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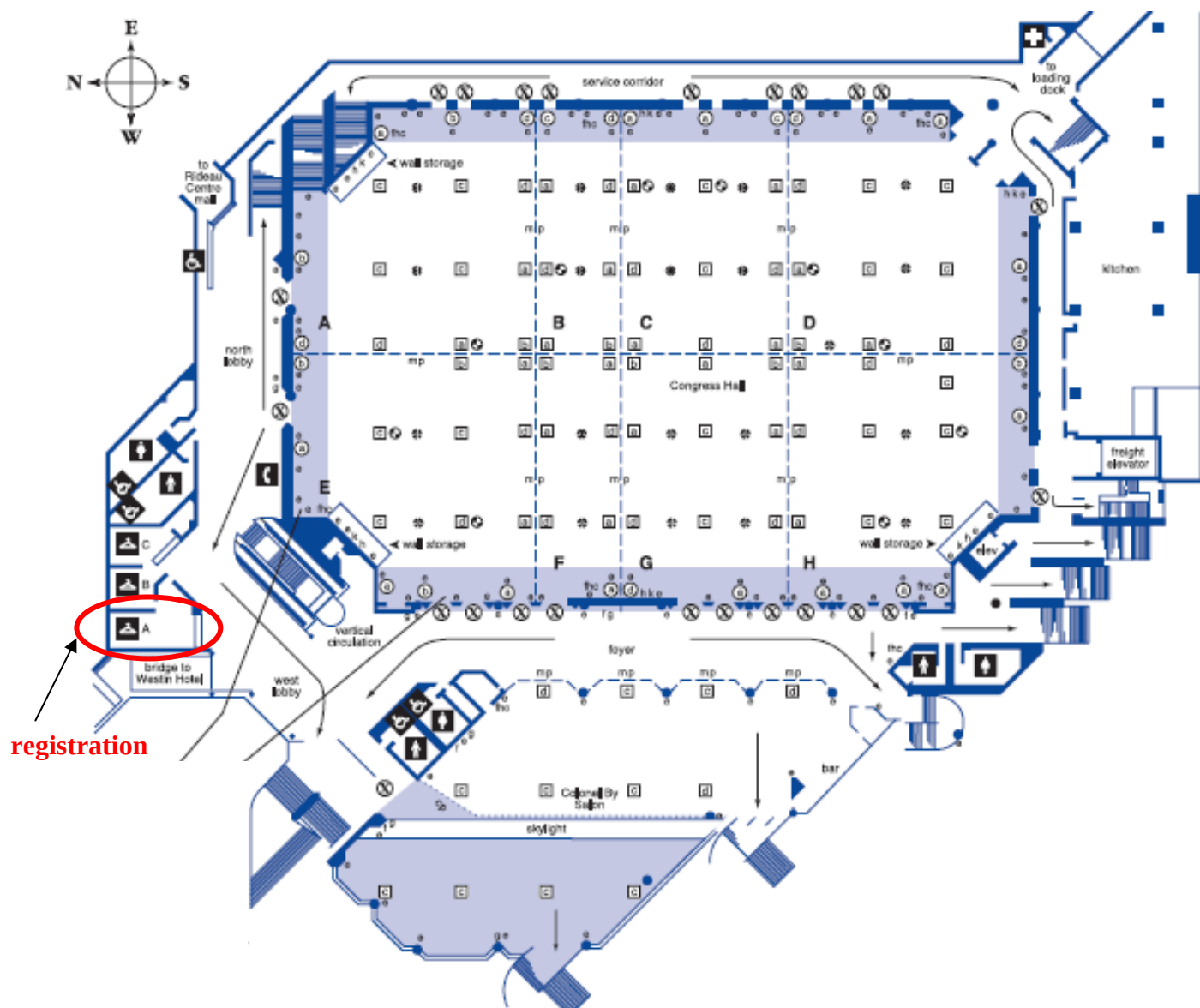
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**Important note: This Program Booklet is a preliminary one;
The information in this program is subject to change without notice.**

Maps and Directions

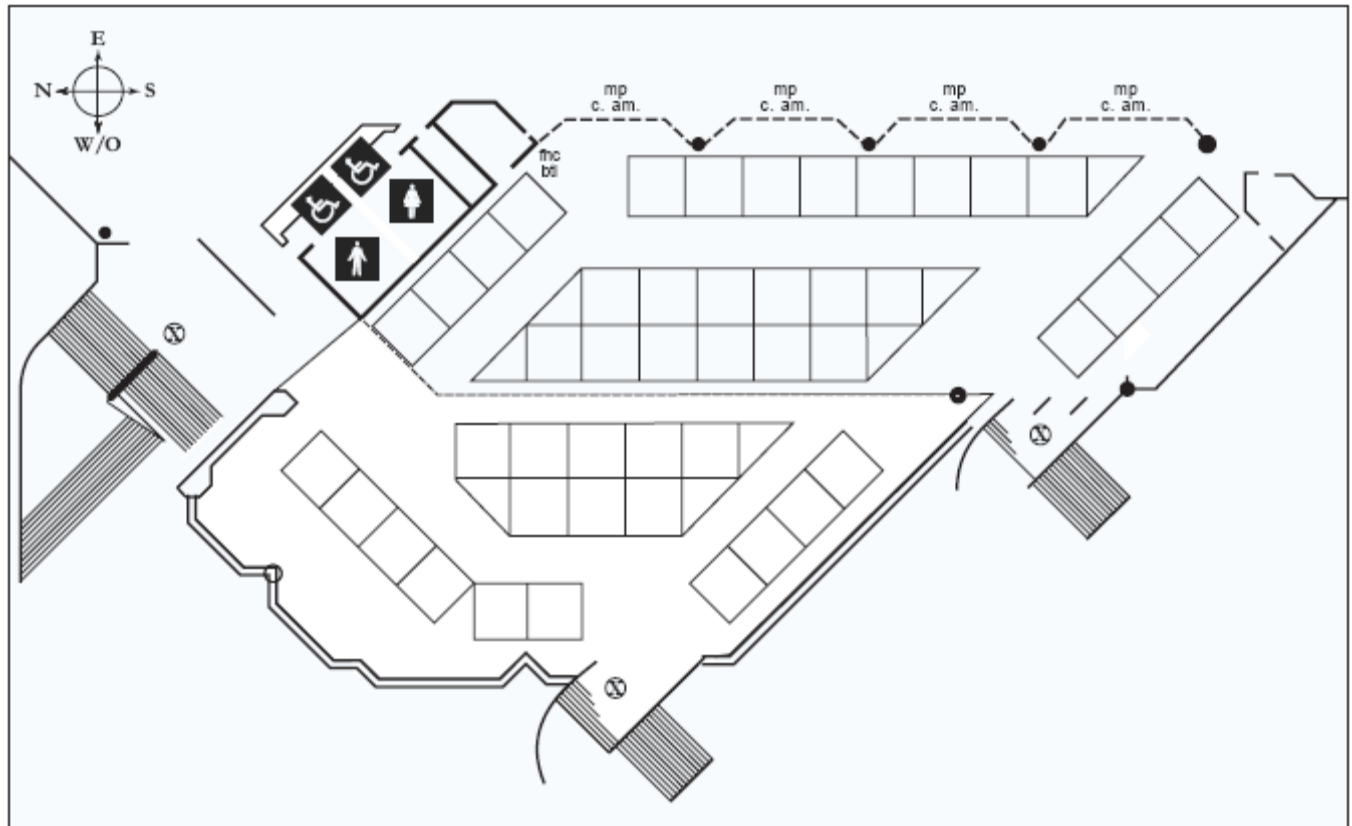
Congress Hall Level

Plenary sessions, Banquet on Monday, most breakfasts, lunches and dinners



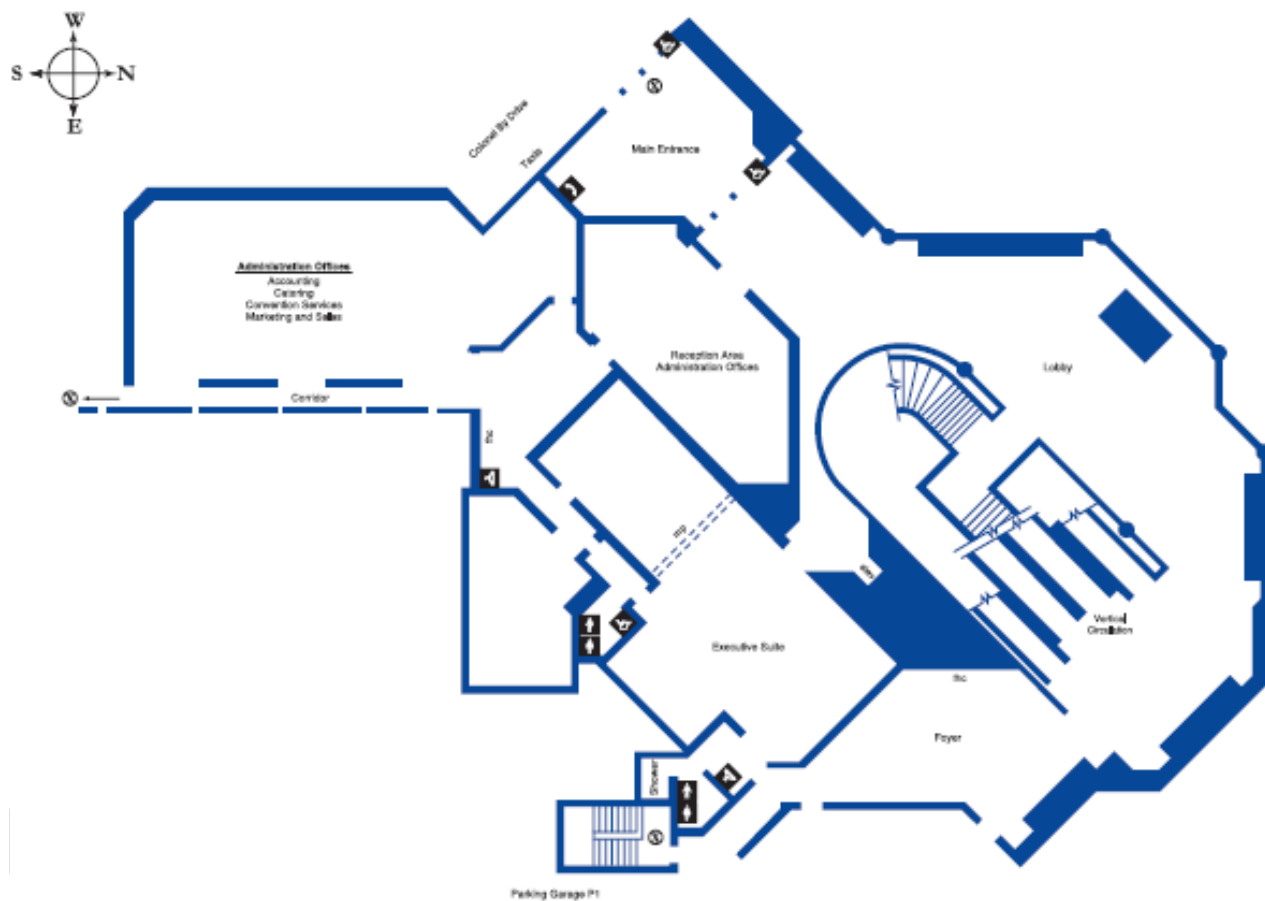
Colonel By Exhibition Room

Sunday reception, Wednesday breakfast and lunch



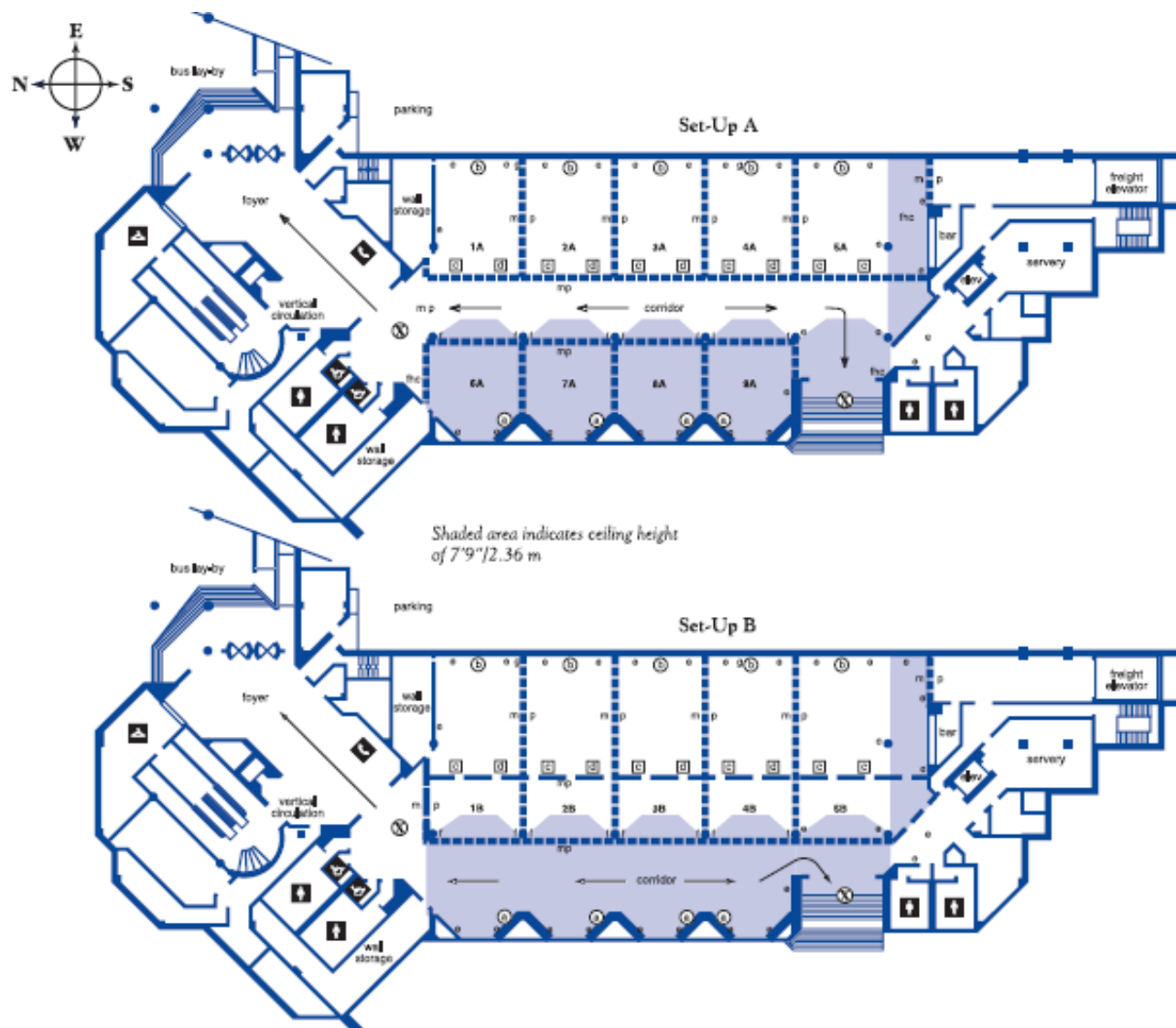
Executive Suite

Some of the parallel sessions



Capital Hall Level (lower level)

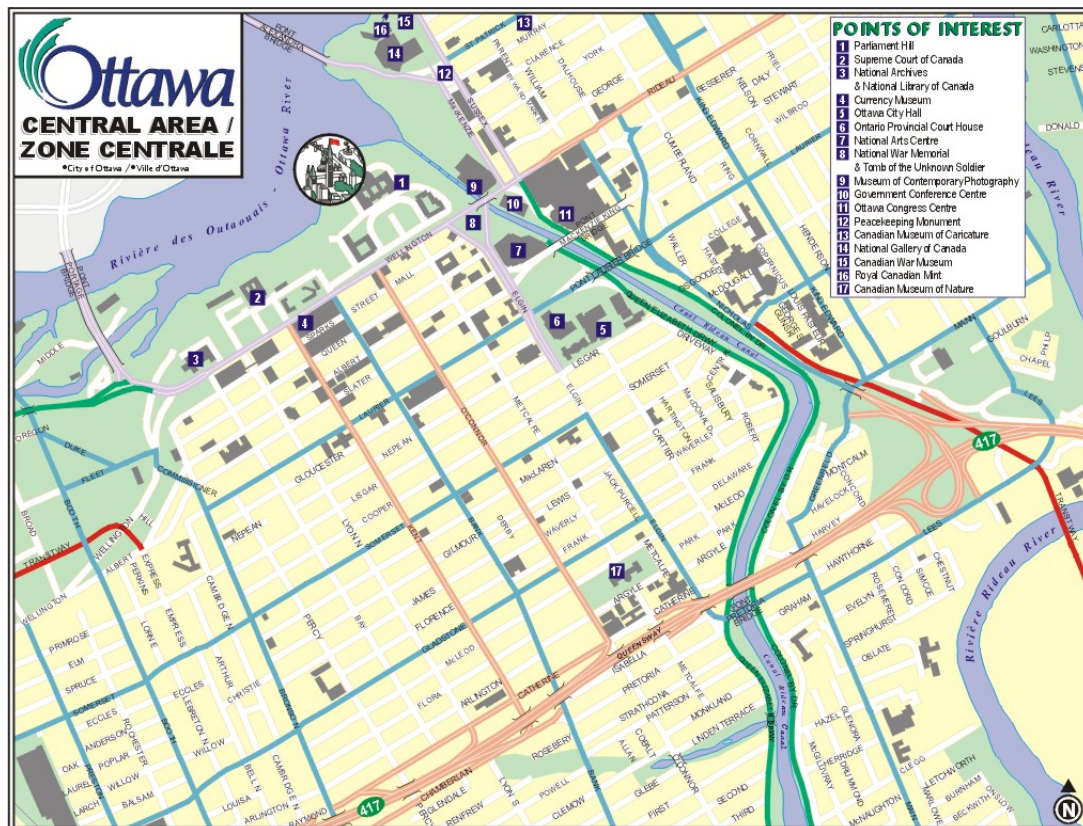
Most of parallel sessions
and the Robotics Competition (rooms 3, 4)



Ottawa Area



Ottawa Downtown Area



Notes:

Tracks and Abbreviations

(AC) Advanced Computer Architecture	(AB) Agent-Based & Internet-Based Systems
(AD) Analog & Digital Electronics	(AN) Antennas & EMC/EMI
(AI) Artificial Intelligence	(BE) Biomedical Engineering & Bioinformatics
(CN) Computer Networks and Systems	(CW) Communications & Wireless Systems
(CT) Control Theory & Applications	(DD) Database & Data Mining
(DS) Digital Signal Processing	(EM) Electrical Machines and Drives
(EC) Electronic Circuits and VLSI	(EH) Electromagnetics and HV Engineering
(HM) Human-Machine Interactions	(HP) High-Performance Computing
(IP) Image & speech Processing	(IS) Intelligent Systems
(IM) Instrumentation and Measurement	(MO) Microelectronics & Optoelectronics
(ME) MEMS & Nanotechnology	(MP) Mobile & Pervasive Computing
(NN) Neural Networks & Fuzzy Logic	(OS) Optical Systems & Photonics
(PR) Pattern Recognition	(PE) Power Electronics
(PS) Power Systems Reliability	(RM) Robotics & Mechatronics
(RT) Real-Time Embedded Systems	(SP) Security, Privacy and Trust
(RF) RF & Microwaves	(SE) Software Engineering
(RS) Remote Sensing, Sensors and Devices	(SR) Power Systems & Renewable Energy
(EL) E-Learning, E-commerce, E-business	(VR) Virtual Reality and New Media

P: Poster session

Technical Program Table

Monday Sessions

Legend:

P: Poster Session

ES: Executive Suite

Session										
location	Capital Hall									ES
	1	2	3	4	5	6	7	8	9	
Monday 8:00 – 8:45 AM	Registration									
Monday 8:45– 9:45 AM	Opening Ceremony & Orchestra									
Monday 10:00 – 11:40 AM	AC1	AN1	BE1	CN1	DD1/ DS1	EM1	IP1	MP1	PE1	CW1
11:40 – 1:20	Lunch									
Monday 1:20 – 3:00 PM	EL1	IP2	IS1	ME1	NN1	PS1	RM1	SE1	SR1	CW2
Monday 3:20 – 5:00 PM	EH1	EL2	IP3	MO1	NN2	RF1	SE2	SP1	SR2	CW3
7:00 – 9:00 PM	Banquet									

Tuesday Sessions

Session										
location	Capital Hall									ES
	1	2	3	4	5	6	7	8	9	
Tuesday 8:00 – 9:40 AM	Keynote speech: CRC president, Dr. Veena Rawat									
Tuesday 10:00 – 11:40 AM	AD1	BE2	CN2	DS2	EC1	EM2	IM1	OS1	PE2	CW4
11:40 – 1:20	Lunch and IEEE Awards									
Tuesday 1:20 – 3:00 PM	P1	P2	P3	P4	P5					CW5
Tuesday 3:20 – 5:00 PM										CW6

Wednesday Sessions

Session										
location	Capital Hall									ES
	1	2	3	4	5	6	7	8	9	
Wednesday 8:00 – 9:40 AM	AC2/ AD2	BE3	CN3	CT1	DS3	EC2	EM3	RS1	SR3	CW7
Wednesday 10:00 – 11:40 AM	CT2	DS4	EC3	EM4	PE3/ PS2	RM2	RT1	SP2	SR4	CW8
11:40 – 1:20	Lunch and Best Paper Award									
Wednesday 1:20 – 3:00 PM	AB1	BE4	CN4/ MP2	DS5	HM1/ HP1	PR1/ IM2/ NN3	RF2	RM3	VR1	CW9
Wednesday 3:20 – 5:00 PM	DS6	AI1	SP3	ME2	MO2					CW10

General Information

Registration Desk

The Conference Registration Desk will be set up in the lobby of the Congress Center for authors and attendees to register and pick up their conference packages. Hours of operation are:

Sunday, May 7:	12 Noon to 6:00 PM
Monday, May 8:	7:30 AM to 4:00 PM
Tuesday, May 9:	7:30 AM to 4:00 PM

If you require emergency assistance outside these hours, please contact the Conference Office (near the bridge to the Westin Hotel; at Congress Hall Level) or one of the conference volunteers.

Meals and Inclusions

Each ***author, attendee, and full partner registration*** includes the following:

- Sunday Welcome Reception (Colonel By Salon, 7:00 – 9:00 PM)
- Monday, Tuesday, Wednesday Breakfasts
- Monday Tuesday, Wednesday Lunches
- Monday evening Banquet (Congress Hall A, 7:00 – 9:00 PM)

Monday and Tuesday breakfasts and lunches will be held in the Congress Hall A on the upper level.

Wednesday breakfast and lunch will be held in the Colonel By Salon on the upper level.

Extra tickets for lunches (\$30) and the banquet (\$100) will be available from the Registration Desk in the main lobby or the Conference Office.

Conference Proceedings CD

Each ***author and attendee full registration*** also includes the Conference Proceedings (on Compact Disk), and an attractive commemorative bag.

Additional copies of the Conference Proceedings on Compact Disk are available to *fully registered delegates* during the conference from the Conference Office at a cost of \$50 each.

After the conference, Proceedings will be available from the IEEE Publications.

Dietary Needs:

If you indicated special dietary needs when you registered, please indicate these to your server at the meals. Your server will be glad to help with any special requests.

Internet Access

Internet wireless access is available for conference delegates.

Authors Screening Room

A computer is available at the Capital Hall Coat Room for authors to verify the software compatibility of their audio/visuals for oral presentations. Authors are strongly encouraged to verify their presentation before their assigned session and be ready to load it onto the session computer in the appropriate room before the start of their session. Consult your Session Chair or Session Volunteer for accessibility times (normally 15 minutes before the session start).

Authors are reminded that they ***must use the computers provided in the Session rooms***, and their presentations must be loaded onto these computers BEFORE the session start time. *Laptop and other personal computer cannot be accommodated.*

Messages and Help

A Message Board is available by the Conference Office for the use of attendees and for incoming messages.

If you require help, please contact the Conference Office or any of the conference volunteers.

Exhibits

Exhibits will be located at the Capital Hall Level from 8:00 AM till 5:30 PM on Tuesday, May 9, and at various other times during the conference.

Local Attractions & Events

Ottawa boasts numerous local attractions for your enjoyment. In addition, there are always a variety of interesting events scheduled in the area. The list below is just a small sampling of the options available to you. Please consult the Conference Office for a complete listing. Our conference volunteers will be happy to assist.

May 4 - May 22, 2006: Canadian Tulip Festival (<http://www.tulipfestival.ca/>)

Canadian Museum of Civilization

Canadian Museum of War

Canadian Museum of Science and Technology

The Diefenbunker - Canada's Cold War Museum

National Art Gallery

National Art Center

Gatineau Park

Airlines and Transportation

Airlines:

Ottawa International Airport	975-4274
Air Canada	(Reservations) 1-888-247-2262
	(Arrivals/Departures) 1-888-422-7533
WestJet	(Reservations) 1-800-538-5696
	(Arrivals/Departures) 1-877-929-8646
Northwest Airlines/KLM Royal Dutch Airlines	1-800-225-2525
Lufthansa	1-800-563-5954
Qantas Airways	1-800-227-4585
Transwest Air	1-800-667-9356
Malaysia Airlines	1-800-552-9264
Norcan Airlines	1-866-329-2222

Taxi & Limousine Services:

Blue Line	(613) 238-1111
Capital Taxi	(613) 744-3333
DJ's Taxi	(613) 829-9900
West Way Taxi	(613) 727-0101
Airport Limousine	(613) 741-7111
Crown Taxi	(613) 777-1645

Car Rentals:

Budget Car & Truck Rental	1-800-268-8900
Avis Car Rental	(613) 230-2847
Alamo Rent-A-Car	(613) 737-7264
Enterprise Rent-A-Car	1-800-736-8222
Hertz Rent-A-Car	1-800-263-0600

Notes:

Welcome by Conference Chair



Technology for a Better World

Welcome to the 2006 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2006) in Ottawa, Ontario.

On behalf of the Conference Organizing Committee, I would like to welcome all the conference participants and their companions to the 19th Annual CCECE in Ottawa, Ontario, Canada. This conference is taking place at the Ottawa Congress Centre in the heart of Canada's Capital during the Annual Tulip Festival that Ottawa always enjoys. We hope that in addition to attending the conference you have the opportunity to visit some of the many attractions that Ottawa and its spring festival have to offer.

Approximately 1200 abstracts were received for consideration. The program contains 565 papers organized into a number of oral presentation and poster sessions. These papers are available on the CD-ROM issued to all registrants and will also be available through IEEE-Xplore. We invite you to attend the oral and poster sessions and to actively discuss the research concepts, ideas and applications presented. A workshop is scheduled for the whole day of Sunday which provides a stimulating start to the conference.

We are excited to bring this event that is sponsored by IEEE Canada and its Ottawa Section. We would like to thank all our sponsors for their support and the many volunteers who have assisted in the organization and operation of CCECE 2006.

Hussein Mouftah, FIEEE, FCAE, FEIC
Chair CCECE 2006

Bienvenue du président de la conférence



La technologie pour un monde meilleur

Bienvenue à la Conférence canadienne en génie électrique et informatique 2006 (CCGEI 2006) de l'IEEE à Ottawa, en Ontario.

Au nom du comité organisateur de la conférence, je désire souhaiter la bienvenue aux participants et leur conjoint-te à cette 19^{ème} conférence annuelle CCGEI à Ottawa, Ontario, Canada. Cette conférence a lieu au Centre des congrès d'Ottawa, au cœur de la capitale du Canada, en plein festival des tulipes, un événement annuel toujours fort apprécié à Ottawa. Nous espérons qu'en plus de participer à la conférence, vous en profiterez pour découvrir quelques-uns des nombreux attraits d'Ottawa et de son festival printanier.

Environ 1200 résumés ont été reçus pour évaluation. Le programme contient 565 articles répartis en plusieurs sessions de présentations orales et d'affiches. Ces articles sont inclus sur le CD-ROM offert à tous les participants inscrits et seront aussi accessibles par le biais du IEEE-Xplore. Nous vous invitons à assister aux sessions de présentations orales et d'affiches et à prendre une part active aux discussions sur les concepts de recherches, les idées et les applications présentés. Un atelier, au programme pour la journée du dimanche, servira de point de départ stimulant pour la conférence.

Nous sommes heureux de vous offrir cet événement de l'IEEE Canada qui, cette année, est organisée par sa Section d'Ottawa. Nous aimerions remercier tous nos commanditaires pour leur appui et les nombreux bénévoles qui nous ont aidés à l'organisation et au déroulement de cette conférence CCGEI 2006.

Hussein Mouftah, FIEEE, FCAE, FEIC
Président de la conférence CCGEI 2006

Message from the President of IEEE Canada



On behalf of IEEE Canada, Region 7, welcome to the 2006 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2006). We are pleased to host the 19th IEEE Canada conference, and to welcome you to Ottawa, our nation capital. The program this year promises many interesting papers on some of the most current technical developments.

I hope that you will take full advantage of the three days of technical sessions, as well as the tutorials and workshops associated with the conference.

Also, on Monday evening, the conference hosts an impressive banquet, where the premier awards for Canadian achievement in Electrical and Computer Engineering will be presented. I do hope that you will attend the banquet, and honour our prestigious award winners. We are very proud of their achievements, and honoured to be able to recognize them in front of so many of their colleagues.

This CCECE conference has its heritage in the Canadian Society of Electrical and Computer Engineering, which subsequently merged with IEEE Region 7 to form IEEE Canada, our national Society. We have grown to over 15,000 members nationwide, and we hope to continue to attract members who can share in the exciting developments of the coming years. If you are not already an IEEE Member I strongly encourage you to join today and become actively involved in your local section or one of the 40 technical societies that closely reflect your interest.

Please take full advantage of the opportunity to network with your peers, and to learn from the authors about their work.

I'd also like to thank the CCECE 2006 conference organizing committee. These dedicated volunteers have worked very hard for the past two years to arrange the program and the logistics of the conference. As with any large and complex endeavour, they have faced many challenges. All committee members took each of these in stride, and continually came back stronger and fresher to find creative workable solutions. The conference today is evidence of their success.

Have a great stay in Ottawa and I look forward to seeing you at CCECE 2006.

Robert Hanna, P.Eng., Ph.D., FIEEE, FEIC, FIEE
2006-2007 IEEE Canada President

Message du président de l'IEEE Canada



Au nom de l'IEEE Canada, Région 7, bienvenue à la Conférence canadienne de génie électrique et informatique 2006 (CCGEI 2006) de l'IEEE. Nous sommes ravis d'organiser cette dix-neuvième conférence canadienne de l'IEEE et de vous accueillir à Ottawa, notre capitale nationale. Le programme de cette année nous promet plusieurs articles intéressants sur certains des tout derniers développements techniques.

J'espère que vous profiterez pleinement des trois jours de séances techniques ainsi que des ateliers et tutoriaux présentés en marge de la conférence.

De plus, lundi soir, la conférence vous convie à un impressionnant banquet où l'on remettra les prix pour souligner les réalisations canadiennes en génie électrique et informatique. Je compte sur vous pour y assister afin de rendre hommage à nos prestigieux lauréats. Nous sommes très fiers de leurs accomplissements et honorés de pouvoir les récompenser en présence de leurs nombreux collègues.

Cette conférence CCGEI puise ses racines dans la Société canadienne d'ingénierie électrique et informatique qui fusionna par la suite avec la Région 7 de l'IEEE pour devenir l'IEEE Canada, notre société nationale. Nous comptons plus de 15 000 membres au pays et nous espérons continuer à en attirer d'autres pour prendre part aux développements captivants des années futures. Si vous n'êtes pas encore membre de l'IEEE, je vous encourage fortement à y adhérer maintenant et à vous engager activement auprès de votre section locale ou dans l'une des 40 sociétés techniques se rapportant à votre champ d'intérêt.

Je vous invite à profiter de l'occasion pour échanger avec vos pairs et pour laisser les auteurs nous en apprendre sur leurs travaux.

J'aimerais aussi remercier le comité organisateur de la CCGEI 2006. Ces dévoués bénévoles ont travaillé d'arrache-pied au cours des deux dernières années pour préparer le programme et la logistique de la conférence. Comme dans toute entreprise d'envergure, ils ont fait face à de nombreux défis. Les membres du comité les ont affrontés sans sourciller, revenant chaque fois plus forts et revigorés avec des solutions originales et réalisables. La conférence d'aujourd'hui est un témoignage de leur réussite.

Bon séjour à Ottawa et au plaisir de vous rencontrer à la CCGEI 2006.

Robert Hanna, P.Eng., Ph.D., FIEEE, FEIC, FIEE
Président de l'IEEE Canada, 2006-2007

CCECE 2006 Organizing Committee

General Conference Chair:	Hussein Mouftah, <i>University of Ottawa</i>
Organizing Committee Chair:	Ramiro Liscano, <i>University of Ontario</i>
Technical Program Chairs:	Abdulmotaleb El Saddik, <i>University of Ottawa</i> Rafik Goubran, <i>Carleton University</i> Voicu Groza, <i>University of Ottawa</i>
General Secretary:	Wahab Almuhtadi, <i>Algonquin College</i>
Treasurer:	Branislav Djokic, <i>National Research Council Canada</i>
Sponsorship / Exhibition Committee Chair:	Jasmin Roy, <i>Communications Research Centre Canada</i>
Publicity Chair:	Bahram Zahir Azami, <i>Hivva Technologies</i>
Publication co-Chairs:	Raed Abdullah, <i>Hydro Ottawa</i> Tariq Al-Omari, <i>Carleton University</i>
Workshop / Tutorial Chair:	George Yee, <i>National Research Council Canada</i>
DRDC Workshop Chair:	Sreeraman Rajan, <i>DRDC Ottawa</i>
Local Arrangements Chair:	John Grefford, <i>CRO Engineering Ltd</i>
Student Activities Chair:	Vijay Narasimhan, <i>University of Ottawa</i>
IEEE Canada President:	Robert Hanna, <i>RPM Engineering Ltd</i>
Conference Advisory:	Witold Kinsner, <i>University of Manitoba</i>
Webmaster:	Amir Ghavam, <i>University of Ottawa</i>
Industrial Relations Chair:	Maike Luiken Miller, <i>NCIT</i>
Registration Co-Chairs:	Wahab Almuhtadi, <i>Algonquin College</i> Preeti Raman, <i>EIDOS Ottawa</i> Soorena Merat, <i>IEEE Ottawa</i>
Conference Secretariat:	CCECE 2006 <i>Algonquin College</i> <i>School of Advanced Technology</i> 1385, Woodroffe Ave. Ottawa, Ontario, Canada K2G 1V8 Telephone: (613) 727-4723 x3403 ccece06@ieee.org

CCECE 2006 Technical Program Committee

Technical Program Committee Co-Chairs:

Rafik Goubran	<i>Carleton University</i>
Voicu Groza	<i>University of Ottawa</i>
Abdulmotaleb El Saddik	<i>University of Ottawa</i>

Track Chairs:

Raed Abdullah	Hydro Ottawa Limited
Andy Adler	University of Ottawa
Rejean Arsenault	National Research Council Canada
Miodrag Bolić	University of Ottawa
Adrian Chan	Carleton University
Claude D'Amours	University of Ottawa
Richard Dansereau	Carleton University
Mieso Denko	University of Guelph
Branislav Djokic	National Research Council Canada
Babak Esfandiari	Carleton University
Emad Gad	University of Ottawa
Wail Gueaieb	University of Ottawa
Roger Impey	National Research Council Canada
Dan Ionescu	University of Ottawa
Amor Jnifene	Royal Military College of Canada
Peter X. Liu	Carleton University
Ali Miri	University of Ottawa
Amiya Nayak	University of Ottawa
Jasmin Roy	Communications Research Centre Canada
Henry Schriemer	University of Ottawa
Shervin Shirmohammadi	University of Ottawa
Vijay Sood	Concordia University
Brian Stacy	Cistel Technology Inc. Ottawa
Niall Tait	Carleton University
Wa James Tam	Communications Research Centre Canada
Mustapha C.E. Yagoub	University of Ottawa
Chunsheng Yang	National Research Council Canada
Qiubo Ye	Communications Research Centre Canada
George Yee	National Research Council Canada
Jiying Zhao	University of Ottawa

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Bronze



Inkind / En nature

Académie des
Orchestres des jeunes
d'Ottawa



Ottawa
Youth Orchestra
Academy



CCECE 2006 is pleased to acknowledge the support of the National Research Council Canada in providing the WitanWeb software that was used to receive and organize the conference papers.

CCECE 2006 is pleased to acknowledge the support of the Communications Research Centre Canada in providing graphic design services.

CCECE 2006 is pleased to acknowledge the support of Defence R&D Canada in organizing and hosting the workshop on signal and information processing for defence applications.

Tutorials

The tutorials below are all half-day tutorials. Odd numbered tutorials (i.e., Tutorials 1, 3, and 5) are held in the morning. Even numbered ones (i.e., Tutorials 2, 4, and 6) are held in the afternoon. Each tutorial attendee will receive a printed hand-out of tutorial materials for the tutorial he/she attends. Here is a listing of all the tutorials:

Tutorials in the morning, Sunday May 7, 8:30 AM – 12:00 PM:

Tutorial 1: Modeling and Optimization for High-Frequency Electronic Design (SITE, C0136)

Tutorial 3: Recognition in Video (SITE, Room E0126)

Tutorial 5: Processing, Protecting and Providing Multimedia Information (SITE, J0106)

Tutorials in the afternoon, Sunday May 7, 1:00 PM – 4:30 PM:

Tutorial 2: Infrastructure-based Wireless Multihop, Relay, Mesh Networks (SITE, C0136)

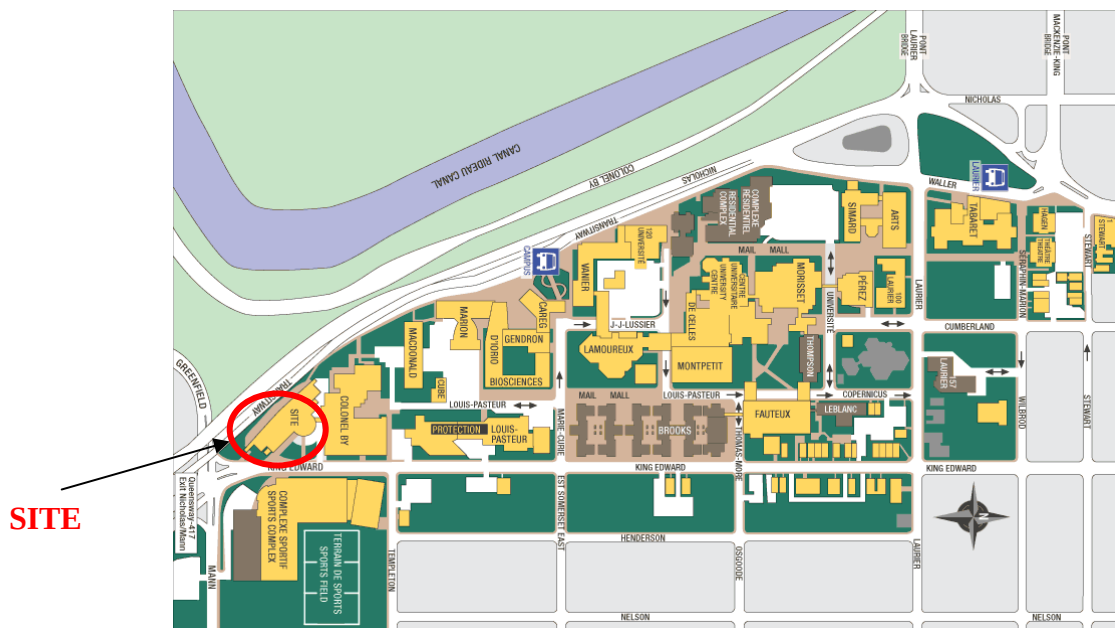
Tutorial 4: Antennas and Channel Modeling for Ultra Wideband (UWB) Communications (SITE, E0126)

Tutorial 6: Automated Test Equipment (ATE) Fixtures – Glue and Black Magic (SITE, J0106)

The CCECE 2006 Organizing Committee would like to express its sincere appreciation to all the tutorial presenters for volunteering their time and expertise in preparing and giving these tutorials.

Biographies of the speakers are available at the Conference's website: <http://ieee.ca/ccece06>.

All the tutorials will take place in SITE, University of Ottawa at 800 King Edward Ave. The SITE building is about 15 minutes walking distance from the Congress Center.



Tutorial 1

Sunday, May 7, 8:30 AM-12:00 PM
Room C0136, SITE, University of Ottawa

Modeling and Optimization for High-Frequency Electronic Design

by Dr. Q.J. Zhang, Carleton University, IEEE Fellow

Abstract

Modeling and optimization of high-frequency effects are important in designing RF/microwave circuits and in signal integrity based design of high-speed VLSI packages and interconnects. Increasing circuit size and design complexity, coupled with stringent design specifications and shorter design cycles, demand tools that are faster, more accurate and automated than possible today. It becomes important to achieve EM/physics-based design accuracies not only at the component level, but also at the circuit and system levels. Efficient modeling for linear and nonlinear circuits with EM/physics oriented accuracy but much faster than direct EM/physics simulations are necessary. Recent advances in the application of neural networks and fuzzy logic for microwave design lead to new developments in efficient and automated modeling and CAD at both component and circuit levels. Applications are being made in modeling and design of microstrip and CPW circuits, multilayer interconnects, embedded passives, printed antennas, LTCC circuits, semiconductor devices, measurement standards, filters, amplifiers, mixers and so on. New CAD methods for optimization, statistical design, global modeling, and computational electromagnetics exploiting computational intelligence concepts are being developed. Knowledge based engineering concepts exploiting existing microwave knowledge and information are being formalized into advanced microwave CAD methodologies such as knowledge-aided design, knowledge-based neural networks, and space mapping. This leads to new opportunities combining equivalent circuit/empirical models, EM/physics simulation, behavioral modeling, neural network and space mapping optimization algorithms for fast and accurate design of high-frequency circuits and systems.

This tutorial presents an overview of the state of the art in these emerging directions. The presentations highlight implementable methodologies for automated modeling and design of RF/microwave components, circuits and systems. The tutorial covers fundamental concepts and methodologies, industrial applications, and future trends in R&D.

Tutorial 2

Sunday, May 7, 1:00 PM-4:30 PM
Room C0136, SITE, University of Ottawa

Infrastructure-based Wireless Multihop, Relay, Mesh Networks

by Dr. Halim Yanikomeroglu, Carleton University

Abstract

Simple calculations indicate that the provision of very high data rates, beyond small pockets, is not feasible with the conventional wireless network architectures. Even the recent advances in antenna technologies (such as smart antennas and MIMO systems) and signal processing techniques (such as advanced channel coding methods) do not seem to be sufficient to alleviate the tremendous potential stress that will be incurred on the link budget in future wireless networks with the aggregate rates of 100 – 1000 Mbps. Towards that end, the augmentation of the current networks with the multihop capability is considered to be the most feasible architectural upgrade to facilitate almost ubiquitous high data rate coverage in the most cost-effective manner.

In this context, there has been growing interest in both academia and industry in the concept of relaying in infrastructure-based wireless networks such as next generation cellular (B3G, 4G), WLAN (WiFi, HiperLAN2), and broadband fixed wireless (802.16, WiMax, HiperMAN) networks. Multihop communications can be facilitated through the use of low-power/low-cost fixed relays deployed by the service provider, or through other wireless terminals in the network. This tutorial will present the concept of relaying in infrastructure-based networks, with its fundamental dynamics, potentials and limitations. The tutorial will cover physical layer issues (including novel diversity techniques, virtual antenna arrays, and cooperative relaying), systems level issues (including multiple access, ARQ, radio resource management, coverage, capacity, and throughput) and networking issues (including intelligent routing, load balancing, and handoff).

This tutorial is a survey of almost anything related to infrastructure-based relay, multihop, and mesh networks, from physical layer, to multiple access layer, up to networking layer. Some of the concepts discussed in the physical layer has also relevance to ad-hoc and sensor networks.

Tutorial 3

Sunday, May 7, 8:30 AM-12:00 PM
Room E0126, SITE, University of Ottawa

Recognition in Video

by Dr. Dmitry O. Gorodnichy, National Research Council Canada

Abstract

Video processing is no longer a prerogative of a few. With video-cameras now affordable, computers powerful enough to process video in real-time, and a large pool of Open Source video libraries available for everybody, it is now possible practically for anybody with basic engineering skill to create a video processing system. The variety of applications for video processing is just as impressive: from surveillance, video coding and annotation to computer-human interaction and collaborative environments to multi-media, video conferencing and computer games, to name a few.

Building a vision system for a specific application however is a big challenge, because of the complexity and the versatility of the video recognition problem inherent to all video processing tasks, regardless of whether it is tracking of objects, recognition of events or person identification.

While for humans it is very easy to give a meaning to observed visual stimuli, for computers it is not, and engineering skills alone may not be sufficient to resolve the problem.

This tutorial is aimed at providing a compressive background to the problem of recognition in video and presenting an overview of the available solutions to this problem. Both live demonstrations and simple video coding techniques will be shown. By the end of the tutorial, the audience will be able to create their own perceptual vision system using a web-cam in a Windows environment.

Tutorial 4

Sunday, May 7, 1:00 PM-4:30 PM
Room E0126, SITE, University of Ottawa

Antennas and Channel Modeling for Ultra Wideband (UWB) Communications

by Dr. Qiubo Ye and Mr. Qingsheng Zeng,
Communications Research Centre Canada

Abstract

This tutorial is divided into two parts. In the first part, basics about UWB communication technologies are briefly introduced, including the history, FCC regulations and the existing UWB techniques. Then, antenna concepts are reviewed, UWB antennas are compared with the conventional broadband antennas, and the challenges facing antenna designers are described. Next, some UWB antennas are designed by going through the procedures of simulation, fabrication and measurement. A set of criteria for identifying and evaluating UWB antennas is proposed.

In the second part, UWB channel modeling, it first addresses how the frequency selectivity of propagation processes causes differences between UWB channels and narrowband. The pathloss due to free space loss, reflection, transmission, diffraction and scattering are described. Then large scale channel modeling is discussed, followed by small scale channel modeling. The former includes passloss modeling in free-space and non-free-space environments, shadowing, link budget calculations, etc. while the latter contains statistical modeling of channel impulse responses, effect of model parameters, etc. Next, some new techniques for channel modeling in time domain and their applications in UWB receiver design are presented. Finally, this part is summarized with the conclusions.

Tutorial 5

Sunday, May 7, 8:30 AM-12:00 PM
Room J0106, SITE, University of Ottawa

Processing, Protecting and Providing Multimedia Information

by Drs. Dimitri Androutsos, Sri Krishnan, and Xavier Fernando,
Ryerson University

Abstract

This tutorial will be given in three parts, as follows:

1. Processing and Retrieval (Dr. Androutsos)

The focus of the tutorial is to understand the current research and trends in accessing and retrieving multimedia data based on their content and semantic meaning. The tutorial will address various ways that features and semantic meaning are identified and indexed and how multimedia applications and services can use this data to efficiently and effectively access the underlying multimedia information.

The great surge in the amount of digital data that is available today has greatly increased the need for effectively accessing media by their content and meaning. Data is generated both by consumers and industry very easily and very quickly. However, as this amount increases, the inherent value of this multimedia data decreases since it becomes increasingly difficult to find specific images, video scenes or music. If we cannot find the multimedia content that we want, then what value does more and more multimedia data have?

Recent research has focused on methods and techniques to automatically identify salient features and semantic meaning. All multimedia data, i.e., images, video and audio, have low-level content that can be identified and extracted. This content can then be used to retrieve data or can further be used to build high-level semantic meaning. This allows multimedia data to then be retrieved by cognitive concepts such as storyline, audio genre, specific actor or speaker or even by specific actions of events (e.g., action segments of a sports broadcast).

In this tutorial we will discuss the multimedia retrieval problem. We will investigate various low-level methods that have been developed and how higher-level semantic concepts have become the new trend in creating new and exciting ways to manage multimedia, opening doors to new applications.

2. Security and Watermarking (Dr. Krishnan)

In recent years, the multimedia content has been reproduced and distributed in digital form. Today's technology allows people to copy multimedia content and redistribute it over the Internet at a very low cost. Therefore, need for copyright protection has been aroused for maintaining the rights of the multimedia content (audio, image and video). Watermarking is the

process of embedding a special data into the host signal for copyright ownership. A watermark added to the host signal should satisfy the following conditions. 1) It should be imperceptible by the user. 2) It should be robust to any kind of manipulations on the host data such as filtering, compression, noise, re-sampling etc. 3). It should be successfully extracted to prove the ownership. In this tutorial, different watermarking schemes and their advantages and disadvantages will be covered. Most of the existing algorithms embed the watermark information in the frequency domain of the signal using the simultaneous masking properties. There are also some watermarking techniques proposed that use the temporal masking properties. Techniques to embed the watermark in the joint time and frequency domains will also be discussed in the tutorial. Watermarking can only be applied to new media contents and is not feasible for copyright protection of pre-existing digital materials. Multimedia fingerprinting techniques are gaining popularity for information security applications.

A Multimedia fingerprint is a compact representation of the perceptually relevant parts of an audio or video content. A well designed fingerprint can be used to identify a multimedia object, even if it is severely distorted by compression or other signal processing techniques. Some of the applications for fingerprinting include integrity verification, content-based identification, broadcast monitoring, and digital rights management. A Fingerprinting system consists of two major blocks: fingerprint extraction and matching. In Fingerprint extraction, using perceptually relevant features of the signal, a compact representation of the signal is developed. In the later part, fast and efficient search and matching criteria are developed to match the fingerprint with the fingerprint database. Various fingerprinting schemes including the joint time and frequency based methods, and their advantages and shortcomings will be discussed in the tutorial.

3. Transmission and Delivery over Access Networks (Dr. Fernando)

In this portion, we focus on the critical challenges facing access networks or the last mile bottle neck for multimedia delivery. We will look at the current and emerging technologies to address them.

The dominant broadband access technologies today are Digital Subscriber Line (DSL) and cable modems. DSL leads, with global subscribers exceeding 100 million, while cable-modem subscribers worldwide will total 55 million in 2005. Data over Cable Service Interface Specifications (DOCSIS) is the ITU standard for multimedia delivery over cable. Although DSL is primarily for data, Voice over DSL (VoDSL) is becoming hot in corporate access networks.

Furthermore, emerging broadband technologies such as fiber-to-the-home (FTTH) access are gaining in importance. There were 2.8 million FTTH users by March 2005. 30 million people in Japan will have FTTH by 2010 [1]. With FTTH approach, multimedia signals such as (high definition or conventional) video, digital audio and high-speed (Internet) data signals are simultaneously transmitted over optical fiber all the way to the home. The video signal could be either radio frequency (RF) video or internet protocol (IP) video. The IP video is similar to Internet traffic with additional streaming requirement. However, the RF video signal is analog and sub carrier multiplexing is needed to transmit multiple television channels. Furthermore, the RF video is a proven technology that already dominates existing fiber-coaxial networks and has better quality. We will compare the pros and cons of RF video and video over IP technologies for multimedia delivery.

Broadband wireless multimedia access is also on the rise. Emerging WiMAX (IEEE 802.16) is a wireless metropolitan-area network technology that provides up to 50- kilometers of service area, without the need of direct line-of-sight to the base station, and provides data rates up to 75 Mbps. Radio over fiber (ROF) technique is another way for broadband access. For example, Chinese government is adapting ROF technology for its future wireless networks. Furthermore, the Federal Communications Commission (FCC) has authorized the use of spectrum at 71-76 GHz, 81-86 GHz, and 92-95 GHz for wireless multimedia delivery in October 2003 that makes 1-10 Gb/s wireless transmission viable. These mm wave will need ROF technology.

Reference:

[1] Hiromichi Shinohara (NTT Corp.), 'Broadband Access in Japan: Rapidly Growing FTTH Market' IEEE Communication Magazine, September 2005, Vol. 43, No. 9, pp: 72-78.

Tutorial 6

Sunday, May 7, 1:00 PM-4:30 PM
Room J0106, SITE, University of Ottawa

Automated Test Equipment (ATE) Fixtures – Glue and Black Magic

by Bob Stevenson, P. Eng., CMC Microsystems, Patricia Greig, Queens University and National Microelectronics and Photonics Testing Collaboratory, and James Dietrich, P. Eng., University of Manitoba and National Microelectronics and Photonics Testing Collaboratory

Abstract

This tutorial will feature three segments:

- An overview of CMC Microsystems (www.cmc.ca): how graduate students and researchers can engage and work with CMC
- An overview about the National Microelectronics and Photonics Testing Collaboratory: opportunities for research clients to test and validate their microsystems concepts
- A tutorial on Automated Test Equipment (ATE) fixtures

The Automated Test Equipment (ATE) Fixtures tutorial aims to demystify the art of creating successful test fixtures for ATE test equipment, and provide guidance in the creation of test fixtures for the National Microelectronics and Photonics Testing Collaboratory (NMPTC).

The tutorial will provide an overview of basic fixturing concepts, guidelines for the design of high performance fixturing solutions, and design traps to avoid when interfacing with sophisticated test systems. The tutorial will use a combination of lecture and examples to demonstrate the application of design skills with actual test fixtures. Although the tutorial will reference various design tools available to researchers, it will not provide instruction on how to acquire or use such tools.

The tutorial will also provide information on test fixtures for optoelectronic and millimeter wave device testing. CMC recommends that attendees possess a basic knowledge of electronics principles, although there will be no use of rigorous mathematics during the tutorial.

About CMC Microsystems:

CMC Microsystems (www.cmc.ca) provides national infrastructure for microsystems research and technology development, accelerating Canadian competitiveness through the development of highly qualified people and the commercialization of research. CMC offers products and services that include microelectronics, micromechanics (usually implemented in the form of microelectromechanical systems or MEMS), microfluidics, photonics/optoelectronics and embedded software. Researchers depend on CMC's services to design, manufacture and test microsystems concepts for future applications in many industrial sectors.

Workshops

Workshop on Signal and Information Processing for Defence Applications

(Sunday, May 7, 2006, Time: 8:00 AM to 5:00 PM)

Location: Capital Hall Room 1

Free; however registration required: sreeraman.rajan@drdc-rddc.gc.ca

DRDC WORKSHOP

Signal and Information Processing for Defence Applications

Sunday, May 7th (8:00 AM-5:00 PM)

Contact: Sreeraman Rajan, DRDC Workshop Chair, sreeraman.rajan@drdc-rddc.gc.ca

Modern military operations are critically dependent on the ability to acquire, process and distribute information from sophisticated sensors with minimal human intervention. Signal and Information processing play a prime role in such operations. Defence Research and Development Canada (DRDC) has organized a full day seminar to emphasize the importance of signal and information processing for defence applications.

Workshop Chair: Dr. Sreeraman Rajan, Defence Scientist, DRDC Ottawa.

Session Chair: Mr. Robert Inkol, Senior Defence Scientist, DRDC Ottawa.

This workshop consists of oral and poster presentations. Each workshop attendee will receive a CD ROM which would be part of the Proceedings of the CCECE 2006 containing **only** the workshop papers.

The CCECE 2006 Organizing Committee would like to express sincere appreciation to all the workshop presenters for volunteering their time and expertise.

This workshop consists of the following presentations:

Presentations		
S. No.	Title	Author(s)
1	Person Identification using Electrocardiogram	A.D.C. Chan, M.M. Hamdy, A. Badre and V. Badee
2	Vehicle-network Development on a communication-network testbed	J. L. Rapanotti
3	Computing Far-Field Impulse Response of an X-band Navigation Radar Slot Difference Time-Domain Method	C. Wu and J. Lee
4	A Decision Theoretic Modulation Recognition Algorithm for Intentional Modulation on Pulse (IMOP) Applications	Y. Zhou and S. Sung
5	Estimation of Pulse Parameters by Convolution	Y.T. Chan, B.H. Lee, R. Inkol and F. Chan
6	Advanced Image Exploitation Tools for Surveillance and Target Detection with EO Sensors	A. Jouan, D. Lavigne, F. Leduc
7	The Discrete Probability Density Method for Target Geolocation	D. Elsaesser
8	An Expectation Maximization Based Simultaneous Registration and Fusion Algorithm for Radar Network	Z. Li and H. Leung
9	Performance Comparison of the FFT Majority and Median CFAR Detectors	S. Wang, R. Inkol and S. Rajan
10	Applications of Signal Processing Algorithm Performance Benchmarking to Systems based on Personal Computer Technology	R. Inkol, C. Wilson, M. Eidus
11	A Distributed Multisensor-Multitarget Tracking Test Bed for Maritime Surveillance	D. Akselrod, A. Sinha, T. Kirubarajan, M. Farooq, Z. Ding
12	Advances in Communications Electronic Warfare	D. Baker
13 (P)	Focusing Distorted ISAR images Using the S-method	T. Thayaparan, L. Stankovic, and M. Dakovic
14 (P)	Decomposition of Time-varying	T. Thayaparan, L. Stankovic, and M.

	Multicomponent Signals Using Time-Frequency-based Method	Dakovic
15	AIRIS - The Canadian Airborne hyperspectral imager	P. Fournier, T. Smithson, D. St-Germain

Seminar

Seminar on "the Basics of Intellectual Property"

by Rodney C. Kyle, B.Sc., LL.B

(Tuesday, May 9, 2006, Time: 5:00PM to 7:00PM)

Location: Executive Suite, Congress Centre

Free seminar (first-come first served)

Abstract

This presentation was developed by the Canadian Intellectual Property Office (CIPO) and the Intellectual Property Institute of Canada (IPIC). Its objective is to increase the awareness level of intellectual property (IP) among people (e.g., engineers, entrepreneurs) who are exposed to IP in Canada, to allow them to make better business decisions.

The content includes:

- a description of both CIPO and IPIC
- why it is critical to understand intellectual property
- descriptions of the different kinds of intellectual property such as trade secrets, patents, trade-marks, copyrights and industrial designs
- key information on intellectual property such as what it is, how to obtain protection, what are the benefits and some clear examples
- information on assignments and licensing of intellectual property rights
resources available for the public

Rodney Kyle is an Ottawa-based arbitrator, lawyer, and trademark agent. He carries on business as IP-ADR. After obtaining his B.Sc. in Physics & Earth Science, he worked as an exploration geophysicist and then sought and obtained his LL.B. He is a member of the Ontario bar and is authorized to practice in the Canadian and United States trademarks offices. For the last eighteen years, in both domestic and international matters, he has worked mainly in intellectual property, as well as in contracts and torts that relate to or are similar to intellectual property. He is a member of various alternative dispute resolution associations, is on the arbitrator rosters of various national and international arbitration centers, has been counsel or a panellist in over two dozen arbitrations relating to intellectual property, is a Fellow of the Intellectual Property Institute of Canada, is the Chairperson of the Intellectual Property of Canada's

2006 Canadian Conference on Electrical and Computer Engineering

Committee on Intellectual Property Licensing, and has published on various intellectual property and arbitration topics. He may be reached at rodneyckyle@ip-adr.pro.

4th Annual IEEE Ottawa Robotics Competition

(Sunday, May 7, 2006, Time: 12:30PM to 5:00PM)
Location: Capital Hall Rooms 3B, 4B



The IEEE *Ottawa Robotics Competition (ORC)* aims at bringing engineering awareness to students in grades 7 and 8 by presenting a fun and instructive approach to problem solving. Each team in the competition has 9 weeks to build a robot using a Lego Mindstorms kit to overcome a challenge race course or a robo-hockey game. Besides the challenges, the competition also judges the quality of a poster presentation and engineering innovations.

Annually held since 2003, this year's competition has 18 registered teams from 11 local area schools, competing in both junior and senior challenges. More information on the competition, the teams and the organization can be found at our web site: <http://www.ottawaroboticscompetition.org>.

This year, the IEEE ORC will be held during the CCECE 2006 conference, providing the grade school students with exposure to the top electrical and computer engineering event in Canada and providing the conference attendees with a fulfilling event that hopefully will be replicated in other areas of Canada. Prizes will be awarded to the winning teams with current IEEE executives presenting the awards.

The Competition Officers

Rodrigo Garcia, Robotics Competition Chair

Rami Abielmona, Robotics Competition Vice-Chair

Ramiro Liscano, Past Chair and Founding Member

Notes:

Conference Meals and Events

Welcome Reception

All delegates are welcomed to Ottawa and CCECE 2006 by IEEE Canada and the Conference Organizing Committee. This is your opportunity to network with colleagues, renew old friendships, and make new ones over light snacks, refreshments and cocktails*.

Date	Time	Location
Sunday, May 7	7:00 – 9:00 PM	Colonel By Salon

*Cash bar.

Plenary Sessions

Date	Time	Location
Monday, May 8	8:30 – 9:30 AM	Congress Hall

Program

Opening Remarks by the General Chair:

Hussein Mouftah, General Conference Chair

Welcome to the Province:

TBA

Opening Remarks by the TPC Chairs:

Abdulmotaleb El Saddik, Technical Program Co-Chair

Rafik Goubran, Technical Program Co-Chair

Voicu Groza, Technical Program Co-Chair

Plenary Speaker:

Marcellus Mindel, Program Director, Centre for Advanced Studies

The Innovation Trend: Will It Benefit Society?

The nature of innovation is changing dramatically in the 21st century. Proprietary invention in search of purpose is out. Open, collaborative and multi-disciplinary

approaches to innovation are taking centre stage in the shaping of new ideas and creation of tangible value for business, individuals and the world.

What forces are behind this trend? What new demands will be placed on students, educators and technology professionals? How can we prepare for these challenges? The computing discipline – present, historical and hypothetical – will motivate a sampling of insights into these and other challenging questions.

Marcellus Mindel heads up the Centre for Advanced Studies (CAS) at the IBM Ottawa Software Lab. The CAS mission is to develop and foster deep relationships with universities and to support graduate student research that aligns with IBM strategy. For the past two years, Marcellus has also lead the lab's Extreme Blue innovation program, in which small teams of business and technical students, recruited from hundreds of applicants from Canada's top universities, collaborate to shape and evaluate real emerging business opportunities for IBM.

After graduating from Carleton University in 1993 with the University Medal in Computer Science, Marcellus joined Object Technology International, a world leader in advanced object-oriented systems for enterprise and embedded applications. He specialized in architectures for multi-platform portability and made major contributions to products such as VisualAge for Smalltalk, VisualAge for Java, and VisualAge Micro Edition. As University Relations Manager for OTI, and then as Ottawa CAS Program Director for IBM, he has collaborated with research teams across Canada and around the world to define and deliver projects of strategic value to IBM. He was instrumental in piloting the Eclipse innovation grant program, which cemented Eclipse's success as a platform for software engineering research.

Date	Time	Location
Tuesday, May 9	8:30 – 9:30 AM	Congress Hall

Plenary Speaker:

Dr. Veena Rawat - President of the Communications Research Centre Canada (CRC)

Title and Abstract TBA

Dr. Veena Rawat is the President of the Communications Research Centre Canada (CRC) and was the Acting President from September 2004 to February 2006. She joined CRC as Executive Vice President in March 2003. An agency of Industry

Canada, CRC is responsible for conducting applied research and development in communications and related technologies.

Dr. Rawat has 28 years of experience with Industry Canada in managing programs related to spectrum engineering, which involved standards development and access to spectrum for new radio services. Prior to coming to CRC, Veena was Deputy Director-General, Spectrum Engineering, Industry Canada, where she was responsible for managing technical and regulatory issues for all radio services except broadcasting.

Full BIO - http://www.crc.ca/en/html/crc/home/info_crc/organization/veena_bio

Breakfasts & Refreshment Breaks

Breakfasts are included for all full registrants and 'Partner Lite' registrants.

Date	Time	Location
Monday, May 8	7:30 – 8:30 AM	Congress Hall
Tuesday, May 9	7:00 – 7:50 AM	Congress Hall
Wednesday, May 10	7:00 – 7:50 AM	Colonel By Room

Refreshment breaks are also provided for all conference delegates.

Date	Time	Location
Monday, May 8	9:45 – 10:00 AM 3:00 – 3:20 PM	Capital Hall Level's hallway
Tuesday, May 9	9:40 – 10:00 AM 3:00 – 3:20 PM	Capital Hall Level's hallway
Wednesday, May 10	9:45 – 10:00 AM 3:00 – 3:20 PM	Capital Hall Level's hallway

Lunches

Luncheons are included for all full registrants.

Date	Time	Location
Monday, May 8	11:45 AM – 1:15 PM	Congress Hall
Tuesday, May 9	11:45 AM – 1:15 PM	Congress Hall
Wednesday, May 10	11:45 AM – 1:15 PM	Colonel By Room

Monday Luncheon Guest Speaker:

Don Campbell - VP, Platform Strategy and Technology – Cognos Corporation

The Impact of Technology on Business Decision Making

As businesses strive to provide differentiating value over their competition, they look to advances in technology to provide the fuel. From wireless information access, to common search interfaces, to RFID tags, business is being impacted by technology at an increasing rate. Is our technology innovation up to the challenge of supplying business with usable advances?

In this session, learn what technologies are driving the business intelligence industry today and into the future, and the role the technical community plays in shaping business.

As Vice President of Platform Strategy and Technology, Don Campbell oversees the company's technology adoption strategy and its application within the Cognos platform today and tomorrow. He leads the charge on leading-edge technologies such as grid computing, search, and wireless information delivery in a performance management context.

Don Campbell has well over 20 years of high tech experience, 18 of which have been with Cognos. He has held various roles from research to software development to management, and conceptualized Cognos' multi award-winning data visualization business intelligence product, Cognos Visualizer. He sits on various industry technology boards and advisory committees.

His message of technology, performance management, and entrepreneurship has taken him around the globe, speaking to over 40,000 people in 16 countries. In 2005, he was awarded with the International Business Award for Best Product Development or Engineering Executive. In addition, he has authored several published articles and a weekly technology column. Mr. Campbell holds a Bachelor of Computer Science degree from Carleton University, in Ottawa, Canada.

Tuesday Luncheon Guest Speaker:

2006 McNaughton Medal Winner (to be announced)

Wednesday Luncheon Presentations:

CCECE 2006 Student Paper Awards

IEEE Canada Awards Reception & Banquet

IEEE Canada's Annual Awards Banquet is an integral part of the Canadian Conference on Electrical and Computer Engineering, and honors recipients of IEEE Canada awards.

2006 Canadian Conference on Electrical and Computer Engineering

Banquet admission is ***included with all full registrations***. *Extra tickets for guests* will be available at a cost of \$100 each from the Registration Desk or the Conference Office.

Date	Time	Location
Monday, May 8	Reception (Cash Bar) 6:00 – 7:00 PM	Canadian Museum of Civilization
	Banquet & Awards 7:00 – 9:00 PM	Canadian Museum of Civilization

Speaker:

Bob Hanna, IEEE Canada President

Awards to be presented at the 2006 Banquet

E. F. Glass Western Canada Council Merit Award

M. B. Broughton Central Canada Council Merit Award

J. J. Archambault Eastern Canada Council Merit Award

W. S. Read Outstanding Service Award

Outstanding Engineering Educator Award

R. A. Fessenden Medal

A. G. L. McNaughton Medal

Free Seminar on Intellectual Property (first-come first-served basis)

Date	Time	Location
Tuesday, May 9	5:00 PM – 7:00 PM	Executive Suite

Technical program

May 8, Monday Morning, 10:00-11:40am

AC1 Capital Hall 1, Advanced Computer Architecture

Chair: Rana Ejaz Ahmed

10:00 - 10:20	AC1-1	<i>The M-hypercube</i>
		Loyd Reed Hook (University of Oklahoma, USA)
10:20 - 10:40	AC1-2	<i>Towards the design of a Nanocomputer</i>
		Samuel Lee (University of Oklahoma, USA)
10:40 - 11:00	AC1-3	<i>Real-Time Systems Performance Improvement with Multi-Level Cache Memory</i>
		Hyacinthe Kocou Aboudja (University of Arkansas, USA)
11:00 - 11:20	AC1-4	<i>Energy-Aware Cache Coherence Protocol for Chip-Multiprocessors</i>
		Rana Ejaz Ahmed (American University of Sharjah, UAE)
11:20 - 11:40	AC1-5	<i>A Study on the Floating Point Adders in FPGAs</i>
		Seok-Bum Ko (University of Saskatchewan, Canada)

May 8, Monday Morning, 10:00-11:40am

AN1 Capital Hall 2, Antennas & EMC/EMI

Chair: Jasmin Roy, Communications Research Centre Canada

10:00 - 10:20	AN1-1	<i>Efficient Macromodel for Interconnects Excited by Incident Fields</i>
		Min Ma (McGill University, Canada)
10:20 - 10:40	AN1-2	<i>Silicon Differential Antenna/Inductor for Short Range Wireless Communication Applications</i>
		Atef Shamim (Carleton University, Canada)
10:40 - 11:00	AN1-3	<i>Effects of Dipole Length on Dosimetric Probe Sensitivity</i>
		Alain Tran (University of Ottawa, Canada)
11:00 - 11:20	AN1-4	<i>Time-Domain Analysis for Electromagnetic Pulses Reflected from a Conductive Half Space</i>
		Qingsheng Zeng (CRC, Canada)

May 8, Monday Morning, 10:00-11:40am

BE1 Capital Hall 3, Biomedical Engineering & Bioinformatics

Chair: Adrian Chan

10:00 - 10:20	BE1-1	<i>Lossless Microarray Image Compression Based on Foreground Extraction</i>
		Shahram Shirani (McMaster University, Canada)
10:20 - 10:40	BE1-2	<i>Effect of Postural Changes on Baroreflex Sensitivity: A Study on the EUROBAVAR Data Set</i>
		Younhee Choi (University of Rhode Island, USA)
10:40 - 11:00	BE1-3	<i>New Constraints on Generation of Uniform Random Samples from Evolutionary Trees</i>
		Anupam Bhattacharjee (Bangladesh University of Engineering & Technology, Bangladesh)
11:00 - 11:20	BE1-4	<i>Dynamic and Parallel Approaches to Optimal Evolutionary Tree Construction</i>
		Anupam Bhattacharjee (Bangladesh University of Engineering & Technology, Bangladesh)
11:20 - 11:40	BE1-5	<i>A Parallel Processing Approach for Information Extraction from Microarray Images</i>
		Marouf Monwar (University of Northern British Columbia, Canada)

May 8, Monday Morning, 10:00-11:40am

CN1 Capital Hall 4, Computer Networks and Systems

Chair: Adrian Conway

10:00 - 10:20	CN1-1	<i>Efficient Adaptive Bandwidth Provisioning for End-to-End Quality of Service Guarantee</i>
		Wang Hao (Carleton University, Canada)
10:20 - 10:40	CN1-2	<i>IP Telephony with a Personal IP-PSTN Gateway: Architecture and PSTN-Line Sharing Application</i>
		Adrian E. Conway (Verizon Laboratories, USA)
10:40 - 11:00	CN1-3	<i>Distributed Dynamic Routing, Wavelength and Timeslot Assignment for Bandwidth on Demand in Agile All-Optical Networks</i>
		Wei Yang (University of Ottawa, Canada)
11:00 - 11:20	CN1-4	<i>Transaction Level Modeling in Hardware/Software System Design using .Net Framework</i>
		Alena Tsikhanovich (Université de Montréal, Canada)
11:20 - 11:40	CN1-5	<i>Introducing a New XML-based Protocol for SIP User-Agent Services Collaboration: Integration with IP-phone and PC</i>
		Wajdi Elleuch (Université de Sherbrooke, Canada)

May 8, Monday Morning, 10:00-11:40am

DD1, DS1 Capital Hall 5, Database & Data Mining

Chair: J. R. Raol

10:00 - 10:20	DD1-1	<i>Data Mining Network Traffic</i> Ian Lee (University of Calgary, Canada)
10:20 - 10:40	DD1-2	<i>A QoS Mapping Rule Builder</i> Kim Khoa Nguyen (University of Montreal, Canada)
10:40 - 11:00	DD1-3	<i>Identification of Load Power Quality Characteristics using Data Mining</i> Ali Asheibi (University of Wollongong, Australia)
11:00 - 11:20	DS1-1	<i>Evaluation of Derivative Free Kalman Filter and Fusion in Non-linear Estimation</i> J. R. Raol (National Aerospace Labs, India)
11:20 - 11:40	DS1-2	<i>Effect of non-Stationarities on Multifractal Analysis</i> Ian Lee (University of Calgary, Canada)

May 8, Monday Morning, 10:00-11:40am

EM1 Capital Hall 6, Electrical Machines and Drives

Chair: Mahmoud Abou-Dakka

10:00 - 10:20	EM1-1	<i>Harmonics Analysis for Induction Motors</i>
		Xiaodong Liang (Schlumberger Edmonton Product Center, Canada)
10:20 - 10:40	EM1-2	<i>Wavelet Packet Transform Based Protection of Disturbances in Three-Phase Interior Permanent Magnet Motor Fed From Sinusoidal PWM Voltage Source Inverter</i>
		M.A.S.K. Khan (Memorial University of Newfoundland, Canada)
10:40 - 11:00	EM1-3	<i>Real Time Implementation of Wavelet Packet Transform-Based Algorithm for Three-Phase Synchronous Generator Protection</i>
		M.A.S.K. Khan (Memorial University of Newfoundland, Canada)
11:00 - 11:20	EM1-4	<i>Parameters of a Plunger Core Reactor with Parallel Winding Paths obtained from Voltage Driven Finite Element Analyses</i>
		Erich Schmidt (Vienna University of Technology, Australia)
11:20 - 11:40	EM1-5	<i>Calculation of Starting Performance for Large Two-Pole Induction Motors with Comparison to Test Values</i>
		Christophe del Perugia (McMaster University, Canada)

May 8, Monday Morning, 10:00-11:40am

IP1 Capital Hall 7, Image & Speech Processing

Chair: Gokul Raj

10:00 - 10:20	IP1-1	<i>Digital Image Forgery Detection Using Artificial Neural Network and Autoregressive Coefficients</i>
		Gokul Raj (Sri Venkateswara College of Engineering, India)
10:20 - 10:40	IP1-2	<i>Video Text Extraction from Images for Character Recognition</i>
		Basavaraj Amarapur (P.D.A. College of Engineering, India)
10:40 - 11:00	IP1-3	<i>Vertex-based Anisotropic Smoothing of 3D Mesh Data</i>
		Abdessamad Ben Hamza (Concordia University, Canada)
11:00 - 11:20	IP1-4	<i>Feature-based Registration of Digital Elevation Data</i>
		Abdessamad Ben Hamza (Concordia University, Canada)
11:20 - 11:40	IP1-5	<i>Towards a Measure of Biometric Information</i>
		Richard Youmaran (University of Ottawa, Canada)

May 8, Monday Morning, 10:00-11:40am

MP1 Capital Hall 8, Mobile & Pervasive Computing

Chair: Li Jun Zhang

10:00 - 10:20	MP1-1	<i>A New Seamless Method to Support CDMA2000/WLAN Vertical Handover</i>
		Li Jun Zhang (École Polytechnique de Montréal, Canada)
10:20 - 10:40	MP1-2	<i>Cross-Layer Cooperation to Handle MAC Misbehavior in Ad-hoc Networks</i>
		Guang Lei (Concordia University, Canada)
10:40 - 11:00	MP1-3	<i>Handoff Protocol for Heterogeneous All-IP-based Wireless Networks</i>
		Christian Makaya (École Polytechnique de Montréal, Canada)
11:00 - 11:20	MP1-4	<i>Hybrid Position-Based 3-D Routing Algorithms with Partial Flooding</i>
		Alaa Eddien Abdallah (Concordia University, Canada)
11:20 - 11:40	MP1-5	<i>Wi-Fi Tracker: An Organization Wi-Fi Tracking System</i>
		Anirach Mingkhwan (King Mongkut's Institute of Technology North Bangkok, Thailand)

May 8, Monday Morning, 10:00-11:40am

PE1 Capital Hall 9, Power Electronics

Chair: Mohammed Agami

10:00 - 10:20	PE1-1	<i>A Comparative Study of Two Controllers for Single Stage Three-Level Resonant AC/DC Converters</i>
		Mohammed Agami (Queen's University, Canada)
10:20 - 10:40	PE1-2	<i>Voltage Flicker Caused by Two Interharmonics</i>
		Jing Yong (Chongqing University, China)
10:40 - 11:00	PE1-3	<i>The Design of a Novel ZCT-PWM Converter With Reduced Circulating Current</i>
		Gerri Moschopoulos (University of Western Ontario, Canada)
11:00 - 11:20	PE1-4	<i>Sampled-data Modeling of PWM Boost Converters in Continuous and Discontinuous Inductor Current Modes</i>
		Krishnamoorthy Natarajan (Lakehead University, Canada)
11:20 - 11:40	PE1-5	<i>Minimisation énergétique des profils de tunnel de métro dédié au transport urbain</i>
		Kamal Al-Haddad (École de Technologie Supérieure, Canada)

May 8, Monday Morning, 10:00-11:40am

CW1 Executive Suite, Communications & Wireless Systems

Chair: Claude D'Amours

10:00 - 10:20	CW1-1	<i>A Software Defined Radio Receiver Architecture for UWB Communications and Positioning</i>
		Yanyang Zhao (École Polytechnique of Montréal, Canada)
10:20 - 10:40	CW1-2	<i>Error Performance of BICM-ID in Impulsive Noise</i>
		Ha Nguyen (University of Saskatchewan, Canada)
10:40 - 11:00	CW1-3	<i>Suboptimal Decoding of Vector Quantization over a CDMA Channel with M-ASK</i>
		Ha Nguyen (University of Saskatchewan, Canada)
11:00 - 11:20	CW1-4	<i>Outage Probability of MRC in CCI-Limited Correlated Rayleigh Fading</i>
		Xiaodi Zhang (University of Alberta, Canada)
11:20 - 11:40	CW1-5	<i>Effect of Antenna Pattern and Arrangement on the Capacity of the MIMO System in a Microcell Environment</i>
		Jianmin Gong (Jinan university, China)

May 8, Monday Afternoon, 1:20-3:00pm

EL1 Capital Hall 1, E-Learning, E-commerce, E-business

Chair: Bahram Zahir, Hivva Technologies

1:20 - 1:40	EL1-1	<i>A Fuzzy Logic Based Intelligent Negotiation Agent (FINA) in E-Commerce</i>
		Xin Wang (University of Ottawa, Canada)
1:40 - 2:00	EL1-2	<i>Machine Learning for Classifying Learning Objects</i>
		Yevgen Biletski (University of New Brunswick, Canada)
2:00 - 2:20	EL1-3	<i>Enhancing e-Commerce with Intelligent Agents in Collaborative e-Communities</i>
		Xiaojun Shen (University of Ottawa, Canada)
2:20 - 2:40	EL1-4	<i>A Survey of Secure B2C Commerce for Multicast Services</i>
		Anil Kumar Venkataiahgari (Concordia University, Canada)
2:40 - 3:00	EL1-5	<i>A Secure m-Payment Protocol for Mobile Devices</i>
		Elahe Soroush (Tehran University, Iran)

May 8, Monday Afternoon, 1:20-3:00pm

IP2 Capital Hall 2, Image & Speech Processing

Chair: Jiying Zhao

1:20 - 1:40	IP2-1	<i>On the Choice of Window Size in Model-Based Single Channel Speech Separation</i>
		M.H. Radfar (Carleton University, Canada)
1:40 - 2:00	IP2-2	<i>Human Visual System Based Adaptive Digital Image Watermarking</i>
		Jiying Zhao (University of Ottawa, Canada)
2:00 - 2:20	IP2-3	<i>A Method of H.264-Based Still Stereoscopic Pictures Compression</i>
		Lei Yang (Tianjin University, China)
2:20 - 2:40	IP2-4	<i>A Scheme for MPEG-2 to H.264 Transcoding</i>
		Lei Yang (Tianjin University, China)
2:40 - 3:00	IP2-5	<i>Distributed video coding of Wyner-Ziv frames using Trellis Coded Modulation</i>
		W.A.Rajitha Jayaruwan Weerakkody (Brunel University, West London, UK)

May 8, Monday Afternoon, 1:20-3:00pm

IS1 Capital Hall 3, Intelligent Systems

Chair: Wail Gueaieb

1:20 - 1:40	IS1-1	<i>Support Vector Machines Based Approach for Chemical Phosphorus Removal Process in Wastewater Treatment Plants</i>
		Talieh Tabatabaei (Ryerson University, Canada)
1:40 - 2:00	IS1-2	<i>Attribute-driven Design of an Incremental Learning Component of a Ubiquitous Multimodal Multimedia Computing System</i>
		Manolo Dulva Hina (École de technologie supérieure, Canada)
2:00 - 2:20	IS1-3	<i>Segmentation of Dental Radiographs Using a Swarm Intelligence Approach</i>
		Fazel Keshtkar (University of Ottawa, Canada)
2:20 - 2:40	IS1-4	<i>Computational Politics and Economy for the Establishment of an Integrated Intelligent Government</i>
		Mehrdad Nojournian (University of Ottawa, Canada)
2:40 - 3:00	IS1-5	<i>A Novel Earthquake Mitigation Information expert System: EMIS</i>
		Panneerselvam Kolandaivel (Concordia University, Canada)

May 8, Monday Afternoon, 1:20-3:00pm

ME1 Capital Hall 4, MEMS & Nanotechnology

Chair: Niall Tait

1:20 - 1:40	ME1-1	<i>Design and Simulation of a Microtweezers Using a Controlled Displacement Comb Drive</i>
		Cyrus Shafai (University of Manitoba, Canada)
1:40 - 2:00	ME1-2	<i>Improving the Time Response of MEMs Switches for RF Applications</i>
		Mohamed El-Asmar (École de technologie supérieure, Canada)
2:00 - 2:20	ME1-3	<i>A Novel 3-Way Cell Sorter using Power Efficient Electrolysis-based Actuator</i>
		Jasbir N. Patel (Simon-Fraser University, Canada)
2:20 - 2:40	ME1-4	<i>Active Microgripper Interface used in Microassembly of MEMS</i>
		Yasser Anis (University of Toronto, Canada)

May 8, Monday Afternoon, 1:20-3:00pm

NN1 Capital Hall 5, Neural Networks & Fuzzy Logic

Chair: Mustapha C.E . Yagoub

1:20 - 1:40	NN1-1	<i>Unification and Interfretation of Fuzzy Set Operations</i>
		J. R. Raol (National Aerospace Labs, India)
1:40 - 2:00	NN1-2	<i>Development Of An Adaptive Backstepping Based Nonlinear Control Of An Induction Motor Incorporating Iron Loss WithParameter Uncertainties</i>
		M. Nasir Uddin (Lakehead University, Canada)
2:00 - 2:20	NN1-3	<i>Direct Neural-Adaptive Control of Robotic Manipulators Using a Forward Dynamics Approach</i>
		Arash Beirami (University of Calgary, Canada)
2:20 - 2:40	NN1-4	<i>Méthode Optimale de Modélisation de Transistors Haute Fréquence</i>
		Mustapha C.E . Yagoub (University of Ottawa, Canada)
2:40 - 3:00	NN1-5	<i>Prediction of Ontario Hourly Load Demands and Neural Network Modeling Techniques</i>
		Fang Liu (McMaster University, Canada)
	NN1_2b	<i>Robust Adaptive Fuzzy Controller for SISO Affine Nonlinear Systems Without State Observer</i>
		Sam Jun Seo (Anyang University, Korea)

May 8, Monday Afternoon, 1:20-3:00pm

PS1 Capital Hall 6, Power Systems Reliability

Chair: Raed Abdullah

1:20 - 1:40	PS1-1	<i>A New Approach to Ungrounded Fault Location in a Three-Phase Underground Distribution System Using Combined Artificial Neural Networks & Wavelet Analysis</i> Jamal Moshtagh (University of Bath, UK)
1:40 - 2:00	PS1-2	<i>Impact de la température sur la fiabilité des composants RF LDMOS de puissance</i> Mohamed Gares (Université de Rouen, France)
2:00 - 2:20	PS1-3	<i>Peaking Unit Considerations in Generating Capacity Adequacy Assessment</i> Roy Billinton (University of Saskatchewan, Canada)
2:20 - 2:40	PS1-4	<i>Response of Power Systems to the Temporal Characteristics of Geomagnetic Storms</i> Larisa Trichtchenko (Natural Resources Canada, Canada)
2:40 - 3:00	PS1-5	<i>GIC Simulation using Network Modeling</i> Aidan Foss (ANF Energy Solutions Inc.)

May 8, Monday Afternoon, 1:20-3:00pm

RM1 Capital Hall 7, Robotics & Mechatronics

Chair: Amor Jnifene

1:20 - 1:40	RM1-1	<i>Behavioral Modeling and Simulation of Hexapod2 Gait System</i>
		Wael El Manhawey (Mentor Graphics)
1:40 - 2:00	RM1-2	<i>A Wall Climbing Robotic System For Non Destructive Inspection Of Above Ground Tanks</i>
		Love Karla (Dalhousie University, Canada)
2:00 - 2:20	RM1-3	<i>System-theoretic approach to Safety of Robot Control Architectures</i>
		Jerzy Barchanski (Brock University, Canada)
2:20 - 2:40	RM1-4	<i>Teleoperation of a Mobile Robot Using Predictive Control Approach</i>
		Jayaprashanth Jayachandran (Dalhousie University, Canada)
2:40 - 3:00	RM1-5	<i>Design of Adaptive-Sliding Mode Controller for Positioning Control of Underwater Robotics</i>
		Mehdi Narimani (Isfahan University of Technology, Iran)

May 8, Monday Afternoon, 1:20-3:00pm
SE1 Capital Hall 8, Software Engineering
Chair: Brian Stacy

1:20 - 1:40	SE1-1	<i>Le paradigme acteur dans la modélisation des systèmes embarqués</i>
		Mokhoo Mobi (Supelec, France)
1:40 - 2:00	SE1-2	<i>Towards an AST-based Approach to Reverse Engineering</i>
		Xin Wang (Nankai University, China)
2:00 - 2:20	SE1-3	<i>Test selection and Coverage Based on CTM and Metric Spaces</i>
		Nicolae Goga (Technical University of Eindhoven, the Netherlands)
2:20 - 2:40	SE1-4	<i>Software Architecture with Visual Frameworks</i>
		Paul Tarvydas (Visual Frameworks Inc.)
2:40 - 3:00	SE1-5	<i>Design and Implementation of an Automatic RTPA Code Generator</i>
		Xinming Tan (University of Calgary, Canada)

May 8, Monday Afternoon, 1:20-3:00pm

SR1 Capital Hall 9, Power Systems & Renewable Energy

Chair: Rejean Arseneau

1:20 - 1:40	SR1-1	<i>Enhancing the electric system stability using predictive control of gas turbines</i>
		Francisco Juado (University of Jaén, Spain)
1:40 - 2:00	SR1-2	<i>Identification of Hammerstein models for fuel cells</i>
		Francisco Juado (University of Jaén, Spain)
2:00 - 2:20	SR1-3	<i>A Hybrid Power Compensation (HPC) Scheme for Voltage Stabilization of Stand Alone Wind Induction Generator System</i>
		Adel Sharaf (University of New Brunswick, Canada)
2:20 - 2:40	SR1-4	<i>A Novel Maximum Power Trecking Controller for a Stand-alone Photovoltaic DC Motor Drive</i>
		Adel Sharaf (University of New Brunswick, Canada)
2:40 - 3:00	SR1-5	<i>A Novel Dynamic Capacitor Compensator/Green Plug Scheme for 3Phase-4 Wire Utization Loads</i>
		Roshan Chhetri (University of New Brunswick, Canada)

May 8, Monday Afternoon, 1:20-3:00pm

CW2 Executive Suite, Communications & Wireless Systems

Chair: Jaeho Chung

1:20 - 1:40	CW2-1	<i>Optimal Receiving Power for Mobile Users at Cellular CDMA Systems Employing Successive Interference Cancellation</i>
		Hong Nie (Cape Breton University, Canada)
1:40 - 2:00	CW2-2	<i>Packet CDMA Communication without Preambules</i>
		M. Sajjad Rahman (University of Saskatchewan, Canada)
2:00 - 2:20	CW2-3	<i>A Recursive Quadratic Programming Approach to Multiuser Detection for MC-CDMA System with M-QAM</i>
		Zhiwei Mao (Lakehead University, Canada)
2:20 - 2:40	CW2-4	<i>Combination Carrier Frequency Offset (CFO) Estimation and Course Symbol Timing Techniques for MIMO OFDM Systems</i>
		William John Misskey (University of Regina, Canada)
2:40 - 3:00	CW2-5	<i>Effect of Channel Estimation Errors on the Performance of MIMO-OFDM Systems in Correlated Fading Channels</i>
		Jaeho Chung (Korea Telecom, Korea)

May 8, Monday Afternoon, 3:20-5:00pm

EH1 Capital Hall 1, Electromagnetics and HV Engineering

Chair: Qiubo Ye

3:20 - 3:40	EH1-1	<i>Mitigation of Ferroresonance induced by Single-Phase Opening of a Three-Phase Transformer Feeder</i>
		Patrick Picher (Institut de recherche d'Hydro Québec, Canada)
3:40 - 4:00	EH1-2	<i>Lightning Exposure of Wind Turbines</i>
		Dale Dolan (University of Toronto, Canada)
4:00 - 4:20	EH1-3	<i>Application of Invariant Approximations Technique to Electrical Field Analysis</i>
		Mariya Howykowycz (Lviv Polytechnic; National University, Ukraine)
4:20 - 4:40	EH1-4	<i>Chaos and Ferroresonance</i>
		Huawei Li (Beijing Jiaotong University, China)

May 8, Monday Afternoon, 3:20-5:00pm

EL2 Capital Hall 2, E-Learning, E-commerce, E-business

Chair: Chunsheng Yang

3:20 - 3:40	EL2-1	<i>B2B, B2C and C2C: Should They Be Treated Equally in the Incomplete Environment</i>
		Jianxin Shi (Harbin Institute of Technology, China)
3:40 - 4:00	EL2-2	<i>Semantic Mining Based on the Learner's Preferences</i>
		Yevgen Biletski (University of New Brunswick, Canada)
4:00 - 4:20	EL2-3	<i>Seller Strategies for Dutch Online Auctions</i>
		Nabil AbuLaban (American University of Sharjah, United Arab Emirates)
4:20 - 4:40	EL2-4	<i>Goal-oriented Design of Business Models and Software Architectures</i>
		Deryck Velasquez (Carleton University, Canada)
4:40 - 5:00	EL2-5	<i>A Multi-Agent System for E-Commerce Automation</i>
		Qi Tang (Tianjin Polytechnic University, China)

May 8, Monday Afternoon, 3:20-5:00pm

IP3 Capital Hall 3, Image & Speech Processing

Chair: Pedro Cuenca

3:20 - 3:40	IP3-1	<i>A Modular Distributed Video Surveillance System Over IP</i>
		Drew Ostheimer (Concordia University, Canada)
3:40 - 4:00	IP3-2	<i>Mapping of Hydrographic Networks from Multispectral Imagery Using Neural Networks and Principal Curves</i>
		Marek Zaremba (Université de Québec à Outaouais, Canada)
4:00 - 4:20	IP3-3	<i>On the Capabilities of Quality Measures in Video Compression Standards</i>
		Pedro Cuenca (Universidad de Castilla - La Mancha, Spain)

May 8, Monday Afternoon, 3:20-5:00pm

MO1 Capital Hall 4, Microelectronics & Optoelectronics

Chair: Dimiter Alexandrov

3:20 - 3:40	MO1-1	<i>Compensation of Finite GBW Induced Performance Loss on a Fifth-order Continuous-time Sigma-Delta Modulator</i>
		Fang Chen (University of Windsor, Canada)
3:40 - 4:00	MO1-2	<i>Field effect transistor on hetero-structure GaN/InGaN</i>
		Dimiter Alexandrov (Lakehead University, Canada)
4:00 - 4:20	MO1-3	<i>Linearization Techniques for Cross-Coupled Transconductor Circuits Used in Integrated Q-Enhanced LC Filters</i>
		James Haslett (University of Calgary, Canada)
4:20 - 4:40	MO1-4	<i>Integrated Electro-Absorption Modulator and GaAs HBT Driver Circuit</i>
		Al Freundorfer (Queen's University, Canada)

May 8, Monday Afternoon, 3:20-5:00pm

NN2 Capital Hall 5, Neural Networks & Fuzzy Logic

Chair: Wail Gueaieb

3:20 - 3:40	NN2-1	<i>Task Scheduling by Neural Network with Mean Field Annealing Improvement in Grid Computing</i>
		Guixiang Xue (Tianjin University, China)
3:40 - 4:00	NN2-2	<i>Neural network parameter adaptation for a fuel injection control system</i>
		Shiwei Wang (Liverpool John Moores University, UK)
4:00 - 4:20	NN2-3	<i>Biunivocal Relation between TSK Fuzzy Controller and PID Controller and, Guarantee and Manipulation of the Stability for the Proposed Fuzzy Controller</i>
		Gustavo J. Hernandez (University of Sherbrooke, Canada)
4:20 - 4:40	NN2-4	<i>Fuzzy Rough & Rough Fuzzy Inference Engines: for Medical Applications</i>
		Sandeep Chandana (University of Regina, Canada)
4:40 - 5:00	NN2-5	<i>Nonlinear System Identification Using Genetic Algorithm Based Recurrent Neural Networks</i>
		Yuquing Zhu (Concordia University, Canada)

May 8, Monday Afternoon, 3:20-5:00pm

RF1 Capital Hall 6, RF & Microwaves

Chair: Mustapha C.E. Yagoub

3:20 - 3:40	RF1-1	<i>A 1-V 5 GHz Variable Gain Low Noise Amplifier in 0.18-μm CMOS</i>
		Shaikh Alam (Ohio State University, USA)
3:40 - 4:00	RF1-2	<i>A NOVEL IMPLEMENTATION OF THE CFS-PML FOR ARBITRARY MEDIA USING DSP TECHNIQUES</i>
		Jianxiong Li (Tianjin University, China)
4:00 - 4:20	RF1-3	<i>On Selection of Optimum Signal Source Impedance for Inductively-Degenerated CMOS LNAS</i>
		Leonid Belostotski (University of Calgary, Canada)
4:20 - 4:40	RF1-4	<i>S-Band Electronically Tunable Microstrip Compline Filter</i>
		Noruz Motamedi (Isfahan University of Technology, Iran)
4:40 - 5:00	RF1-5	<i>Conception des coupleurs coplanaires multicouches en bande millimétrique sur des substrats anisotropes à deux niveaux de métallisation</i>
		Mustapha C.E. Yagoub (University of Ottawa, Canada)
	RF1-6	<i>RF Power Amplifiers for Emerging Wireless Communications: Single Branch vs. Multi-Branch architectures</i>
		Oualid Hammi (University of Calgary, Canada)

May 8, Monday Afternoon, 3:20-5:00pm
SE2 Capital Hall 7, Software Engineering
Chair: Brian Stacy

3:20 - 3:40	SE2-1	<i>Implementing the Real-Time Features of RTPA Using Real-Time Java</i>
		Cyprian Foinjong Ngolah (University of Calgary, Canada)
3:40 - 4:00	SE2-2	<i>Task Coordination in an Agile Distributed Software Development Environment</i>
		David Mak (University of British Columbia, Canada)
4:00 - 4:20	SE2-3	<i>Formalization of UML Models by RTPA</i>
		Yingxu Wang (University of Calgary, Canada)
4:20 - 4:40	SE2-4	<i>KRecorder: An Eclipse Plug-in Tool for Incremental Software Development</i>
		Shaochun Xu (Algoma University College, Canada)
4:40 - 5:00	SE2-5	<i>TTCN-3 Testing of Hoorn-Kersenboogerd Railway Interlocking</i>
		Jens Calame (Centrum voor Wiskunde en Informatica, the Netherlands)
5:00 - 5:20	SE2-6	<i>Modeling Legislation by Using UML Statemachine Diagrams</i>
		Vjeran Strahonja (University of Zagreb, Croatia)

May 8, Monday Afternoon, 3:20-5:00pm

SP1 Capital Hall 8, Security, Privacy and Trust

Chair: Carlisle Adams

3:20 - 3:40	SP1-1	<i>Privacy Negotiation using a Mobile Agent</i>
		Carlisle Adams (University of Ottawa, Canada)
3:40 - 4:00	SP1-2	<i>KEAML - Key Exchange and Authentication Markup Language</i>
		Carlisle Adams (University of Ottawa, Canada)
4:00 - 4:20	SP1-3	<i>Network Traffic Flow Analysis</i>
		Annie De Montigny-Leboeuf (Communications Research Centre Canada)
4:20 - 4:40	SP1-4	<i>XACML-based Policy-Driven Access Control for Mobile Environments</i>
		Carlisle Adams (University of Ottawa, Canada)
4:40 - 5:00	SP1-5	<i>AOP Extension for FOSS Security Testing</i>
		Zhenrong Yang (Concordia University, Canada)

May 8, Monday Afternoon, 3:20-5:00pm

SR2 Capital Hall 9, Power Systems & Renewable Energy

Chair: Rejean Arseneau

3:20 - 3:40	SR2-1	<i>Accurate Assessment of Thermal Field and Ampacity of Underground Power Cables</i>
		Mamdooh Al-Saud (McMaster University, Canada)
3:40 - 4:00	SR2-2	<i>Discussion on Power Line Carrier Applications</i>
		Kwok-wai Louie (Manitoba HVDC Research Centre, Canada)
4:00 - 4:20	SR2-3	<i>Peak Current Control Based Maximum Power Point Trackers for Faster Transient Responses</i>
		Neil Savio D'Souza (Concordia University, Canada)
4:20 - 4:40	SR2-4	<i>Emission-Economic Dispatch Using a Novel Constraint Handling Particle Swarm Optimization Strategy</i>
		Mohammed Alrashidi (Dalhousie University, Canada)
4:40 - 5:00	SR2-5	<i>Maritimes Area Wind Integration Issues</i>
		William K. Marshall (New Brunswick System Operator, Canada)

May 8, Monday Afternoon, 3:20-5:00pm

CW3 Executive Suite, Communications & Wireless Systems

Chair: Geoffrey Colman

3:20 - 3:40	CW3-1	<i>Spécification et définition de scénarios pour les réseaux ad-hoc : Application au domaine militaire</i>
		L. Basile Agba (Université du Québec, Canada)
3:40 - 4:00	CW3-2	<i>Influence des irrégularités de surface dans la modélisation du canal de propagation outdoor en millimétrique</i>
		L. Basile Agba (Université du Québec, Canada)
4:00 - 4:20	CW3-3	<i>Self-Oscillating Mixing Technique and its Application to Low-Cost Receiver Architectures</i>
		Simone Angela Winkler (École Polytechnique de Montréal, Canada)
4:20 - 4:40	CW3-4	<i>Performance Comparison of Two diversity schemes with Imperfect Multipath channel Estimation</i>
		Wajih Hoteit (Concordia University, Canada)
4:40 - 5:00	CW3-5	<i>On the Use of RLS with Covariance Reset in Tracking Scenarios with Discontinuities</i>
		Geoffrey Colman (Communications Research Centre, Canada)

May 9, Tuesday Morning, 10:00-11:40am

AD1 Capital Hall 1, Analog & Digital Electronics

Chair: Allan Gordon

10:00 - 10:20	AD1-1	<i>An Ultra WideBand (UWB) Mixer with RF CMOS 0.18um Technology</i>
		Zahra Allahgholi Pour (University of Manitoba, Canada)
10:20 - 10:40	AD1-2	<i>A low phase-noise DLL clock multiplier with a programmable dynamic frequency divider</i>
		Qingjin Du (Carleton University, Canada)
10:40 - 11:00	AD1-3	<i>Digitally Place and Routed Up-converting Bandpass DAC</i>
		Allan Gordon (Carleton University)
11:00 - 11:20	AD1-4	<i>A High-Speed Low-Power Rail-to-Rail Class-B Buffer Amplifier for LCD Application</i>
		Chin-Wen Lu (National Chi Nan University, Taiwan)
11:20 - 11:40	AD1-5	<i>Area and Power Efficient Array and Tree Multipliers</i>
		Hayssam El-Razouk (University of Western Ontario, Canada)

May 9, Tuesday Morning, 10:00-11:40am

BE2 Capital Hall 2, Biomedical Engineering & Bioinformatics

Chair: Adrian Chan

10:00 - 10:20	BE2-1	<i>DIVIDE-AND-CONQUER ALGORITHM FOR CLUSTALW-MPI</i>
		Marouf Monwar (University of Northern British Colombia, Canada)
10:20 - 10:40	BE2-2	<i>Nonlinear System Identification Provides Insight into Protein Folding</i>
		James Green (Carleton University, Canada)
10:40 - 11:00	BE2-3	<i>An Automatic System for Crackles Detection and Classification</i>
		Xiaoguang lu (Université du Québec à Rimouski, Canada)
11:00 - 11:20	BE2-4	<i>Using Artificial Intelligence to Estimate Outcomes in Prenatal Medicine</i>
		Monique Frize (Carleton University, Canada)
11:20 - 11:40	BE2-5	<i>cDNA Micro Array Imaging using Single-Sensor Technology</i>
		Rastislav Lukac (University of Toronto, Canada)

May 9, Tuesday Morning, 10:00-11:40am

CN2 Capital Hall 3, Computer Networks and Systems

Chair: Charlie Kawwas

10:00 - 10:20	CN2-1	<i>Performance Enhancements and Analysis in Next Generation Resilient Packet Ring Networks</i>
		Charlie Kawwas (Agere Systems)
10:20 - 10:40	CN2-2	<i>Distributed layer-3 e-mail classification for spam control</i>
		Muhammad Nadzir Marsono (University of Victoria, Canada)
10:40 - 11:00	CN2-3	<i>Analytical and Simulation-Based Evaluation of Wireless-to-Wireline TCP-SYN Attacks</i>
		Natalija Vlajic (York University, Canada)
11:00 - 11:20	CN2-4	<i>A SERVICE ADMISSION SCHEME FOR CELLULAR NETWORKS</i>
		Omneya Issa (INRS-EMT, University of Quebec, Canada)
11:20 - 11:40	CN2-5	<i>An Open Simulator Architecture for Heterogeneous Self-organizing Networks</i>
		Jernej Polajnar (University of Northern British Columbia, Canada)

May 9, Tuesday Morning, 10:00-11:40am
DS2 Capital Hall 4, Digital Signal Processing
Chair: Franck Beaucoup

10:00 - 10:20	DS2-1	<i>Improving Position Estimates of a Stationary GNSS Receiver Using Wavelets and Clustering</i>
		Mohammad Aram (Ryerson University, Canada)
10:20 - 10:40	DS2-2	<i>Hardware-Software Co-Synthesis of Heterogeneous Embedded Computer Systems</i>
		Gul Khan (Ryerson University, Canada)
10:40 - 11:00	DS2-3	<i>Analysis of product separable discreet filters with feedbacks for variable characteristics</i>
		Venkat Ramachandran (Concordia University, Canada)
11:00 - 11:20	DS2-4	<i>A Novel Loop Stabilization Technique for Full-Duplex Speakerphones</i>
		Franck Beaucoup (Mitel, Canada)
11:20 - 11:40	DS2-5	<i>A Simplified Early Auditory Model with Application in Speech/Music Classification</i>
		Wei Chu (McGill, Canada)

May 9, Tuesday Morning, 10:00-11:40am

EC1 Capital Hall 5, Electronic Circuits and VLSI

Chair: Syed Asadulla Bokhari

10:00 - 10:20	EC1-1	<i>Variable sync signal definition for automata performance improvement</i>
		Nicolae Galupa (Technical University of Iasi, Romania)
10:20 - 10:40	EC1-2	<i>HW/SW Codesign of The H.263 Video Coder</i>
		Ahmed Ben Atitallah (National Engineers School of Sfax (E.N.I.S.), Tunisia)
10:40 - 11:00	EC1-3	<i>Repeater Sizing and Insertion Length of Interconnect to Minimize the Overall Time Delay using a truncated Fourier Series Approach</i>
		Krishnamoorthy Natarajan (Lakehead University, Canada)
11:00 - 11:20	EC1-4	<i>Enhancements and Applications of a Versatile Software Tool for High-Level Specification of Single-Chip Systems</i>
		Naraig Manjikian (Queen's University, Canada)
11:20 - 11:40	EC1-5	<i>Precision Delay Matching by Trace Length Control in Printed Circuit Boards</i>
		Syed Asadulla Bokhari (Fidus Systems Inc., Canada)

May 9, Tuesday Morning, 10:00-11:40am

EM2 Capital Hall 6, Electrical Machines and Drives

Chair: Branislav Djokic

10:00 - 10:20	EM2-1	<i>Aggregation of Induction Motors Based on their Specifications</i>
		Kwok-wai Louie (Manitoba HVDC Research Centre, Canada)
10:20 - 10:40	EM2-2	<i>Impact of Saturation on Transient Behavior of Interior Permanent Magnet Synchronous Motors</i>
		Shahram Najafi (University of Windsor, Canada)
10:40 - 11:00	EM2-3	<i>A Survey and Comparison of Characteristics of Motor Drives Used in Electric Vehicles</i>
		Gaurav Nanda (University of Windsor, Canada)
11:00 - 11:20	EM2-4	<i>Nonlinear Control of Interior Permanent Magnet Synchronous Motor Incorporating Flux Control</i>
		Mohammad Nasir Uddin (Lakehead University, Canada)
11:20 - 11:40	EM2-5	<i>A Novel On-line Intelligent Shaft-Torsional Oscillation Monitor for Large Induction Motors and Synchronous Generators</i>
		Adel Sharaf (University of New Brunswick, Canada)

May 9, Tuesday Morning, 10:00-11:40am

IM1 Capital Hall 7, Instrumentation and Measurement

Chair: Kexing Liu

10:00 - 10:20	IM1-1	<i>Prediction of Boilers Emission Using Polynomial Networks</i>
		Moustafa Elshafei (King Fahd University of Petroleum and Minerals, Saudi Arabia)
10:20 - 10:40	IM1-2	<i>A Unilateral Magnetic Resonance Moisture Sensor for Aerospace Composites</i>
		Andrew Marble (University of New Brunswick, Canada)
10:40 - 11:00	IM1-3	<i>A Comparison of Precision and Accuracy in Triangulation Laser Range Scanners</i>
		David K. MacKinnon (Carleton University, Canada)
11:00 - 11:20	IM1-4	<i>TDR and FDR Identification of Bad Splices in Telephone Cables</i>
		David Dodds (University of Saskatchewan, Canada)
11:20 - 11:40	IM1-5	<i>Quantitative Capacitance Measurements of MOS Structures</i>
		Michael Ott (University of Ottawa, Canada)

May 9, Tuesday Morning, 10:00-11:40am

OS1 Capital Hall 8, Optical Systems & Photonics

Chair: Ahmed Abou Elfadl

10:00 - 10:20	OS1-1	<i>Modeling and Analysis of LiNbO3 Optical Modulator with Superconducting Electrodes</i>
		Ahmed Abou Elfadl (College of Telecommunications and Electronics, Saudi Arabia)
10:20 - 10:40	OS1-2	<i>ONDE: a generic XML-based development environment for optimization of WDM optical networks</i>
		Mehdi Haïtami (Université de Sherbrooke, Canada)
10:40 - 11:00	OS1-3	<i>Performance Analysis of Directional Coupler Switches in the Presence of Noise from the Loss-compensating Amplifiers</i>
		Rathy Shankar (University of Ottawa, Canada)
11:00 - 11:20	OS1-4	<i>A Heuristic Detection/Protection Algorithm on DWDM Layer</i>
		Donna He (University of Ottawa, Canada)
11:20 - 11:40	OS1-5	<i>APOSN PERFORMANCE UNDER THE MAN AND WAN ENVIRONMENTS</i>
		Choudhury Abdullah Al Sayeed (University of Ottawa, Canada)

May 9, Tuesday Morning, 10:00-11:40am

PE2 Capital Hall 9, Power Electronics

Chair: Vinod Khadkikar

10:00 - 10:20	PE2-1	<i>Analysis of Power Flow in UPQC during Voltage Sag and Swell Conditions for Selection of Device Ratings</i>
		Vinod Khadkikar (École de technologie Supérieure, Canada)
10:20 - 10:40	PE2-2	<i>Real-Time Simulation of Power Electronics in Power Systems Using an FPGA</i>
		Phillipe Le-Huy (Université Laval, Canada)
10:40 - 11:00	PE2-3	<i>DSP-Based 3-Phase Test Signal Synthesizer</i>
		A.W. Krieger (University of Alberta, Canada)
11:00 - 11:20	PE2-4	<i>A Simple Large Signal Model for Isolated DC-DC Converters</i>
		Wilson Eberle (Queen's University, Canada)
11:20 - 11:40	PE2-5	<i>A NOVEL DIGITAL VOLTAGE CONTROLLER FOR SINGLE-PHASE PFC RECTIFIERS</i>
		Dawood Shekari Beyragh (Isfahan University of Technology, Iran)

May 9, Tuesday Morning, 10:00-11:40am

CW4 Executive Suite, Communications & Wireless Systems

Chair: Claude D'Amours

10:00 - 10:20	CW4-1	<i>A Hybrid Channel Allocation Algorithm using Hot-Spot Notification for Wireless Cellular Networks</i>
		Rana Ejaz Ahmad (American University of Sharjah, UAE)
10:20 - 10:40	CW4-2	<i>DS-CDMA System Employing Parity Bit Selected Spreading Waveforms</i>
		Claude D'Amours (University of Ottawa, Canada)
10:40 - 11:00	CW4-3	<i>Performance prediction of urban MIMO channels</i>
		Garfield Downes (University of Ottawa, Canada)
11:00 - 11:20	CW4-4	<i>Narrowband Interference Detection in UWB Systems</i>
		Anh Dinh (University of Saskatchewan, Canada)
11:20 - 11:40	CW4-5	<i>Correlated Keyhole MIMO Channels: SNR and Outage Capacity Distributions</i>
		Giyora Levin (University of Ottawa, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P1 Capital Hall 1

Chair: Wahab Almuhtadi

1:20 - 3:00 & 3:20 - 5:00	P1-1	<i>Logic Design of Nano Sequential Machines</i> Samuel Lee (University of Oklahoma, USA)
	P1-2	<i>Reducing the Instruction Queue Leakage Power in Superscalar Processor</i> Houman Homayoun (McMaster University, Canada)
	P1-3	<i>A Multidimensional Weighted-Attributes Framework (MWAFF) for Evaluating Agent-Oriented Software Engineering Methodologies</i> A. Halim Elamy (University of Alberta, Canada)
	P1-4	<i>Engineering Change Management and Decision-making Assistance Using Software Agent</i> Dounia Habbouba (Université de Sherbrooke, Canada)
	P1-5	<i>CONTEXTGUARD: UN SYSTÈME MULTIAGENT POUR CONTRÔLER LE CONTEXTE</i> Ghislain Ngantchaha (École Nationale Supérieure, Canada)
	P1-6	<i>A Multiagent-Based Approach for Real-Time Mobile Map Generation</i> Nafaa Jabour (Université Laval, Canada)
	P1-7	<i>A Low-Voltage Sampling Switch with Improved Linearity</i> Yunfeng Peng (Fudan University, China)
	P1-8	<i>Frequency Compensation for Multistage Amplifiers Using Active-Feedback Current Buffers</i> Zushu Yan (Beijing Microelectronics Technology Institution, China)
	P1-9	<i>A Novel Current-Mode CMOS Multiple-Valued Logic Neuron</i> Daniel Teng (University of Saskatchewan, Canada)
	P1-10	<i>Area Identification of English Person Names Based on Statistical Information</i> Shiho Nobesawa (Tokyo University of Science, Japan)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P1 Capital Hall 1

Chair: Wahab Almuhtadi

1:20 - 3:00 & 3:20 - 5:00	P1-11	<i>Captology in Narrowcast Advertising: A Swarm Simulation of Persuasion Models</i>
		Mark Alexiuk (University of Manitoba, Canada)
	P1-12	<i>The OAR Model for Knowledge Representation</i>
		Yingxu Wang (University of Calgary, Canada)
	P1-13	<i>Resources Selection of Dynamic Alliance of Enterprises Based on Genetic Algorithm</i>
		Qi Tang (Tianjin Polytechnic University, China)
	P1-14	<i>The Stability of Behavioral Synchronization in a Network of Bursting Neurons: A New Explanation for Epileptogenesis</i>
		Dragos Calitoiu (Carleton University, Canada)
	P1-15	<i>Stability Issues in a Biological Model of Self and Non-Self Immune Regulation</i>
		Dragos Calitoiu (Carleton University, Canada)
	P1-16	<i>CHANGE MANAGEMENT: KEY FACTOR IN PHARMACEUTICAL ORGANIZATIONS (EXISTING INFORMATION SYSTEMS APPROACH)</i>
		Kashif Hussain (Université de Valenciennes, France)
	P1-17	<i>Evaluation of RNA Secondary Structure Motifs Using Regression Analysis</i>
		Mohammad Anwar (University of Ottawa, Canada)
	P1-18	<i>Enhanced Adaptive SNMPv6 for Mobile Devices</i>
		Zhigang Jin (Tianjin University, China)
	P1-19	<i>A Real-Time Radio Resource Allocation Scheme in OFDMA System</i>
		Zhiwei Mao (Lakehead University, Canada)
	P1-20	<i>Group-Optimal Linear Space-Time Multiuser Detection</i>
		Benoit Pelletier (McGill University, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P1 Capital Hall 1

Chair: Wahab Almuhtadi

1:20 - 3:00 & 3:20 - 5:00	P1-21	<i>Enhanced Uplink Frequency Synchronization Algorithm for OFDMA Systems in a Multi-path Fading Environment</i>
		Merwise Khalwati (Ericsson, Canada)
	P1-22	<i>Turbo Equalization of Coded OFDM Symbols in Poor HF Channels</i>
		Oktay Ureten (Communications Research Centre, Canada)
	P1-23	<i>Effect of Human Body Upon Line-Of-Sight Indoor Radio Propagation</i>
		Yong Ming Huang (Université du Québec en Outaouais, Canada)
	P1-24	<i>QoS-Aware Protocol Architecture for WiMAX</i>
		Luis Orozco (Instituto de Informatica Albacete, Spain)
	P1-25	<i>An N-selective MRC Rake receiver with LMS adaptive equalizer for UWB systems</i>
		Anh Dinh (University of Saskatchewan, Canada)
	P1-26	<i>Comparison of Clustering Algorithms and Protocols for Wireless Sensor Networks</i>
		Nidal Nasser (University of Guelph, Canada)
	P1-27	<i>STBC-DFE Systems with Different Factorization Algorithms</i>
		Feng Zhang (University of Calgary, Canada)
	P1-28	<i>Implémentation et évaluation de la technologie HSDPA</i>
		Ronald Beaubrun (Université Laval, Canada)
	P1-29	<i>A new Security Approach for WLAN</i>
		Sabine Kebreau (École Polytechnique de Montréal, Canada)
	P1-30	<i>Wireless Generations: Transitions and Multimedia Suitability</i>
		Ahmad Abdo (University of Ottawa, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P1 Capital Hall 1

Chair: Wahab Almuhtadi

1:20 - 3:00 & 3:20 - 5:00	P1-31	<i>UWB Data rate and Channel Capacity in Modulation Schemes</i>
		Omid Abedi (University of Calgary, Canada)
	P1-32	<i>P2PDNS: a Free Domain Name System based on P2P Philosophy</i>
		Qiang Zhang (Tianjin University, China)
	P1-33	<i>Software Defect Content Estimation: A Bayesian Approach</i>
		Alok Patnaik (Tecsis corp., Canada)
	P1-34	<i>An Integrated PHM approach for gas turbine engines</i>
		Alok Patnaik (Tecsis corp., Canada)
	P1-35	<i>Automatic testing of SCR specifications</i>
		Michal Iglewski (Université du Québec en Outaouais, Canada)
	P1-36	<i>MODELING OF TAPE AUTOMATIC BONDING (TAB) FOR HIGH PERFORMANCE INTEGRATED CIRCUITS</i>
		Nacer Hassaine (Harris Corporation, Canada)
	P1-37	<i>An FPGA Based Rapid Prototyping of the Rake Receiver in a MIMO Environment</i>
		Adel Omar Dahame (Université du Québec à Trois-Rivières, Canada)
	P1-38	<i>Structural Models for Rotor Fault Identification of a Squirrel Cage Induction Machine</i>
		Olivier Guy (École Polytechnique de Montréal, Canada)
	P1-39	<i>HIGH PERFORMANCE SOFT DECISION VITERBI DECODER FOR WLAN AND BROADBAND APPLIC</i>
		Abdul-Shakoor Abdul-Rafeeq (Communications Research Centre Canada, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P2 Capital Hall 2

Chair: Tariq Al-Omari

1:20 - 3:00 & 3:20 - 5:00	P2-1	<i>Service Overlay Network Resource Adaptations based on an Economic Model</i> Côn Tran (École de Technologie Supérieure, Canada)
	P2-2	<i>Near-Optimal Node Clustering in Wireless Sensor Networks for Environment Monitoring</i> Natalija Vlajic (York University, Canada)
	P2-3	<i>A New Adaptive Transport Protocol for Web Traffic</i> Mehdi Salmani Jelodar (Sepanta Robotic Research Foundation, Iran)
	P2-4	<i>A Conference Mechanism for the Simultaneous Transmission of Voice and Medical Information Using SIP</i> Alexis Dorais-Joncas (Université de Sherbrooke, Canada)
	P2-5	<i>The Hop-Count Effect on The Optimal Spare Capacity for P-Cycles, Rings and All-Routes</i> Wail Mardini (University of Ottawa, Canada)
	P2-6	<i>OC-48 Configurable IP Traffic Generator with DWDM Capability</i> Ahmad Abdo (University of Ottawa, Canada)
	P2-7	<i>Measurement and Analysis of TCP Performance in IEEE 802.11 Wireless Network</i> Weimin Ge (Tianjin University, China)
	P2-8	<i>Verification, Validation and Accreditation: An HLA FEDEP Overlay</i> Anthony Masys (DND, Canada)
	P2-9	<i>An Isolated Small Wind Turbine Emulator</i> Md. Arifujjaman (Memorial University of Newfoundland, Canada)
	P2-10	<i>Identification of Time-varying Hammerstein Systems Using a Basis Expansion Approach</i> Bashiru Isa Ikharia (University of Calgary, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P2 Capital Hall 2

Chair: Tariq Al-Omari

1:20 - 3:00 & 3:20 - 5:00	P2-11	<i>Availability of Pyramid Industrial Networks</i> Hassanein Amer (American University of Cairo, Egypt)
	P2-12	<i>Optimum Supervisor Computational Power for Small Scale In-Line Production Networked Control Machines</i> Daoud (American University of Cairo, Egypt)
	P2-13	<i>SMIP An Incremental and Parallel Clustering Algorithm Based on Statistics and Morphology</i> Quiang Zhang (Tianjin University, China)
	P2-14	<i>DBMSS: An event-based simulator for analyzing concurrency protocols in database systems</i> Leila Jalali (Amirkabir University of Technology, Iran)
	P2-15	<i>Extracting Document Semantics for Semantic Header</i> Tao Wang (Concordia University, Canada)
	P2-16	<i>Multidimensional Indexing in an OODBMS – A Case Study</i> Ibrahim Sallam (Objectivity Inc.)
	P2-17	<i>Neural Network Based Framework for Optimization of Enterprise Resource Planning</i> Voicu Groza (University of Ottawa, Canada)
	P2-18	<i>Design Space Exploration using Parameterized Cores: A Case Study for Embedded Systems</i> Ian Anderson (University of Windsor, Canada)
	P2-19	<i>Projection Pursuit Feature Analysis for Pan-Sharpener Multispectral IKONOS Imagery</i> Julian Meng (University of New Brunswick, Canada)
	P2-20	<i>FPGA-Based SAT Solver</i> Mona Safar (Ain Shams University, Egypt)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P2 Capital Hall 3

Chair: Tariq Al-Omari

1:20 - 3:00 & 3:20 - 5:00	P2-21	<i>Reducing Scan Base Testing Power Using Genetic Algorithm</i>
		Mehdi Salmani Jelodar (Sepanta Robotic Research Foundation, Iran)
	P2-22	<i>A Systematic Approach Towards the Implementation of a Low Noise Amplifier in Sub-Micron CMOS Technology</i>
		Vijaya Kumar Devabhaktuni (Concordia University, Canada)
	P2-23	<i>FPGA Implementation of A Face Detector Using Neural Networks</i>
		Yongsoon Lee (University of Saskatchewan, Canada)
	P2-24	<i>24 GHz Low-Noise Amplifiers Using High Q Series-Stub Transmission Lines in 0.18-um CMOS</i>
		Dustin Dunwell (Queen's University, Canada)
	P2-25	<i>On the Hardware Software Partitioning: The classical General Model (CGM)</i>
		Hani Javanhemmat (Sharif University of Technology, Iran)
	P2-26	<i>Survey of Biological High Performance Computing: Algorithms, Implementations and Outlook Research</i>
		Nasreddine Hireche (École Polytechnique de Montréal, Canada)
	P2-27	<i>Evaluation of Parallel VQ Compression Algorithms on an SMP System</i>
		Akiyoshi Wakatani (Konan University, Japan)
	P2-28	<i>The Facial Features Extraction For Face Recognition Based On Geometrical Approach</i>
		Basavaraj Amarapur (P.D.A. College of Engineering Gulbarga, India)
	P2-29	<i>Using Red-eye to Improve Face Detection in Low Quality Video Images</i>
		Richard Youmaran (University of Ottawa, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P2 Capital Hall 2

Chair: Tariq Al-Omari

1:20 - 3:00 & 3:20 - 5:00	P2-30	<i>A New Deblocking Algorithm Based on Wavelet Transform and MRF for DCT-coded Images</i>
		Shi Min (Jinan University, China)
	P2-31	<i>Blocking Effect Reduction based on Human Visual System for Highly Compressed Images</i>
		Shi Min (Jinan University, China)
	P2-32	<i>Blind Image Restoration Using the Cepstrum Method</i>
		Xiumei Kang (University of Manitoba, Canada)
	P2-33	<i>Watermarking for Halftoned Images using Error Diffusion with Nonlinear Thresholding</i>
		Shadrokh Samavi (Isfahan University of Technology, Iran)
	P2-34	<i>An Effective Shape Descriptor for the Retrival of Natural Image Collections</i>
		Ling Guan (Ryerson University, Canada)
	P2-35	<i>Regularized Fractal Image Decoding</i>
		Mehran Ebrahimi (University of Waterloo, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P3 Capital Hall 3

Chair: Salem Derisavi

1:20 - 3:00 & 3:20 - 5:00	P3-1	<i>Conception d'un environnement sous MATLAB pour le marquage d'images en JPEG2000</i>
		Nadia Baaziz (Université du Québec en Outaouais, Canada)
	P3-2	<i>Fast Matching Algorithm between Line Pictures Described by Chain Codes Applied for Human Face Identification</i>
		Kou Natsumeda (Kogakuin University, Japan)
	P3-3	<i>New Threshold Setting Method for the Extraction of Facial Areas and the Recognition of Facial Expressions</i>
		Yumiko Kimura (Kogakuin University, Japan)
	P3-4	<i>Corridor Line Detection for Vision Based Indoor Robot Navigation</i>
		Wenxia Shi (University of Western Ontario, Canada)
	P3-5	<i>Facial Expression Recognition Using Subspace Analysis Methods and Wavelet-based Salient Points</i>
		Sara Rahmaty (Isfahan University of Technology, Iran)
	P3-6	<i>Single Sensor Image Compression from the End-user's Perspective</i>
		Rastilav Lukac (University of Toronto, Canada)
	P3-7	<i>Visual Tracking System for Dense Traffic Intersections</i>
		Omid Rostamianfar (Ryerson University, Canada)
	P3-8	<i>An Image-based 3D Ice Acquisition on Power Transmission Lines</i>
		Chunsheng Yu (University of Manitoba, Canada)
	P3-9	<i>Vector Concepts-based Spectral Modeling</i>
		Rastilav Lukac (University of Toronto, Canada)
	P3-10	<i>Hardware Edge Detection using an Altera Stratix NIOS-2 Development Kit</i>
		Kraut Jay (University of Manitoba, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P3 Capital Hall 3

Chair: Salem Derisavi

1:20 - 3:00 & 3:20 - 5:00	P3-11	<i>A Fast Two Dimensional Deblocking Filter for H.264/AVC</i>
		Mahdi Nazm Bojnordi (University of Tehran, Iran)
	P3-12	<i>Automatic Lip Tracking and Action Units Classification Using Two Step Active Contours and Probabilistic Neural Networks</i>
		Hadi Seyedarabi (University of Tabriz, Iran)
	P3-13	<i>A Frame Layer Bit Allocation Method for H.264 Based on Frame Complexity</i>
		Hoda Roodaki (University of Tehran, Iran)
	P3-14	<i>Data Hiding in Halftone Images Using Error Diffusion Halftoning with Adaptive Thresholding</i>
		Omid Taheri (Isfahan University of Technology, Iran)
	P3-15	<i>Unequal Error Protection Technique for ROI Based H.264 Video Coding</i>
		Hemantha Kodikara Arachchi (Brunel University, UK)
	P3-16	<i>Evolutionary Strategy Based Improved Motion Estimation Technique for H.264 Video Coding</i>
		Hemantha Kodikara Arachchi (Brunel University, UK)
	P3-17	<i>Adaptive Video Concealment Using Neural Networks for H.264 Based Video Coding</i>
		Hemantha Kodikara Arachchi (Brunel University, UK)
	P3-18	<i>Parametric Mixing for Centralized VoIP Conferencing Using ITU-T Recommendation G.722.2</i>
		Giuseppe Agnello (Carleton University, Canada)
	P3-19	<i>The 2-D Quantized DCT with Distributed Arithmetic</i>
		Payman Samadi (University of Windsor, Canada)
	P3-20	<i>Indexation et recherche d'images couleur par la nouvelle matrice d'uniformité</i>
		Wafae Sabbar (University Hassan II, Morocco)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P3 Capital Hall 3

Chair: Salem Derisavi

1:20 - 3:00 & 3:20 - 5:00	P3-21	<i>Acceleration of Fractal Image Compression using Characteristic Vector Classification</i>
		Shadrokh Samavi (Isfahan University of Technology, Iran)
	P3-22	<i>Energy Based Line Detection</i>
		Wenxia Shi (University of Western Ontario, Canada)
	P3-23	<i>An Online System for Synchronized Processing of Video and Audio Signals</i>
		Mary Mikhail (Concordia University, Canada)
	P3-24	<i>Detection and Segmentation of Moving Objects in Video</i>
		Kunio Takaya (University of Saskatchewan, Canada)
	P3-25	<i>RECONNAISSANCE DU LOCUTEUR À L'AIDE DE LA TRANSFORMÉE EN ONDELETTES CONTINUE (TOC)</i>
		Marcel Gabera (École de Technologie Supérieure, Université de Québec, Canada)
	P3-26	<i>Robust Posture Estimation of Human Faces under the Condition of Rapid Lighting Changes Using 3-D Reference Picture</i>
		Daisuke Takahashi (Kanto Gakuin University, Japan)
	P3-27	<i>Flaw in SVD-based Watermarking</i>
		Luc Lamarche (University of Ottawa, Canada)
	P3-28	<i>A Survey of RST Invariant Image Watermarking Algorithms</i>
		Jiying Zhao (University of Ottawa, Canada)
	P3-29	<i>Human vs. Automatic Measurement of Biometric Sample Quality</i>
		Tatyana Dembinsky (University of Ottawa, Canada)
	P3-30	<i>A High Throughput Screening Algorithm for Lukemia Cells</i>
		Jong-Sook Iris Choi (University of Calgary, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P2 Capital Hall 3

Chair: Salem Derisavi

1:20 - 3:00 & 3:20 - 5:00	P3-31	<i>Prediction-Based Flexible Triangle Search Algorithm for Block Based Motion Estimation</i>
		Mohamed Rehan (University of Victoria, Canada)
	P3-32	<i>Cosine Generalized Transform to Lie Groups $SU(2) \times SU(2)$ and $O(5)$: Application to Textural Image Analysis</i>
		Mickael Germain (Centre de Recherches Mathématiques, Canada)
	P3-33	<i>A Low Complexity WP Based Image Signature for Indexing and Retrieval</i>
		Saif Zahir (University of Northern British Columbia, Canada)
	P3-34	<i>A New Technique for the Estimation of Jitter and Shimmer of Voiced Speech Signal</i>
		M. Omair Ahmad (Concordia University, Canada)
	P3-35	<i>MODÉLISATION DU CANAL TÉLÉPHONIQUE PSTN ET MULTIRÉFÉRENCES EN RECONNAISSANCE ROBUSTE DE LA PAROLE</i>
		Marcel Gabrea (ETS Montréal, Canada)
	P3-36	<i>Can We Work Around Complex Numerical Methods? An Insight</i>
		Sandeep Chandana (University of Regina, Canada)
	P3-37	<i>Analysis and Comparison of the Generic and Auxiliary Particle Filtering Frameworks</i>
		Laurence Smith (Carleton University, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P4 Capital Hall 4

Chair: Bahram Zahir, Hivva technologies

1:20 - 3:00 & 3:20 - 5:00	P4-1	<i>Implementation of a Simulation Engine for Clocked Molecular QCA</i>
		Gabriel Schulhof (University of Calgary, Canada)
	P4-2	<i>Schottky Barrier Carbon Nanotube Field Effect Transistor: Electronic Characterizations</i>
		Maryam Etezzad (Concordia University, Canada)
	P4-3	<i>Performance Evaluation and Optimization of Full Adders with Single-Electron Technology</i>
		Yanjie Mao (University of Windsor, Canada)
	P4-4	<i>Holes Effects on RF MEMS Parallel Membrane Capacitors</i>
		Abdelhalim Bendali (École Polytechnique, Canada)
	P4-5	<i>Parallel Approach to the Nanothermal Numerical Analysis</i>
		Adam Waldemar Skorek (Université du Québec à Trois-Rivières, Canada)
	P4-6	<i>Nanoscale Thermal Analysis of Electronic Devices</i>
		Adam Waldemar Skorek (Université du Québec à Trois-Rivières, Canada)
	P4-7	<i>Analysis and Design of a 10 Gbps Transimpedance Amplifier using 0.18 um CMOS Technology</i>
		Ryan Douglas Bepalko (Queen's University, Canada)
	P4-8	<i>Determining Density in Ad-hoc Networks</i>
		Muhammad Hassan Raza (Dalhousie University, Canada)
	P4-9	<i>Analytical Modeling of the Link Delay Characteristics for IEEE Multi-Rate WLANs</i>
		Tarun Joshi (University of Cincinnati, USA)
	P4-10	<i>Optimized Design of the Physical Layer of a 10Gbps ROADM Based Metro Ring</i>
		Wei Zhang (University of Ottawa, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P4 Capital Hall 4

Chair: Bahram Zahir, Hivva technologies

1:20 - 3:00 & 3:20 - 5:00	P4-11	<i>Optimizing Compensation while Solving the GRWA Problem</i>
		Brigitte Jaumard (Concordia University, Canada)
	P4-12	<i>Augmented Modified Rate Equations Semiconductor Laser Diode Model Including the Optical Back-Reflections Effects</i>
		Ayman Mohamed Mokhtar (Carleton University, Canada)
	P4-13	<i>Classifying Tracked Objects and Their Interactions from Infrared Imagery</i>
		Xavier Maldague (Université Laval, Canada)
	P4-14	<i>A Real-Time Face Recognition Approach from Video Sequence Using Skin Color Model and Eigenface Method</i>
		Md. Maruf Monwar (University of Northern British Columbia, Canada)
	P4-15	<i>On Some Feature Selection Strategies for Spam Filter Design</i>
		Amr Youssef (Concordia University, Canada)
	P4-16	<i>SVM Classifier Approach to Enumerate Directional Signals Impinging on an Array of Sensors</i>
		Ahmad Khodayari-Rostamabad (McMaster University, Canada)
	P4-17	<i>Classifying tracked objects and their interactions from infrared imagery</i>
		Xavier Maldague (Université Laval)
	P4-18	<i>A Peak Detector for Multi-rate Phase Locked Loop and Sequence Detector Combination for Utility AC Power Applications</i>
		Hamid Shokrollah Timorabadi (University of Toronto, Canada)
	P4-19	<i>A New Family of Auxiliary Circuits for ZVT-PWM Converters: Synthesis, Circuits, Results</i>
		Gerry Moschopoulos (University of Western Ontario, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P4 Capital Hall 4

Chair: Bahram Zahir, Hivva technologies

1:20 - 3:00 & 3:20 - 5:00	P4-20	<i>A Comparative Study of Multi-Frequency and Sampled-data Models for PWM DC-DC Converters</i>
		Krishnamoorthy Natarajan (Lakehead University, Canada)
	P4-21	<i>Efficiency based Evaluation on Inverter topologies with Soft Switching Techniques</i>
		Mizhi Zhang (Dalhousie University, Canada)
	P4-22	<i>Sliding Mode Control for Voltage Controlled DSTATCOM</i>
		Mohamed Eldery (University of Waterloo, Canada)
	P4-23	<i>Digitally Controlled Self-oscillating Resonant Converters: Modeling Issues</i>
		Mohamed Youssef (Queen's University, Canada)
	P4-24	<i>Use of the State-Space Averaging Method in Fast Steady-State Simulation Algorithms for Switching Power Converters</i>
		Martin Plesnik (Nortel, Canada)
	P4-25	<i>SYNCHRONIZATION OF THREE-PHASE PLL WITH GATED ERROR SIGNAL</i>
		A.W. Kreiger (University of Alberta, Canada)
	P4-26	<i>PDM Control Optimization Applied to an AC/AC Converter Using Genetic Algorithm</i>
		Ahmed Cheriti (Université du Québec à Trois-Rivières, Canada)
	P4-27	<i>Three-Level Hysteresis Power Control for Pulse-Density-Modulated Series Resonant Converter</i>
		Ahmed Cheriti (Université du Québec à Trois-Rivières, Canada)
	P4-28	<i>Voltage Source Inverter for Voltage and Frequency Control of a Stand-Alone Self-Excited Induction Generator</i>
		Hamid Shokrollah Timorabadi (University of Toronto, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P4 Capital Hall 4

Chair: Bahram Zahir, Hivva technologies

1:20 - 3:00 & 3:20 - 5:00	P4-29	<i>A New Accurate Phase-Domain Synchronous Generator Model for Transient Simulation</i>
		Kwok-wai Louie (Manitoba HVDC Research Centre, Canada)
	P4-30	<i>Impact of Load Characteristics and Low-Voltage Load Shedding Schedule on Dynamic Voltage Stability In Power Systems</i>
		Huawei Li (Beijing Jiaotong University, China)
	P4-31	<i>Study on Control Strategies to Improve the Stability of Multi-infeed HVDC Systems Applying VSC-HVDC</i>
		Chengyong Zhao (North China Electric Power University, China)
	P4-32	<i>Lightning as Atmospheric Electricity</i>
		Karthick Srinivasan (Dalhousie University, Canada)
	P4-33	<i>Investigation into the Use of Electronic Load Governors for Stand-Alone Power System Frequency Control</i>
		Krishnamoorthy Natarajan (Lakehead University, Canada)
	P4-34	<i>Fuzzy Gain Tuner for Vector Control of Doubly-Fed Wind Driven Induction Generator</i>
		Hany Jabr (University of Windsor, Canada)
	P4-35	<i>A Block Diagram Approach to Reference Frame Transformation of Converter Dynamic Models</i>
		Charles Sao (University of Toronto, Canada)
	P4-36	<i>Nouvelle stratégie de commande du filtre actif parallèle pour compenser les perturbations en courant : courants harmoniques, réactifs et déséquilibrés</i>
		Tarik Jarou (Université Mohammed V, Morocco)
	P4-37	<i>A High-Performance Wind-Electric Battery Charging System</i>
		Suzan Eren (Queen's University, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P4 Capital Hall 4

Chair: Bahram Zahir, Hivva technologies

1:20 - 3:00 & 3:20 - 5:00	P4-38	<i>A Technology Review and Simulation Based Performance Analysis of River Current Turbine Systems</i>
		Jahangir Khan (Memorial University of Newfoundland, Canada)
	P4-39	<i>Model Identification for Spinning Reserve Management</i>
		Aniruddha Gole (University of Manitoba, Canada)
	P4-40	<i>A Novel Method for Fabrication of Free Standing Sub-Wavelength Gratings in GaAs</i>
		Dawn Tse Hui Tan (UBC Optoelectronics Research Group, Canada)
	P4-41	<i>GIC Modelling for an overdetermined system</i>
		Alexandre Trichtchenko (Natural Resources Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P5 Capital Hall 5

Chair: Amir Ghavam

1:20 - 3:00 & 3:20 - 5:00	P5-1	<i>Reliability Assessment of Reconfigurable Split-bus Substation Topology for Adding Power Transformers without Increasing Fault Current</i>
		Frédéric Sirois (École Polytechnique de Montréal, Canada)
	P5-2	<i>Power Management System for Embedded RTOS: An Object Oriented Approach</i>
		Saeed Rajput (Florida Atlantic University, USA)
	P5-3	<i>Improving Chireix Combiner Efficiency Using MEMS Switches</i>
		Mohamad El-Asmar (École de technologie supérieure, Canada)
	P5-4	<i>Measurement of Bandpass Sigma--Delta Modulator Coding Efficiency and Pulse Transition Frequency for RF Class D Power Amplifier Applications</i>
		Thomas E. Johnson (Simon Fraser University, Canada)
	P5-5	<i>Dual-mode Tunable Q-enhanced Filter for Narrowband and UWB Systems</i>
		Anh Dinh (University of Saskatchewan, Canada)
	P5-6	<i>On-chip Integrated Antennas – the First Challenge for Reliable on-Chip Wireless Interconnects</i>
		Yuxin Wang (University of Rochester, USA)
	P5-7	<i>Adaptive Frequency Sampling Tools as Aids in Electromagnetic Modeling and Design</i>
		Vijaya Kumar Devabhaktuni (Concordia University, Canada)
	P5-8	<i>Power-Efficient High Intercept-Points Mixers For wireless Communications</i>
		Ajay Poddar (Synergy Microwave, USA)
	P5-9	<i>Alternative Millimeter-wave Communication Receivers in Six-port Technology</i>
		Serioja Ovidiu Tatu (INRS-EMT Montreal, Canada)
	P5-10	<i>Object Oriented Computational Electromagnetics</i>
		Poman So (University of Victoria, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P5 Capital Hall 5

Chair: Amir Ghavam

1:20 - 3:00 & 3:20 - 5:00	P5-11	<i>A New Design of Lumped Element Bandpass Filter in L-Band</i>
		Payam Mapar (Information and Communication Technology Institute - Isfahan University of Technology, Iran)
	P5-12	<i>Virtual Prototyping for Conceptual Design of a Tracked Mobile Robot</i>
		Sadath Mangalore Malik (University of Toronto, Canada)
	P5-13	<i>Blind Video Watermarking for H.264</i>
		Ta-Te Lu (Ching Yun University, Taiwan)
	P5-14	<i>Parity Prediction of S-box for AES</i>
		Mehran Mozaffari Kermani (University of Western Ontario, Canada)
	P5-15	<i>Towards A Security Policy Framework for Mobile VoIP Applications</i>
		Miguel Vargas Martin (University of Ontario Institute of Technology, Canada)
	P5-16	<i>Genetic Watermarking Based on DCT Domain Techniques</i>
		Zhicheng Wei (Tianjin University, China)
	P5-17	<i>Detecting Distributed Denial of Service Attack Traffic at the Agent Machines</i>
		Vicky Laurens (University of Ottawa, Canada)
	P5-18	<i>Sound Software Development for Engineering Simulations</i>
		Dawn MacIsaac (University of New Brunswick, Canada)
	P5-19	<i>Towards the Automated Conversion of Natural-Language Use Cases to Graphical Use Case Maps</i>
		Jason Kealey (University of Ottawa, Canada)
	P5-20	<i>A Unified Mathematical Model of Programs</i>
		Yingxu Wang (University of Calgary, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P5 Capital Hall 5

Chair: Amir Ghavam

1:20 - 3:00 & 3:20 - 5:00	P5-21	<i>The Formal Economic Model of Software Engineering</i> Yingxu Wang (University of Calgary, Canada)
	P5-22	<i>On Constraints and Count-Measures for Software Engineering</i> Yingxu Wang (University of Calgary, Canada)
	P5-23	<i>A Mathematical Model for Explaining the Mythic Man-Month</i> Yingxu Wang (University of Calgary, Canada)
	P5-24	<i>Testing Activities for KT-OSS Development</i> Kim Dae-Woo (Korea Telecom, Korea)
	P5-25	<i>A Comparative Analysis of Process Maturity Level And Quality</i> Louis A. Poulin (GrafP Technologies, Canada)
	P5-26	<i>Optimizing Dual-shore SQA Resource and Activities in Offshore Outsourced Software Projects</i> Xu Bin (Zhejiang Gongshang University, China)
	P5-27	<i>Research and Establishment of Quality Cost Oriented Software Testing Model</i> Yuan Yuyu (Peking University, China)
	P5-28	<i>Repositories for COTS Selection</i> Tom Wanyama (University of Calgary, Canada)
	P5-29	<i>Applying the MVC Design Pattern to Multi-Agent Systems</i> Qusay Mahmoud (University of Guelph, Canada)
	P5-30	<i>A new Approach in Object-oriented Methodology for Creating Event-based Simulator</i> Leila Jalili (Amirkabir University of Technology, Iran)

May 9, Tuesday Afternoon, 1:20-3:00pm and 3:20 to 5:00

P5 Capital Hall 5

Chair: Amir Ghavam

1:20 - 3:00 & 3:20 - 5:00	P5-31	<i>Implementing a Tool for Role-Based Collaboration</i>
		Pierre Seguin (Nipissing University, Canada)
	P5-32	<i>Integrating an Eclipse-Based Scenario Modeling Environment with a Requirements Management System</i>
		Jason Kealey (University of Ottawa, Canada)
	P5-33	<i>A Conformance Test Suite for the X3D 3D Markup Language</i>
		John Alexander Stewart (CRC, Canada)
	P5-34	<i>Lazy Generation of Building Interiors in Real-time</i>
		Evan Hahn (Carleton University, Canada)
	P5-35	<i>Interconnected Renewable Energy System in Utility - Unbalanced Analysis</i>
		Kodjo Agbossou (Université du Québec à Trois-Rivières, Canada)

May 9, Tuesday Afternoon, 1:20-3:00pm

CW5 Executive Suite, Communications & Wireless Systems

Chair: Michael McGuire

1:20 - 1:40	CW5-1	<i>Analysis of Joint Channel Estimation and Equalization Using a Kalman Filter</i>
		Michael McGuire (University of Victoria, Canada)
1:40 - 2:00	CW5-2	<i>A Strict Approach to Approximating Lognormal Sum Distributions</i>
		Lian Zhao (Ryerson University, Canada)
2:00 - 2:20	CW5-3	<i>Investigating MANET performance in a VoIP context</i>
		Eric Thibodeau (Université de Sherbrooke, Canada)
2:20 - 2:40	CW5-4	<i>A Dynamic Scheduling Scheme for the Reverse Packet Data Channel in CDMA2000</i>
		Ayda Basyouni (Concordia University, Canada)
2:40 - 3:00	CW5-5	<i>Weak Signal GPS Synchronization for Locating In-building Cellular Telephones</i>
		Bruce Tang (University of Saskatchewan, Canada)

May 9, Tuesday Afternoon, 3:20-5:00pm

CW6 Executive Suite, Communications & Wireless Systems

Chair: Ambighairajah Yasotharan

3:20 - 3:40	CW6-1	<i>Improved LST Scheme Using Multistage Decoding and Power Allocation</i>
		Dherar Rezk (Concordia University, Canada)
3:40 - 4:00	CW6-2	<i>A Multiuser Zeroforcing System with Reduced Near-Far Problem and MIMO Channel Correlations</i>
		Nadem Hussein Dawod (Carleton University, Canada)
4:00 - 4:20	CW6-3	<i>A Decentralized Approach to Power Control for WCDMA Systems using BER Measurements</i>
		Gaurav Pradeep Mandhare (Concordia University, Canada)
4:20 - 4:40	CW6-4	<i>Multirate Successive-Cancellation Tx-Rx Design for MIMO Channel under BER Constraints</i>
		Ambighairajah Yasotharan (Radarcom Signals, Canada)
4:40 - 5:00	CW6-5	<i>Progressive Image Transmission Over Wavelet Packet Based OFDM</i>
		Sashuang Wang (Tianjin University, China)

May 10, Wednesday morning, 8:00-9:40am

AC2/AD2 Capital Hall 1, Advanced Computer Architecture / Analog & Digital Electronics

Chair: Rami Abielmona

8:00 - 8:20	AC2-1	<i>Run-Time Reconfigurable Built-In-Self-Test</i>
		Rami Abielmona (University of Ottawa, Canada)
8:20 - 8:40	AD2-3	<i>Bandwidth Expansion in Sigma-Delta PLLs Using Multiphase VCOs</i>
		Igor Miletic (Carleton University, Canada)
8:40 - 9:00	AD2-1	<i>A Low-Power Efficient Direct Digital Frequency Synthesizer based on New Two-Level Lookup Table</i>
		Stanley Lee (NCUE, Taiwan)
9:00 - 9:20	AD2-2	<i>Design of an Active-RC Band-pass Filter for a Sub-sampling RF Delta Modulator</i>
		Ali Naderi (Polystim Neurotechnologies Laboratory, École Polytechnique de Montréal, Canada)
9:20 - 9:40	AC2-2	<i>A Reconfigurable Cache Architecture for Object-Oriented Embedded Systems</i>
		Mehdi Modarressi (Sharif University of Technology, Iran)

May 10, Wednesday morning, 8:00-9:40am
BE3 Capital Hall 2, Biomedical Engineering & Bioinformatics
Chair: Kexing Liu

8:00 - 8:20	BE3-1	<i>IMAGING OF ELECTRODE MOVEMENT AND CONDUCTIVITY CHANGE IN ELECTRICAL IMPEDANCE TOMOGRAPHY</i>
		Camille Gomez-Labe (University of Ottawa, Canada)
8:20 - 8:40	BE3-2	<i>On the Use of Spectral Clustering for Prostate Tissue Characterization</i>
		Samar Mohamad (University of Waterloo, Canada)
8:40 - 9:00	BE3-3	<i>Blood Impedance Characterization from Pulsatile Measurements</i>
		Tao Dai (University of Ottawa, Canada)
9:00 - 9:20	BE3-4	<i>Breast Cancer Prognosis via Gaussian Mixture Regression</i>
		Tiago Falk (Queen's University, Canada)
9:20 - 9:40	BE3-5	<i>Data Mining Methods for Protein-Protein Interactions</i>
		Zahra Nafar (Carleton University, Canada)

May 10, Wednesday morning, 8:00-9:40am

CN3 Capital Hall 3, Computer Networks and Systems

Chair: Miguel Vargas Martin

8:00 - 8:20	CN3-1	<i>A Minimum-Cost Resilient Tree-based VPLS for Digital Broadcast TV Services</i>
		Bijan Rahimi (University of Ottawa, Canada)
8:20 - 8:40	CN3-2	<i>GRWA Provisioning and Segment Protection in WDM Optical Networks</i>
		Brigitte Jaumard (Concordia University, Canada)
8:40 - 9:00	CN3-3	<i>Integrated Routing System For Wireless Mesh Networks</i>
		Muhammad Jaseemuddin (Rayerson University, Canada)
9:00 - 9:20	CN3-4	<i>Packet Switching Network Performance Indicators as Function of Network Topology and Routing Algorithms</i>
		Anna T. Lawniczak (University of Guelph, Canada)
9:20 - 9:40	CN3-5	<i>Proposing a Network Infrastructure Approach for Combating Child Pornography</i>
		Miguel Vargas Martin (University of Ontario Institute of Technology, Canada)

May 10, Wednesday morning, 8:00-9:40am

CT1 Capital Hall 4, Control Theory & Applications

Chair: J. R. Raol

8:00 - 8:20	CT1-1	<i>Parameter Estimation using Large Amplitude Data from Real Time Simulator of an Aircraft</i>
		J. R. Raol (National Aerospace Labs, India)
8:20 - 8:40	CT1-2	<i>Control of Tele-Operation Systems Subject to Capacity Limited Channels and Uncertainty</i>
		Alireza Farhadi (University of Ottawa, Canada)
8:40 - 9:00	CT1-3	<i>Probabilistic QoS Measures for Optimal Power Control in Fading Channels</i>
		Shili Lu (University of Ottawa, Canada)
9:00 - 9:20	CT1-4	<i>Ethernet Based Car Control Network</i>
		Ramez Daoud (American University of Cairo, Egypt)
9:20 - 9:40	CT1-5	<i>An Application of Second-order Sliding Mode Control for IC Engine Fuel Injection</i>
		Shiwei Wang (Liverpool John Moores University, UK)

May 10, Wednesday morning, 8:00-9:40am

DS3 Capital Hall 5, Digital Signal Processing

Chair: Sreeraman Rajan

8:00 - 8:20	DS3-1	<i>Modified Differential Absolute Contrast Using Thermal Quadrupoles for the Nondestructive Testing of Finite Thickness Specimens by Infrared Thermography</i>
		Clemente Ibarra-Castanedo (Université Laval, Canada)
8:20 - 8:40	DS3-2	<i>Efficient Approximations for the Four Quadrant Arctangent Function</i>
		Sreeraman Rajan (DRDC-Ottawa, Canada)
8:40 - 9:00	DS3-3	<i>An FPGA-based Singular Value Decomposition Processor</i>
		Mary Elizabeth Kaye (University of New Brunswick, Canada)
9:00 - 9:20	DS3-4	<i>Reconfigurable implementation of wavelet transform on an FPGA-augmented NIOS processor</i>
		Eugene Hyun (University of New Brunswick, Canada)
9:20 - 9:40	DS3-5	<i>Experimental Evaluation of Different Realizations of Recursive CIC Filters</i>
		Seyedeh Maryam Mortazavi Zanjani (University of Tehran, Iran)

May 10, Wednesday morning, 8:00-9:40am

EC2 Capital Hall 6, Electronic Circuits and VLSI

Chair: Stéphane Simard

8:00 - 8:20	EC2-1	<i>DUAL-PATH AND DIODE-TRACKING ACTIVE INDUCTORS FOR MCML GATES</i>
		Hung Tien Bui (Université du Québec à Chicoutimi, Canada)
8:20 - 8:40	EC2-2	<i>MDG-BASED VERIFICATION OF THE LOOK-ASIDE INTERFACE</i>
		Donglin Li (Concordia University, Canada)
8:40 - 9:00	EC2-3	<i>Triple-DES ASIC Module for a Power-Smart System-On-Chip Architecture</i>
		Darshana Patel (University of Guelph, Canada)
9:00 - 9:20	EC2-4	<i>Towards the System-on-Chip Realization of a Sensorless Vector Controller with Microsecond-order Computation Time</i>
		Stéphane Simard (Université du Québec à Chicoutimi, Canada)
9:20 - 9:40	EC2-5	<i>A NEW TRANSISTOR-REDUNDANT VOTER FOR DEFECT-TOLERANT DIGITAL CIRCUITS</i>
		Hayssam El-Razouk (University of Western Ontario, Canada)

May 10, Wednesday morning, 8:00-9:40am

EM3 Capital Hall 7, Electrical Machines and Drives

Chair: Wahab Almuhtadi

8:00 - 8:20	EM3-1	<i>Commande par logique floue pour l'optimisation de la consommation énergétique d'un moteur à induction triphasé</i>
		Mohsen Ghribi (University of Moncton, Canada)
8:20 - 8:40	EM3-2	<i>A Self-Tuned Fuzzy Controller for Interconnected Power Systems</i>
		Mohsen Ghribi (University of Moncton, Canada)
8:40 - 9:00	EM3-3	<i>High Performance Direct Torque Control Of Induction Motor Using Space Vector Modulation</i>
		Jagdish Chaudhari (GHRCE, India)
9:00 - 9:20	EM3-4	<i>A New Method of Modeling Magnetic Saturation in Electrical Machines</i>
		Souvik Guha (University of Windsor, Canada)
9:20 - 9:40	EM3-5	<i>Transient Thermal Analysis of Fast Switching Devices by Partially Coupled FEM Method</i>
		Ahmed Lakhsasi (Université du Québec en Outaouais, Canada)

May 10, Wednesday morning, 8:00-9:40am

RS1 Capital Hall 8, Remote Sensing, Sensors and Devices

Chair: Shafiq Hashmi

8:00 - 8:20	RS1-1	<i>WIRELESS CONTROL AND COMMUNICATION TO MOTOR PROTECTION RELAYS BY USING AN EMBEDDED MICROPROCESSOR</i>
		Abraham Jacobus Johannes Mouton (Tshwane University of Technology, South Africa)
8:20 - 8:40	RS1-2	<i>SOTP: A Self-Organized TDMA Protocol for Wireless Sensor Networks</i>
		Yu Wang (University of Essex, UK)
8:40 - 9:00	RS1-3	<i>Fusion of high-resolution satellite and LIDAR data for individual tree recognition</i>
		Marek Zaramba (Université du Québec en Outaouais, Canada)
9:00 - 9:20	RS1-4	<i>A New Transport Layer Sensor Network Protocol</i>
		Shafiq Hashmi (University of Ottawa, Canada)

May 10, Wednesday morning, 8:00-9:40am

SR3 Capital Hall 9, Power Systems & Renewable Energy

Chair: Rejean Arseneau

8:00 - 8:20	SR3-1	<i>Modeling and Optimization of Direct Methanol Fuel Cells Using Statistical Design of Experiment Methodology</i>
		Martin Ordonez (Memorial University of Newfoundland, Canada)
8:20 - 8:40	SR3-2	<i>Security-Constrained Unit Commitment Using Particle Swarms</i>
		Robert Philip Collett (Memorial University of Newfoundland, Canada)
8:40 - 9:00	SR3-3	<i>Ultra High Speed Protection of Series Compensated Transmission Lines using Wavelet Transforms</i>
		Adel Sharaf (University of New Brunswick, Canada)
9:00 - 9:20	SR3-4	<i>Sizing, Dynamic Modeling and Power Electronics of a Hybrid Energy System</i>
		Reaz UI Haque (Memorial University of Newfoundland, Canada)

May 10, Wednesday morning, 8:00-9:40am

CW7 Executive Suite, Communications & Wireless Systems

Chair: Francois Chan

8:00 - 8:20	CW7-1	<i>Convolutional space-time codes</i>
		Francois Chan (RMC, Canada)
8:20 - 8:40	CW7-2	<i>Performance of an Orthogonal Diversity Combining Detector for Spread-Spectrum Signals</i>
		Susan Watson (DRDC, Canada)
8:40 - 9:00	CW7-3	<i>Performance Evaluation of the Packet Error Rate of DS-SS physical layer in UWB Networks</i>
		Floriano De Rango (University of Calabria, Italy)
9:00 - 9:20	CW7-4	<i>Joint Call Admission Control for Next Generation Wireless Network</i>
		Olabisi Emmanuel Falowo (University of Cape Town, South Africa)
9:20 - 9:40	CW7-5	<i>Convergence Thresholds Analysis of Iterative Multi-user Detection</i>
		Behrooz Haidian (Concordia University, Canada)

May 10, Wednesday morning, 10:00-11:40am

CT2 Capital Hall 1, Control Theory & Applications

Chair: Amor Jnifene

10:00 - 10:20	CT2-1	<i>Decentralized Adaptive Sliding Mode Control of Traffic Networks Using Multi-phase Switching Fourier Estimation</i>
		Seyyed Mohsen Azizi (Concordia University, Canada)
10:20 - 10:40	CT2-2	<i>Designing a Decentralized LQ Controller for a Traffic Network Using DFP Optimization Technique</i>
		Davood Yazdani (Queen's University, Canada)
10:40 - 11:00	CT2-3	<i>An LMI Approach to Robust Control of Packet Loss Probability</i>
		Dongli Zhang (University of Ottawa, Canada)
11:00 - 11:20	CT2-4	<i>Uncertainty and Sensitivity analysis for Tissue Laser Irradiation Model</i>
		Madhu Jain (Ryerson University, Canada)
11:20 - 11:40	CT2-5	<i>Dynamic Analysis and Time Delay Control of a Single Flexible-Link Flexible-Joint (FLFJ) Manipulator</i>
		Amor Jnifene (Royal Military College of Canada, Canada)
	CT2-6	<i>Design of a link-less hyper-redundant crawling robot driven by SMA actuators</i>
		Amor Jnifene (Royal Military College of Canada, Canada)

May 10, Wednesday morning, 10:00-11:40am

DS4 Capital Hall 2, Digital Signal Processing

Chair: Andy Adler

10:00 - 10:20	DS4-1	<i>Post-Filtering for Residual Echo Suppression in Under-Modeled Acoustic Echo Cancellers</i>
		James David Gordy (Carleton University, Canada)
10:20 - 10:40	DS4-2	<i>Wyner-Ziv Coding With Temporal and Spatial Correlations for Motion Video</i>
		Buddika Adikari (Brunel University, UK)
10:40 - 11:00	DS4-3	<i>Bitplane Based Wyner-Ziv Coding Using Unequal Error Protection</i>
		Buddika Adikari (Brunel University, UK)
11:00 - 11:20	DS4-4	<i>Rao-Blackwellised Particle Filters: Examples of Applications</i>
		Frederic Mustiere (University of Ottawa, Canada)
11:20 - 11:40	DS4-5	<i>Variable Step-Size Affine Projection Algorithm with a Weighted and Regularized Projection Matrix</i>
		Tao Dai (University of Ottawa, Canada)

May 10, Wednesday morning, 10:00-11:40am

EC3 Capital Hall 3, Electronic Circuits and VLSI

Chair: Ahmed Lakhasasi

10:00 - 10:20	EC3-1	<i>Steady State Thermo-mechanical Stress Prediction for Large VLSI circuits using GDS Method</i>
		Ahmed Lakhasasi (Université du Québec en Outaouais, Canada)
10:20 - 10:40	EC3-2	<i>Absolutely Free Extrinsic Evolution of Passive Low-pass Filter</i>
		Yerbol Sapargaliyev (Brunel University, UK)
10:40 - 11:00	EC3-3	<i>Design and Characterization of a Digital Delay Locked Loop Synthesized from Black Box Standard Cells</i>
		Bruce Cockburn (University of Alberta, Canada)
11:00 - 11:20	EC3-4	<i>NEW ELECTRO-THERMAL INTEGRATED CIRCUIT MODELING USING COUPLING OF SIMULATORS</i>
		Sara Sharifian Attar (Ryerson University, Canada)
11:20 - 11:40	EC3-5	<i>Clustering Hanan Points to Reduce VLSI Interconnect Routing Times</i>
		Dilip K. Banerji (University of Guelph, Canada)

May 10, Wednesday morning, 10:00-11:40am

EM4 Capital Hall 4, Electrical Machines and Drives

Chair: Wahab Almuhtadi

10:00 - 10:20	EM4-1	<i>Efficiency Improvements from an Electric Vehicle Induction Motor Drive, with Augmentations to a PI Control</i>
		Ryan E. Janzen (University of Toronto, Canada)
10:20 - 10:40	EM4-2	<i>A Novel Method to Compute End-Ring and Bar Leakage Inductance in Squirrel Cage Induction Motor</i>
		Subhasis Nandi (University of Victoria, Canada)
10:40 - 11:00	EM4-3	<i>ANALYSIS AND MODELING OF A SYNCHRONOUS MACHINE WITH STRUCTURAL ASYMMETRIES</i>
		Subhasis Nandi (University of Victoria, Canada)
11:00 - 11:20	EM4-4	<i>New Approach for Partial and Full Load Rejection Analysis of Synchronous Generator</i>
		René Wamkeue (Université du Québec en Abitibi-Témiscamingue, Canada)
11:20 - 11:40	EM4-5	<i>Effect of Voltage Sags on the Transient Performance of Saturated Synchronous Motors</i>
		Narayan Kar (University of Windsor, Canada)

May 10, Wednesday morning, 10:00-11:40am

PE3/PS2 Capital Hall 5, Power Electronics / Power Systems Reliability

Chair: Vijay Kumar Sood

10:00 - 10:20	PE3-1	<i>Modeling of a Chain Link Statcom in EMTP-RV</i>
		Vijay Kumar Sood (Hydro-Quebec – IREQ, Canada)
10:20 - 10:40	PE3-2	<i>Modeling a Hybrid Diod-Thyristor HVDC Rectifier in EMTP-RV</i>
		Vijay Kumar Sood (Hydro-Quebec – IREQ, Canada)
10:40 - 11:00	PS2-1	<i>Geomagnetically induced currents in European high-voltage power systems</i>
		Risto Pirjola (Natural Resources, Canada)
11:00 - 11:20	PS2-2	<i>Advanced Analysis and Operation of Interconnected Power Systems</i>
		Sulaiman Al Rumaih (King Saud University, Saudi Arabia)

May 10, Wednesday morning, 10:00-11:40am
RM2 Capital Hall 6, Robotics & Mechatronics
Chair: Amor Jnifene

10:00 - 10:20	RM2-1	<i>Conception d'un Robot Mobile Commandé Sans fil via Internet et réseau local</i>
		Mohsen Ghribi (University of Moncton, Canada)
10:20 - 10:40	RM2-2	<i>Adaptive Teleoperation using Operator Elbow Impedance</i>
		Farid Mobasser (Queen's University, Canada)
10:40 - 11:00	RM2-3	<i>Adaptive Inverse Dynamics Control of a Free-Flying Space Robot in Contact with a Target Satellite: A Hubble Space Telescope Case</i>
		Murad Al-Shibli (German-Jordanian University, Jordan)
11:00 - 11:20	RM2-4	<i>Predictive Teleoperation Using Laser Rangefinder</i>
		Keyvan Hashtrudi-Zaad (Queen's University, Canada)
11:20 - 11:40	RM2-5	<i>A Visual SLAM Solution Based on High Level Geometry Knowledge and Kalman Filtering</i>
		Zhenhe Chen (University of Western Ontario, Canada)

May 10, Wednesday morning, 10:00-11:40am

RT1 Capital Hall 7, Real-Time Embedded Systems

Chair: Dan Ionescu

10:00 - 10:20	RT1-1	<i>LIN Bus Testing Software</i>
		Mircea Popa (Politehnica University of Timisoara, Romania)
10:20 - 10:40	RT1-2	<i>QoS-Driven Network-on-Chip Communication Backbone Design for Real-Time Systems</i>
		Ankur Agarwal (Florida Atlantic University, USA)
10:40 - 11:00	RT1-3	<i>Profiling of the LabVIEW Development Environment and Real-Time Module</i>
		Mahdi Javer (Carleton University, Canada)
11:00 - 11:20	RT1-4	<i>Formal Description of Time Management in Real-Time Operating Systems</i>
		Yingxu Wang (University of Calgary, Canada)
11:20 - 11:40	RT1-5	<i>A Genetic-Algorithm Based Approach for the Design of Delay Equalizers</i>
		Sabbir U. Ahmad (University of Victoria, Canada)

May 10, Wednesday morning, 10:00-11:40am
SP2 Capital Hall 8, Security, Privacy and Trust
Chair: George Yee

10:00 - 10:20	SP2-1	<i>Hack Boston: Monitoring Wireless Security Awareness in an Urban Setting</i>
		Stefano Basagni (Northeastern University, USA)
10:20 - 10:40	SP2-2	<i>Reconfigurable RSA Cryptography for Embedded Devices</i>
		Ambrose Chu (University of Victoria, Canada)
10:40 - 11:00	SP2-3	<i>A Comprehensive Approach to Designing Internet Security Taxonomy</i>
		Ali Abbas (University of Ottawa, Canada)
11:00 - 11:20	SP2-4	<i>Reducing Packet Loss in CBC Secured VoIP using Interleaved Encryption</i>
		Richard Dansereau (Carleton University, Canada)
11:20 - 11:40	SP2-5	<i>The Impact of the Implementation Style on Power Consumption and Security in Embedded Cryptosystems</i>
		Zhanrong Yang (University of Guelph, Canada)

May 10, Wednesday morning, 10:00-11:40am

SR4 Capital Hall 9, Power Systems & Renewable Energy

Chair: Rejean Arseneau

10:00 - 10:20	SR4-1	<i>An Improved Signal Detection Algorithm for TWACS Based Power Line Signals</i>
		Jacek Kilber (University of Alberta, Canada)
10:20 - 10:40	SR4-2	<i>Energy Production and GHG Emissions: Analysis of the Canadian Dilemma</i>
		Mohamed Benhaddadi (École Polytechnique de Montréal, Canada)
10:40 - 11:00	SR4-3	<i>Strategies Comparison for Optimization of Multi Objective Function in a Fuel Cell Electrical Vehicle</i>
		Hasan Mehrjerdi (Université du Québec à Trois-Rivières, Canada)
11:00 - 11:20	SR4-4	<i>A Probabilistic Approach to Classification of Transients in Power Systems</i>
		Witold Kinsner (University of Manitoba, Canada)

May 10, Wednesday morning, 10:00-11:40am

CW8 Executive Suite, Communications & Wireless Systems

Chair: Tianqi Wang

10:00 - 10:20	CW8-1	<i>Likelihood-based Algorithms for Linear Digital Modulation Classification in Fading Channels</i>
		Fahed Hameed (Memorial University of Newfoundland, Canada)
10:20 - 10:40	CW8-2	<i>Adaptive Multi-Stream Relaying</i>
		Furuzan Atay (Carleton University, Canada)
10:40 - 11:00	CW8-3	<i>Sample Rate Conversion Technology in Software Defined Radio</i>
		Tianqi Wang (Memorial University of Newfoundland, Canada)
11:00 - 11:20	CW8-4	<i>Performance Analysis of Dynamic Reconfigurable Queues for High-speed Routers/Switches</i>
		Ling Wu (Memorial University of Newfoundland, Canada)
11:20 - 11:40	CW8-5	<i>Dynamic Rate Assignment and Power Control in Uplink UMTS W-CDMA Systems</i>
		Gang Luo (Ryerson University, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

AB1 Capital Hall 1, Agent & Internet Based Systems

Chair: George Yee

1:20 - 1:40	AB1-1	<i>CONCEPTION COGNITIVE DE PLAN DE SITE CORRELEE A LA CONNAISSANCE PREALABLE DES LECTEURS POUR LA RECHERCHE D'INFORMATIONS SUR LE WEB</i>
		Kashif Hussain (Université de Valenciennes, France)
1:40 - 2:00	AB1-2	<i>Architecture Design of Multi-Agent Systems In the Gamma Language</i>
		Hong Lin (University of Houston-Downtown, USA)
2:00 - 2:20	AB1-3	<i>Mobile Agent System for Network Topology Discovery</i>
		Adnan Ahmed (University of Calgary, Canada)
2:20 - 2:40	AB1-4	<i>A QoS Aware Web Service Replica Selection Framework for an Extranet</i>
		Shikharesh Majumdar (Carleton University, Canada)
2:40 - 3:00	AB1-5	<i>A dynamic associative model for an e-learning system based on a spreading activation network</i>
		Nilas Phongchai

May 10, Wednesday Afternoon, 1:20-3:00pm

BE4 Capital Hall 2, Biomedical Engineering & Bioinformatics

Chair: Omar Falou

1:20 - 1:40	BE4-1	<i>Modeling of an Iterated Birth/Death Markov Process for Optimization of Radiotherapy Treatment Planning</i>
		Omar Falou (Ryerson University, Canada)
1:40 - 2:00	BE4-2	<i>Improving Resource Allocation Efficiency in Health Care Delivery Systems</i>
		Rashed Alkaabi (Carleton University, Canada)
2:00 - 2:20	BE4-3	<i>Tracking Notch Filter for Electrocardiograph Measurement</i>
		Sakreya Chitwong (King Mongkut's Institute of Technology, Thailand)
2:20 - 2:40	BE4-4	<i>A Unique Spectrophotometric System with Vertically Moveable Cuvette for Clinical and Biological Applications</i>
		Debashis Paul (Indian Institute of Chemical Engineering, India)
2:40 - 3:00	BE4-5	<i>Wrapping and Integrating USB Smart Card to Web based Heterogeneous Medical Databases: Application for the Pathology of Cancer</i>
		Walid Attiaoui (ENSI, France)

May 10, Wednesday Afternoon, 1:20-3:00pm

CN4/MP2 Capital Hall 3, Computer Networks and Systems, Mobile & Pervasive Computing

Chair: Tariq Omari

1:20 - 1:40	CN4-1	<i>A Hardware/Software Co-design for RSVP-TE MPLS</i>
		Raymond Peterkin (University of Ottawa, Canada)
1:40 - 2:00	CN4-2	<i>Red Performance Evaluation Using Stochastic Modeling and Fluid-based Analysis</i>
		Tariq Omari (Carleton University, Canada)
2:00 - 2:20	CN4-3	<i>Adaptive Time Threshold Based Burst Assembly in OBS Networks</i>
		Sema Oktug (Istanbul Technical University, Turkey)
2:20 - 2:40	MP2-1	<i>Exploiting Mobility Patterns to Reduce Re-Authentication Overheads in Infrastructure WLAN Networks</i>
		Tarun Joshi (University of Cincinnati, USA)
2:40 - 3:00	MP2-2	<i>A Novel Fast Clock Phase and Frequency Offset Simulation for Digital Communication Systems</i>
		Ali Enteshari (University of Calgary, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

DS5 Capital Hall 4, Digital Signal Processing

Chair: Andy Adler

1:20 - 1:40	DS5-1	<i>A New Efficient Algorithm for Lossless Binary Image Compression</i>
		Saif Zahir (University of Northern British Columbia, Canada)
1:40 - 2:00	DS5-2	<i>Application of Stationary Wavelet Transforms to Ultrasonic Crack Detection</i>
		Ming J. Zuo (University of Alberta, Canada)
2:00 - 2:20	DS5-3	<i>Optimization of a Sun-Sensor Illumination Pattern using Genetic Algorithms</i>
		MR Godard (Ryerson University, Canada)
2:20 - 2:40	DS5-4	<i>Exposing GNU Octave Signal Processing Functions as Extensible Markup Language (XML) Web Services</i>
		Vladimir Tasic (Lakehead University, Canada)
2:40 - 3:00	DS5-5	<i>An Implementation of Beta-Divergence for Blind Source Separation</i>
		Witold Kinser (University of Manitoba, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

HM1/HP1 Capital Hall 5, Human-Machine Interactions / High-Performance Computing

Chair: James Tam

1:20 - 1:40	HM1-1	<i>Robust Self-Training System for Spoken Query Information Retrieval using Pitch Range Variations</i>
		Sid-Ahmed Selouani (Université de Moncton, Canada)
1:40 - 2:00	HM1-2	<i>Feature Extraction Through Wavelet De-Noising of Surface EMG Signals for the Purpose of Mouse Click Emulation</i>
		Robert Prinz (UVATT, Canada)
2:00 - 2:20	HM1-3	<i>Design of an Electroocular Computing Interface</i>
		Thomas E. Doyle (University of Western Ontario, Canada)
2:00 - 2:20	HM1-4	<i>A PDA-based Human-Robot Interaction for Disabled People using Electromyography</i>
		Nilas Phongchai
2:20 - 2:40	HP1-1	<i>High Resolution Spatio-Temporal Characterization of Electric Field Polarization for Indoor Wireless Environments</i>
		Luis Enrique Gurrieri (University of Manitoba, Canada)
2:40 - 3:00	HP1-2	<i>A Formal CSP Framework for Message-passing HPC Programming</i>
		William Gardner (University of Guelph, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

PR1/IM2/NN3 Capital Hall 6, Pattern Recognition / Instrumentation and Measurement / Neural Networks & Fuzzy Logic

Chair: Jiying Zhao

1:20 - 1:40	PR1-1	<i>Invariant Radon-Wavelet Packet Signatures for Pattern Recognition</i>
		Guangyi Chen (University of Montreal, Canada)
1:40 - 2:00	PR1-2	<i>Maximum Likelihood and the Graphical EM Algorithm</i>
		Guillaume Latombe (École de Technologie Supérieure, Canada)
2:00 - 2:20	IM2-1	<i>A Platform for Real-Time Algorithm and Control Testing</i>
		Dean Weiten (Elecsys Solutions Inc., Canada)
2:20 - 2:40	IM2-2	<i>Measurement of Complex Permeability of Ferromagnetic Nanowires using Cavity Perturbation Techniques</i>
		Andrey Sklyuyev (Ecole Polytechnique Montreal, Canada)
2:40 - 3:00	NN3-1	<i>Direct Adaptive Control for Underactuated Mechatronic Systems using Fuzzy Systems and Neural Networks: A Pendubot Case</i>
		Murad Al-Shibli (Concordia University, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

RF2 Capital Hall 7, RF & Microwaves

Chair: Derek Ho

1:20 - 1:40	RF2-1	<i>Low-Voltage Low-Power Low-Noise Amplifier for Wireless Sensor Networks</i>
		Derek Ho (University of British Colombia, Canada)
1:40 - 2:00	RF2-2	<i>A 5.9 GHz Low Noise Amplifier Incorporating an Inductor-less Tank Circuit</i>
		Abdulhakim Ahmed (Carleton University, Canada)
2:00 - 2:20	RF2-3	<i>Equivalent Circuit and Electromagnetic Based Computer Aided Design Tool for Dual-Mode Ku-Band Elliptic and Butterworth Filters</i>
		Vijaya Kumar Devabhaktuni (Concordia University, Canada)
2:20 - 2:40	RF2-4	<i>A 27 GHz phase-lock loop phase detector</i>
		John Patten Carr (Queen's University, Canada)
2:40 - 3:00	RF2-5	<i>ON THE WIRELESS TRANSMITTERS LINEAR AND NONLINEAR DISTORTIONS DETECTION AND PRE-CORRECTION</i>
		Slim Boumaiza (University of Calgary, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm
RM3 Capital Hall 8, Robotics & Mechatronics
Chair: Amor Jnifene

1:20 - 1:40	RM3-1	<i>On the Kinematic Analysis and Design of a Redundant Manipulator for a Captive Trajectory Simulation System</i>
		Mojtaba Ahmadi (Carleton University, Canada)
1:40 - 2:00	RM3-2	<i>Linear Predictive Control of a Brachiation Robot</i>
		Walter Fetter Lages (Federal University of Rio Grande do Sul, Brazil)
2:00 - 2:20	RM3-3	<i>Localization of a Team of Heterogeneous Robots for a Distributed Sensing Task</i>
		Mehran Mehrandezh (University of Regina, Canada)
2:20 - 2:40	RM3-4	<i>Design and Development of a Hardware-in-the Loop Simulation System for a Submersible Pipe Inspecting Robot</i>
		Mehran Mehrandezh (University of Regina, Canada)
2:40 - 3:00	RM3-5	<i>Control of a One-legged Hopping Robot using a Hybrid Neuro-PD Controller</i>
		Mehran Mehrandezh (University of Regina, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

VR1 Capital Hall 9, Virtual Reality and New Media

Chair: Shervin Shirmohammadi

1:20 - 1:40	VR1-1	<i>An Emotional Model for Nonverbal Communication Based on Fuzzy Dynamic Bayesian Network</i>
		Li Rui (Tianjin University of Technology, China)
1:40 - 2:00	VR1-2	<i>A Demand-driven Approach for a Distributed Virtual Environment</i>
		Markus Fakler (University of Ulm, Germany)
2:00 - 2:20	VR1-3	<i>Evaluation Patterns of Tele-Haptics</i>
		Xiaojun Shen (University of Ottawa, Canada)
2:20 - 2:40	VR1-4	<i>xPheve: An Extensible Physics Engine for Virtual Environments</i>
		Saeid Nourian (University of Ottawa, Canada)

May 10, Wednesday Afternoon, 1:20-3:00pm

CW9 Executive Suite, Communications & Wireless Systems

Chair: Wahab Almuhtadi

1:20 - 1:40	CW9-1	<i>Independent-set Based Neighborhood Reservation With In-band Signaling System In Ad-hoc Networks</i>
		Linfang Dong (Tianjin University, China)
1:40 - 2:00	CW9-2	<i>STBC-DFE Systems over Multipath Fading Channels</i>
		Lin Wang (University of Calgary, Canada)
2:00 - 2:20	CW9-3	<i>Cross-layer Adaptive Rate Control for Video Transport over Wireless Ad-hoc Networks</i>
		Zenghua Zhao (Tianjin University, China)
2:20 - 2:40	CW9-4	<i>Analytical Modeling of Interference in Cellular Fixed Relay Networks</i>
		Sebastian S. Szyszkowicz (Carleton University, Canada)
2:40 - 3:00	CW9-5	<i>WiFi Broadband Networks for Wide Rural and Remote Areas</i>
		Wahab Almuhtadi (Algonquin College, Canada)

May 10, Wednesday Afternoon, 3:20-5:00pm

DS6 Capital Hall 1, Digital Signal Processing

Chair: M. Omair Ahmad

3:20 - 3:40	DS6-1	<i>Noisy Autoregressive System Identification Based on Repeated Autocorrelation Function</i>
		M. Omair Ahmad (Concordia University, Canada)
3:40 - 4:00	DS6-2	<i>A Digital Architecture for Direct Digital-to-RF Converters</i>
		Alireza Heidar-barghi (Queen's University, Canada)
4:00 - 4:20		<i>DESIGN OF A COGNITIVE COMPLEXITIES MEASUREMENT AND ANALYSIS TOOL</i>
		Yingxu Wang (University of Calgary, Canada)

May 10, Wednesday Afternoon, 3:20-5:00pm

AI1 Capital Hall 2, Artificial Intelligence

Chair: Amr Youssef

3:20 - 3:40	AI1-1	<i>An Artificial Life Technique for the Cryptanalysis of Simple Substitution Ciphers</i>
		Amr Youssef (Concordia University, Canada)
3:40 - 4:00	AI1-2	<i>A New Model Checking Approach for Verifying Agent Communication Protocols</i>
		Jamal Bentahar (Université Laval)
4:00 - 4:20	AI1-3	<i>Autonomous Roving Object's Coverage of its Universe</i>
		Bruno N. Di Stefano (Nuptek Systems Ltd.)
4:20 - 4:40	AI1-4	<i>A Hybrid Evolutionary Approach for Combinatorial Problems in Dynamic Environments</i>
		Abdunnaser Younes (University of Waterloo, Canada)

May 10, Wednesday Afternoon, 3:20-5:00pm

SP3 Capital Hall 3, Security, Privacy and Trust

Chair: George Yee

3:20 - 3:40	SP3-1	<i>Improving Network Infrastructure Security using Geospatial Technology</i>
		Nabil Seddigh (Solana Networks, Canada)
3:40 - 4:00	SP3-2	<i>Security Design Patterns: Survey and Evaluation</i>
		Azzam Mourad (Concordia University, Canada)
4:00 - 4:20	SP3-3	<i>TEMPORAL PLACEMENT FOR RUN-TIME RECONFIGURATION</i>
		Carlos Nahas (University of Ottawa, Canada)

May 10, Wednesday Afternoon, 3:20-5:00pm

ME2 Capital Hall 4, MEMS & Nanotechnology

Chair: Niall Tait

3:20 - 3:40	ME2-1	<i>CMOS Based Bioparticle Capacitive Sensor Integrated with Direct-write Microfluidic Devices</i>
		Ebrahim Ghafar-Zadeh (École polytechnique de Montréal, Canada)
3:40 - 4:00	ME2-2	<i>Curl and Effective Height of Micromachined Bi-layer Cantilevers under Differing Residual Stresses</i>
		Robert W. Johnstone (Simon Fraser University, Canada)

May 10, Wednesday Afternoon, 3:20-5:00pm

MO2 Capital Hall 5, Microelectronics & Optoelectronics

Chair: Behzad Esfandyarpour

3:20 - 3:40	MO2-1	<i>Analysis and Design of Micro-Actuator for Loudspeaker</i>
		Tsung-Kun Lin (Wolfson Centre for Magnetism, UK)
3:40 - 4:00	MO2-2	<i>Low Cost Electroplated Ni/Cu Ohmic Contacts for Multicrystalline Si Solar Cells Using an Ultrasonic System</i>
		Behzad Esfandyarpour (University of Tehran, Iran)
4:00 - 4:20	MO2-3	<i>Fast Response Microgas Sensors Based on Platinum Nanoclusters Sputtered on Nanocrystalline Tin oxide Thin Films</i>
		Behzad Esfandyarpour (University of Tehran, Iran)

May 10, Wednesday Afternoon, 3:20-5:00pm
CW10 Executive Suite, Communications & Wireless Systems
 Chair: Mike Sablatash

3:20 - 3:40	CW10-1	<i>MAP Frame Synchronization for PSAM Systems</i>
		David Dodds (University of Saskatchewan, Canada)
3:40 - 4:00	CW10-2	<i>PERFORMANCE ANALYSIS OF CODED MIMO-OFDM SYSTEMS OVER GENERALIZED RICEAN FADING CHANNELS</i>
		Pavel Loskot (University of Alberta, Canada)
4:00 - 4:20	CW10-3	<i>Modulation, Pulse and Spectrum Shaping for UWB Wireless Communications and the Effects on Interference for Single and Multiband Transmission for UWB Signals</i>
		Mike Sablatash (Communications Research Centre, Canada)
4:20 - 4:40	CW10-4	<i>Modeling and Emulation of Multifractal Noise in Performance Evaluation of Mesh Networks</i>
		Witold Kinser (University of Manitoba, Canada)
4:40 - 5:00	CW10-5	<i>The Effects of Antenna Pointing Error on Bit Error Rate Performance in Mobile Directional Antenna Applications</i>
		Jack Burbank (John Hopkins University, USA)
	CW10-6	<i>A Low Complexity Multi-User Detector Employing Partial Decision Techniques For SCDMA Systems</i>
		Stephen Chan (University of Ottawa, Canada)

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