chen  
James Cordy  
Pooja Dayanand  
Ge Deng  
Juergen Dingel

Lisa Drewell  
David Franklin  
John & Susan Gauch  
Douglas Goodman  
Frederica Goodman  
Nicholas Graham  
James Gray  
Ben Hall  
Farzad Hassanzadeh  
Anson Herriotts  
Freeman Huang  
Yugo Isal  
Megan Klco

Irene J Lafleche  
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**Sum Ergo Computo**

I am therefore I compute

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- \$3000 per year pays for a Teaching Assistant which helps both our undergraduate students and the graduate students directly.
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Lynda Moulton, Ben Hall  
Editors

Queen's School of Computing  
Queen's University  
Kingston ON K7L 3N6

613.533.6333  
[alumni@cs.queensu.ca](mailto:alumni@cs.queensu.ca)