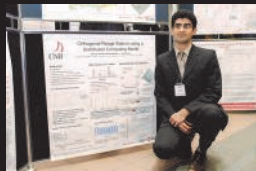


UNIVERSITY OF NEW BRUNSWICK FACULTY OF COMPUTER SCIENCE



TENTH ANNUAL

research exposition

*Discover leading edge information technology
research at UNB*

*Hear industry practitioners speak of their
research and proposals*

Explore opportunities for R&D collaboration

Friday, April 12th, 2013
8:00am - 4:30pm
UNB Campus
Wu Conference Centre



Faculty of
**COMPUTER
SCIENCE**

Fredericton · New Brunswick · Canada



Computing Science Creative Space: CS Square

CS Square is a Creative Space for peer learning, knowledge sharing, and extra-curricular technical-creative IT related activities and entrepreneurship.

An 'open space' entrepreneurship centre in the Faculty of Computer Science where students, faculty and local industry can meet to collaborate and exchange innovative ideas and vision.

As an INCUBATOR CS Square provides:

- Mentoring and networking opportunities
- Match making with CS entrepreneurs and business leaders
- One-on-one support, advice and counselling for new entrepreneurs
- Workshops and seminars
- Customized business development workshops

WELCOME



Welcome to the 2013 Faculty of Computer Science Annual Research Exposition. I hope that you enjoy the exposition's program and find the experience of meeting and sharing thoughts with our students and researchers as well as one another unique and worthwhile!

The 2013 Faculty of Computer Science's Annual Research Exposition showcases the excellent research, new developments, and experience related to the area of information and communication technology. This year we have 33 posters. The coverage of the contributions is very wide, which is one of the features that distinguishes our research expo from other events that focus on more specific areas. The participants in the Exposition will have the opportunity to hear leading experts and IT leaders present keynote talks and have the opportunity to view the posters at the poster session.

Many people contributed to the success of this Exposition. I would like to thank all the organizing committee members, in particular, Dr. Virendra Bhavsar, Chair, and Drs. Weichang Du, Wei Song and Huajie Zhang of the organizing committee, for their effort and dedication. I am also very pleased to thank all the students and professors for their posters which are the main attraction, the keynote speakers, members of the panel, and to all the participants. You are the ones who make all this effort worthwhile!

Ali A. Ghorbani
Professor and Dean

PROGRAM

8:00—8:55

Registration

8:55—9:00

Dr. Ali Ghorbani, Dean, Faculty of Computer Science, UNB

9:00—9:15

Dr. David Burns, Vice President (Research), UNB

9:15—10:00

Dr. Ming Li, Professor, University of Waterloo

10:00—10:15

Sara Smallwood, Chief Privacy Officer NB Department of Health

10:15-10:45

Break & Poster Session I

10:45—11:00

Dr. Kenneth Kent, Faculty of Computer Science, UNB

11:00—11:15

David Small, Director of Advanced Research and Innovation
SPIELO International

11:15—11:30

Dr. Gerhard Dueck, Faculty of Computer Science, UNB

11:30—11:45

Gerry Fairweather, Enterprise Strategist, NB Department of
Health

11:45—12:00

Kristian Luck, Senior Software Architect, AnyWare Group Inc

PROGRAM

12:00—13:00

Lunch & Poster Session II

13:00—13:15

Dr. Michael Fleming, Faculty of Computer Science, UNB

13:15—13:30

Trevor Corey, Vice-President NB, CGI

13:30—14:30

Graduate Student Presentations:

Damian Jewett, David Otis, *A Model and Software Solution for Scheduling with Peak Power Demand in Wood Processing*

Amber Han, *Text Search with Spatial Constraints*

Daniel Latimer, *Social Distributed Computing*

Pooria Madani, *A Framework for Information Discovery from Twitter*

14:30—15:00

Break & Poster Session III

15:00—16:15

Panel Discussion

Topic: Rewards and Challenges of Entrepreneurial Startups

Moderator: Calvin Milbury, President & CEO, New Brunswick Innovation Foundation

Panellists: John Bowles, President, Inversa Systems

Jeff Thompson, CEO, UserEvents Inc.

Beth Webster, Vice-President, Populus Global Solutions

POSTERS

1. Abtin Zohrabi, Fatemeh Razzaghi, and Ali A. Ghorbani. *Network Security Using Graph Theory Techniques*
2. Bo Yan and Kenneth B. Kent. *For Loop Support and Abstract Syntax Tree Optimization in Odin II*
3. Chandan Bagai and Kenneth B. Kent. *Characterizing and Improving the General Performance of Apache Zookeeper*
4. Abtin Zohrabi and Ali A. Ghorbani. *Reply Prediction of Email messages using Interaction-and Content-based Features*
5. Chirag Sharawat and Kenneth B. Kent. *Matching Engine for Online Dating using Semantic Web Techniques*
6. Damian Jewett, David Otis, David Bremner, and Joe Horton. *A Model and Software Solution for Scheduling with Peak Power Demand in Wood Processing*
7. Amber Han and Bradford G. Nickerson. *Text Search with Spatial Constraints*
8. Dayal Dilli, Kenneth B. Kent, and Robin Bate Boerop. *Diskless Data Analytics on Distributed Co-ordination Systems*
9. Dizhi Zhou, Wei Song, and Minghui Shi. *Performance Improvement of Multipath TCP for Mobile Devices*
10. Emily Wilson and Kenneth B. Kent. *A Semantic Matchmaking System for Online Dating*
11. Fatemeh Razzaghi and Ali A. Ghorbani. *Towards Email Importance based on User Profile and Message*
12. Jianbo Zheng and Weichang Du. *Cloud Computing Migration Tool*
13. Jingjing Li and Kenneth B. Kent. *Investigating FPGA Architectures for System-on-Chip*
14. Konstantin Nasartschuk, Kenneth B. Kent and Rainer Herpers. *Visual Exploration of Changing FPGA Architectures in the VTR Project*
15. Lingchen Zhou and Bradford G. Nickerson. *Position Estimation of Nodes Moving in a Wireless Sensor Network*
16. Mahta Moattari and Weichang Du. *Online News Recommender System*
17. Milad Irannejad and Bradford G. Nickerson. *A Distributed Fault-Tolerant Spatial Data Structure*

POSTERS

18. Kenneth Kent, André Hinkenjann, and Nicolas Neu. *Application performance improvements through VM parameter modification after runtime analysis*
19. Ning Ju, Kenneth B. Kent, and David Bremner. *Interface USB to Thermal Conductivity Instrument*
20. Peter Samarin, Timur Saitov, Rainer Herpers, and Kenneth B. Kent. *Data Traffic Reduction in Vision Applications using On-Board FPGA-based Image Preprocessing*
21. Sen Wang and Kenneth B. Kent. *The Improvement of VTR Project by using Carry-Chains and Power Specification*
22. Stuart A. MacGillivray and Bradford G. Nickerson. *Exclusion Persistence in Spatial Data*
23. Victoria Pimentel and Bradford G. Nickerson. *Estimating Safety Function Response Time for Wireless Sensor Networks*
24. Weiqi Zhang and Bradford G. Nickerson. *6LoWPAN for mobile wireless sensor network communication*
25. Marcel Dombrowski, Kenneth B. Kent, and Michael Dawson. *Dynamic Monitor Allocation in the Java Virtual Machine*
26. Hanin Almutairi, Hawra Alseef, and Nada Alsalmi. *Wireless network movement simulation in NS2*
27. Mostafa Karamibekr and Ali A. Ghorbani. *Sentiment Analysis of Social Issues*
28. Mahsa Kiani, Virendra Bhavsar and Harold Boley. *Combined Structure-Weight Graph Similarity and Its Application in E-Health*
29. Daniel Latimer. *Social Distributed Computing*
30. H. Gonzalez, M. Gosselin-Lavigne, N. Stakhanova and A. Ghorbani. *The impact of slow-rate application DDoS attacks on web servers*
31. Abdullah Alzahrani, Natalia Stakhanova, and Ali A. Ghorbani. *SMS Mobile Botnet Detection Based on Multi Agent System*
32. Manfred Jendrosch, Gerhard W. Dueck, Charlie Gracie, and André Hinkenjann. *PC Based Escape Analysis in the Java Virtual Machine*
33. Pooria Madani and Ali A. Ghorbani. *A Framework for Information Discovery from Twitter*

SPEAKERS

David Burns

Vice President—Research
University of New Brunswick



Dr. Burns is currently serving as Vice President—Research at the University of New Brunswick. He obtained his Ph.D in Analytical Chemistry from the University of Washington in 1984 and has since mentored over 25 graduate and postdoctoral students, 20 honours projects, and 20 undergraduate and high school students. His current research deals with fundamental aspects of bioinformatics, non-invasive near-infrared assessment of health and development of smart polymer nanosensors with applications to water/soil quality analysis and the point of care, biotechnology/biomedical fields. Several aspects of Dr. Burns' work have led to intellectual property. In particular, a core platform technology was developed for near infrared spectroscopic assessment of (1) Lung edema, (2) in vivo lactate, (3) Fetal/Maternal Health from Amniotic Fluid, (4) Embryo Viability assessment from culture fluid, and (5) oxidative stress Assessment of Neurodegenerative Disease from Blood.

Ming Li

Professor and Canada Research Chair in Bioinformatics
University of Waterloo

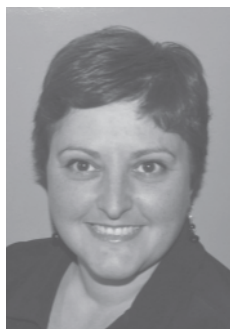


Ming Li is a Canada Research Chair in Bioinformatics and a University Professor at the University of Waterloo. He is a fellow of the Royal Society of Canada, ACM, and IEEE. He is a recipient of E.W.R. Steacie Fellowship Award in 1996, the 2001 Killam Fellowship, and the 2010 Killam Prize. Together with Paul Vitanyi they have co-authored the book "An Introduction to Kolmogorov Complexity and Its Applications". He is a co-managing editor of Journal of Bioinformatics and Computational Biology.

SPEAKERS

Sara Smallwood

Chief Privacy Officer
Province of New Brunswick—Department of Health



Sara Smallwood was born in Nova Scotia. She completed a Bachelor of Sociology at Saint Thomas University in 1994 and Masters coursework in Sociology at the University of New Brunswick. Recruited into the provincial public service in 1999, Sara worked as a policy and legislative advisor with a number of departments and, in 2010, was appointed as the Chief Privacy Officer for the Department of Health.

Dave Small, P. Eng. PMP

Director of Advanced Research and Innovation
SPIELO International



Dave Small is a registered professional engineer in the province of New Brunswick and an electrical Engineering graduate of UNB in 1981. He has been working for SPIELO International since 1999, in several capacities such as Engineering Manager, Sr. Project Manager, Sales Executive, and in his current position as Director of Advanced Research and Innovation. His responsibilities include partnering with the academic and government community on Research and Development projects in the fields of Computer Science and Engineering.

Prior to joining Spielo, Dave has held various technical positions with Westinghouse Canada in Ontario, the Research and Productivity Council, and Com Dev Atlantic.

SPEAKERS

Gerry Fairweather

Enterprise Strategist

Province of New Brunswick—Department of Health



Gerry Fairweather is the Enterprise Strategist for the New Brunswick Dept. of Health. He has been the technical lead for the provincial Electronic Health Record project, Common Client Registry project, Medicare Re-platforming project and is currently working on the Electronic Medical Record project. Gerry has served on national Electronic Health Care committees and was Co-Chair of Canada Health Infoway's BluePrint 2015 initiative. Previous to working at the Department of Health, Gerry was the lead system designer for

the original Service New Brunswick Identity and Access Management System which recently won a KIRA award for Innovation in the Public Sector. Gerry has an M.Eng. degree from the UNB Electrical Engineering Faculty and has recently been accepted as a part-time PhD student with the UNB Faculty of Computer Science under the supervision of Dr. Ali Ghorbani.

Kristian Luck

Senior Software Architect

AnyWare Group Inc



Since Kristian Luck's graduation from Computer Science at UNB in 1999, he has held a variety of positions in the IT industry. Kristian is passionate about software development. He began his career with Bell Aliant and quickly rose to the position of Application Architect. In 2002 Kristian joined Syntact Consulting, through which he made significant contributions at Medavie Blue Cross and Spielo. Kristian has also enjoyed teaching at both NBCC and UNBSJ. In 2009 Kristian joined AnyWare

Group Inc. to lead the development on the flagship product, ROAM. Kristian leads by example, strives for excellence, and loves working with others to realize great ideas.

SPEAKERS

Trevor Corey

Vice President- New Brunswick
CGI



Trevor Corey joined CGI in 2006 as Vice President Systems Integration and Consulting, Atlantic Region. Currently Trevor is the Vice President for CGI in New Brunswick. In this role, Trevor oversees CGI activities across New Brunswick.

Trevor's IT career spans over 20 years, joining CGI from xwave where he served as Director, Technology Consulting. Before returning to the Maritimes, Trevor worked with Accenture for over 16 years where he reached Partner ranks in 2003.

Since 1998, he has been involved in delivering consulting services to communications and high-tech companies including Microsoft, Bell Canada, Telus, and Bell South.

Trevor is a graduate of the University of New Brunswick and holds a degree in Computer Science. Trevor is a Board member of the New Brunswick Information Technology Council and Chairs the UNB Computer Science Advisory Board. He is also the President of the Fredericton Amateur Speed Skating Club.

MODERATOR

Calvin Milbury

President & CEO

New Brunswick Innovation Foundation



Calvin Milbury is the President and CEO of the New Brunswick Innovation Foundation, an independent corporation with the mandate of developing innovation and entrepreneurship in New Brunswick, where he leads the foundation's investment activities and manages its growing portfolio of venture capital investments. While serving as the Vice-President, Business Development, Calvin established the foundation's venture capital fund and has been instrumental in the creation and development of over 50 companies. He first joined the foundation in June

2003 and was appointed to his current position in April 2009.

Prior to joining the Innovation Foundation, Calvin worked for Foragen Technologies Management, a national venture capital firm operating out of Montreal, and BioAtlantech, a biotechnology incubator located in Fredericton, where he carried out business development activities for two early-stage biotechnology companies.

Calvin is a University of New Brunswick graduate with a Master of Business Administration degree and a Bachelor of Science degree in Biology-Chemistry.

As a native New Brunswicker, Calvin is pleased to be assisting New Brunswick entrepreneurs and innovators turn their innovative ideas into reality. He resides in Fredericton with his wife Stephanie and their 10 month old son, Caleb.

PANELLISTS

John Bowles

President and Director
Inversa Systems



Mr. Bowles, President and Director of Inversa Systems, is responsible for developing Inversa's strategic sales and market plan and overseeing industry outreach, as well as managing outward facing client based activities while managing the budget and acting as the liaison with industrial partners and funding bodies.

Mr. Bowles obtained a bachelor's and master's degree in mechanical engineering from UNB, with specialization in radiation scatter imaging which has led to a method for inspecting pallet sized cargo for contraband which is now under development by Canada Border Services Agency. He has also worked at NB Power, Point Lepreau Nuclear Generating Station, where he learned the inspection needs and mindset of power generation facilities. This background gives him the specialized knowledge to understand the inspection needs of complex facilities. He is a Board Member of the Order of Wallace McCain Institute and of Competition Climbing Canada, as well as a registered professional engineer.

PANELLISTS

Jeff Thompson

Founder & CEO
UserEvents Inc.



Mr. Thompson brings over 20 years of expertise in developing innovative solutions for Fortune 500 enterprises worldwide that have improved operational efficiency and delivered better customer care and engagement.

Current the Founder/CEO at UserEvents, a Big Data disruptor enabling enterprises to extract business value in big data without the expense often found in traditional Big Data approaches. One of the major sources of data for any enterprise is customer related data and insights. UserEvents recently launched its flagship product CxEngage™ that allows enterprises to consistently deliver great customer experiences by monitoring a customer's journey in real-time and when it veers towards an outcome that would impact customer retention or loyalty, CxEngage alerts the organization allowing it to respond in the moment with a phone call, email or text message.

Previously, Mr. Thompson was the Founder & CEO of Conseros Software that developed and launched a product to prioritize and distribute work tasks to the best skilled and available employee throughout the enterprise, including the back-office. Fortune 500 clients worldwide realized efficiency gains between 17 and 24%. Mr. Thompson successfully executed an acquisition by Genesys Telecommunications Inc. in 2009 and the Conseros software has been key in expanding Genesys reach beyond the contact center and the foundation for other Genesys products, including its social media and rules service.

Jeff has worked in a variety of leadership positions with NBTel (innovator and telecom industry leader), PowerTel (now Telecom New Zealand), Exigen Software (pioneer in cloud / industry utility applications), and iQor (a multi-national BPO provider & InformationWeek technology innovator).

PANELLISTS

Beth Webster

Vice President
Populus Global Solutions



Ms. Webster has over 25 years of senior management experience in business development and administration management within the knowledge industry. Her firsthand experience with start-up companies and turn around experience enables her to be a part of ultimately growing businesses to the next level. Ms. Webster has extensive experience in the e-health and e-Learning sectors of ICT. Her strengths and experience in North America and abroad adds to the value that she brings

to the table. She brings skills in the area of strategic focus, corporate planning, and high level positioning for staff and clients. She is a true customer centered executive. She possesses a Bachelor of Science from Dalhousie University and a Masters in Business Administration from the University of New Brunswick.

Ms Webster has professional experience in the domestic and international markets. Through her experience with an international company she understands, first-hand, the challenges and rewards of being an expatriate. Her experience includes strategic planning, corporate branding/positioning, business development, client management, sales, marketing, project management, and human resource planning.

Ms. Webster was recognized by her peers and colleagues in 2003 with the "KIRA Industry Person of the Year Award" for her efforts and commitment to the New Brunswick Knowledge Industry. She also sits on a number of other provincial and regional boards in economic development, the knowledge industry, as well as the health industry.

CO-OP PROGRAM

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Students at various levels are available year-round.

Students can often release regular employees for higher-level tasks.

Co-op provides employers with the opportunity to assess prospective full-time employees.

Students may provide a stimulus to regular staff.

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Co-op provides opportunities for employers and educational institutions to interact and exchange information on such issues as: the human resources needs of employers and technology advances

Contact us today to learn more!

Patricia Meng

Co-op/PEP Coordinator
(506) 447-3327
pmeng@unb.ca

Holly Burke

Secretary—Undergraduate, Co-op/PEP
(506) 447-3391
hollyb@unb.ca