IEEE VANCOUVER CONTACT

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A message from the Chair

I am honoured to have the opportunity to serve you in 2015 and look forward to working with you. Last year was a great success with 120 technical meetings. Please join me in thanking all our volunteers for their time and effort dedicated to serving our membership.

We received generous support from many local companies and educational institutions (thank you). We handed out many awards at the section level, including our student scholarships. Our support for student activities did not end there – IEEE Vancouver, through its close cooperation with our IEEE Student Branches, helped to organize or sponsor many student activities.

We were local hosts for many conferences including: VTC2014, SPS/UBCICICS, HPSR2014 and more.

We will honour those who contributed to the success of the Vancouver Section in 2014 at our AGM. I hope you will join us for this very significant event. Please read Contact and the Vancouver Section Website for AGM details and registration info.

As I begin my term as IEEE Vancouver Chair, I am looking forward to many exciting events in 2015. Our AGM and Gala on March 07 at Hilton Metrotown will be of general interest to all our members. An interesting variety of technical events from almost every society in the IEEE. Several major (and exciting) conferences to be held in Vancouver during 2015. Student activity including a student paper contest and a student project contest. Enhanced continuing education activities.

So the next year promises to be as full as the last! To learn more about all of our upcoming events, please subscribe to our Contact newsletter, and check out the Vancouver Section website.

On a personal level, I am also looking forward to representing Vancouver at the region meeting. I also look forward to hearing from you, the members of IEEE Vancouver.

If you have comments, suggestions or concerns, please get in touch with me via email: bgill@ieee.org. During the coming year I encourage you to take advantage of your membership, and get involved in your section!. Meanwhile, I wish you a terrific new year

Bob Gill
Chair, IEEE Vancouver

16FEB15

Wireless systems evolution beyond 4G: An infrastructure and spectrum framework

Elvino Sousa
University of Toronto

Distinguished Lecturer

Tuesday 03 February

4:00 pm

Room 418 Macleod Bldg
2356 Main Mall UBC

Everyone is welcome!

This talk will discuss some of the trends in current wireless research in the area of public wireless, or cellular systems. There are various initiatives throughout the world in broadband wireless systems research. A lot of this research is being described in the customary manner as 5G, although we make the point that in terms of a standard the evolution beyond 4G may not be over a single path.

The talk will present new ways of looking at cellular systems emphasizing the role of infrastructure and spectrum in a unified framework. We discuss various approaches to the evolution of cellular systems beyond the current 4G and their prospects in terms of meeting the ultimate goals of providing coverage, capacity, flexibility, and robust deployment. We discuss approaches that we refer to as two-tier cellular systems including aspects of network MIMO, relays, organic deployment, spectrum management, multi-RAT, multi-mode, and multi-operator scenarios. In terms of spectrum we discuss the current interest in the design of systems that jointly utilize licensed and unlicensed spectrum.

Speaker: Elvino S. Sousa received his B.A.Sc. in engineering science, and the M.A.Sc. in Electrical Engineering from the University of Toronto in 1980 and 1982 respectively, and his Ph.D. in electrical engineering from the University of Southern California in 1985. Since 1986 he has been with the department of Electrical and Computer Engineering at the University of Toronto where he is now a Professor and the Jeffrey Skoll Professor in Computer Network Architecture.

His current interests are in the areas of autonomous infrastructure wireless networks, cognitive radio, self configurable wireless networks, and two-tier networks. He pioneered the area of wireless communications at the University of Toronto and is the director of the wireless lab, which has undertaken research in wireless systems for the past 28 years. He is the inventor of the autonomous infrastructure wireless network concept. He has been invited to give numerous lectures and short courses on spread spectrum, CDMA, and wireless systems in many countries, and has been a consultant to industry and Governments internationally in the area of wireless systems. He was the technical program chair for PIMRC 95, vice-technical program chair for Globecom '99, Co-Technical Program Chair for WPMC 2010 and for PIMRC 2011, and has been involved in the technical program committee of numerous international conferences. He has also been involved in various standardization and industry related wireless activities and currently is actively participating in NGMN as an advisor. He is a past chair of the IEEE Technical committee on Personal Communications and has been elected IEEE Fellow. He has spent sabbatical leaves at Qualcomm and Sony CSL/ATL. He has been awarded the Queen Elizabeth II Golden Jubilee Medal.

Information
Joint Communications Chair Vincent Wong
vincentw@ece.ubc.ca

IEEE COMMUNICATIONS SOCIETY · IEEE Information Theory Society · IEEE photonics SOCIETY · BTS IEEE Broadcast Technology Society · VTS · ITSS

Jt. Chapter BT-02/COM-19/IT-12/ITS-38/PHO-36/VT-06

Energy imbalance markets for the western interconnection

Gordon Dobson-Mack
Powerex

Wednesday 18 February
Noon to 1:00 PM

BC Hydro Edmonds A01
Southpoint Auditorium
6911 Southpoint Dr Bby

Information
Joint Power & Energy Chair
Dipendra Rai
Dipendra.Rai@bchydro.com

IEEE PES Power & Energy Society® · DEIS

EMC failures
- hidden circuits and antennas

Lee Vishloff
Tech-Knows Services

Tuesday 17 February

5:30 PM

Alpha Technologies Ltd. 7700 Riverfront Gate Burnaby, BC

This 60 minute presentation is aimed at the electronics circuit designer trying to resolve or prevent EMC problems in digital and analog circuits.

The talk will identify the commonly created structures that result in EMC radiation that are part of the electronic circuit being designed, but which are not visible in the commonly used schematic capture tools. Out of sight, out of mind - until we fail EMC.

These hidden circuits and antennas are at the root of many common EMC failures. By examining the EMC problem from a wireless communications perspective with sources, channels, antennas and receivers we can gain a perspective that helps us to identify and resolve EMC issues at the appropriate location in our product, and at the lowest cost. The talk will also discuss some practical approaches used to defeat the hidden elements of our circuits including the PCB stack up, planning ground returns, ribbon cables, filtering techniques and others.

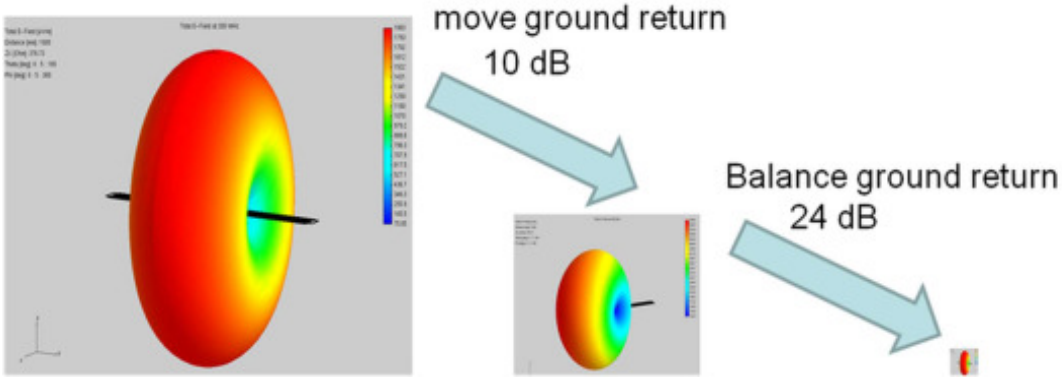
There will be ample time for questions and discussion.

Speaker: Mr. Vishloff is the principal engineer in a wireless consultancy working in the areas of cellular-based M2M solutions, short-range wireless products and EMC Consulting. He is a regular contributor to the IEEE Communications Society training program teaching several courses in Wireless Technology.

He has over 30 years of experience in wireless systems and product design. During his career he has designed a wide range of wireless products including satellite systems, terrestrial radio systems, short-range video, rural communications, aeronautical and others. Lee brings a wide range of practical experience with hands-on and management experience in wireless telecommunication systems, modem, RF, analog, digital, embedded firmware and mechanical design technologies.

He has spent the majority of his career working with equipment manufacturers with stints in the semiconductor and consulting businesses.

Lee has a degree in Electrical Engineering from the University of British Columbia and completed his management education at Simon Fraser University and the AEA/Stanford Executive Institute. He is a Professional Engineer, Senior Member of the IEEE and an IEEE Certified Wireless Communication Professional. He is also active in the IEEE Vancouver executive (2014 Treasurer and 2015 Vice-Chair candidate)



Information
Joint Aerospace and Electromagnetics Chairs
Dave Michelson
davem@ece.ubc.c
Steven McClain
StevenMcClain@ieee.org

IEEE Joint Aerospace and Electromagnetics Chapter

Some recent advances in antennas and near field theory with impact on designs for wireless and other applications

Yahia Antar
Queen's University

Distinguished Lecturer

Monday 23 February
16:00 - 17:00

UBC Electrical
& Computer Engineering
Rm 418 MacLeod Bldg
2356 Main Mall UBC

RSVP
Prof. Dave Michelson,
davem@ece.ubc.ca

Information
Joint Aerospace and
Electromagnetics Chairs
Dave Michelson
davem@ece.ubc.c
Steven McClain
StevenMcClain@ieee.org

Microwave and millimeter wave antennas are vital components for wireless and satellite communications, radars and other sensors, and many other emerging applications. The presentation will begin with general discussion of the field of Antenna Engineering and a brief description of current and emerging research directions. Some research activities at the Royal Military College of Canada and Queen's University that are aligned with recent and emerging research directions in the field including a brief discussion of the state of art of Dielectric Resonator Antennas (DRA's) and a new class of one and two dimensional Leaky Wave Antennas will be discussed. This will be followed by some new findings about the fundamentals of antenna near fields. The impact of these new findings on antenna design will be illustrated through examples involving MIMO antennas, near field focusing , and mutual coupling considerations in antenna systems.

Speaker: Dr. Yahia Antar obtained degrees from the University of Alexandria (BSc) and the Universityof Manitoba (MSc, PhD). He worked at CRC and NRC in Ottawa before joining the staff of the Department of Electrical and Computer Engineering at the Royal Military College of Canada in Kingston where he has held the position of professor since 1990.

Dr. Antar is a Fellow of the IEEE and a Fellow of the Engineering Institute of Canada (FEIC). He serves as an Associate Editor (Features) of the IEEE Antennas and Propagation Magazine and served as Associate Editor of both the IEEE Transactions on Antennas and Propagation and IEEE AWPL. He has served on NSERC grant selection and strategic grants committees, Ontario Early Research Awards (ERA) panels, and on review panels for the National Science Foundation.

In May 2002, Dr. Antar was awarded a Tier 1 Canada Research Chair in Electromagnetic Engineering which was renewed in 2009. In 2003 he was awarded the Royal Military College of Canada "Excellence in Research" Prize and in 2012 the Class of 1965 Teaching Excellence Award. He served on the URSI Board as Vice President, and on the IEEE Antennas and Propagation Society Administration Committee. On 31 January 2011, Dr Antar was appointed Member of the Canadian Defence Science Advisory Board (DSAB). In October 2012 he received from the Governor General of Canada, the Queen's Diamond Jubilee Medal in recognition of his contributions to Canada. He is the recipient of the 2014 IEEE Canada RA Fessenden Silver Medal and the 2015 recipient of the IEEE Canada J.M.Ham Outstanding Engineering Educator Award.

IEEE Joint Aerospace and Electromagnetics Chapter

The IEEE Canadian Foundation has approved a grant to establish an IEEE **McNaughton Learning Resource Centre** at Simon Fraser University. Also, they encourage the SFU student branch to apply next fall for additional funding. It's taken a fair amount of time and energy, but it seems it was worth the effort. People from the foundation will be in touch with the student branch to provide a framed photograph of General McNaughton

IEEE Continuing Education is seeking experts to "teach" courses in all areas of Electrical and Computer Engineering and Computer Sciences.

If you have a one-day, ½ day, two day or three day courses, please submit your course title and duration. For all further information on cost, location and arrangements, contact Bob Gill @ bgill@ieee.org

IEEE Vancouver AGM 2015
Saturday 07 March

Hilton Vancouver Metrotown
6083 McKay Ave Burnaby BC

Be sure to attend the Vancouver Section's premier annual networking and social event

6:00 Student poster presentations and reception Join us for hors d'oeuvres and beverages while mingling with your peers and students. Students from UBC, SFU and BCIT will be presenting their capstone projects in poster form. You be the judge! Armed with your "Like" stickers attendees will determine the award winners in the student capstone project poster competition.

6:45 AGM Business and Awards We do need to take care of the legal requirements, but we promise to do so in an efficient and expeditious manner. The fun part of the business section is always the awards, with student scholarships, chapter achievement awards and member elevation recognition.

7:30 Dinner Dinner will be buffet style with a mix of entrees, including vegetarian so that all tastes are supported. Those will special dietary needs can let us know in advance. As always, dessert is a big hit!

8:30 Key Note Address - Seeing the World from a New Perspective: The story behind UrtheCast's web platform of video streamed from the International Space Station. What can be more interesting than space technology to an engineer? Dr. George Tyc will tell us about the technology and business behind Vancouver-based UrtheCast's space-based, Ultra HD video system. This system is now onboard the International Space Station and will shortly be available to third-party developers to create new applications using near real-time Earth monitoring. Dr. Tyc is a recognized leader in the space industry, having worked on numerous space missions and technology development programs over the last 25 years. As a Technical Director at MacDonald Dettwiler & Associates Ltd. (MDA), he has led multiple initiatives, including the development of MDA's next generation, high-resolution optical Earth Observation satellite system. He was also the Chief Engineer for the end-to-end system developed for the earth imaging company RapidEye AG.

9:15 Raffle - Feeling lucky? Cap off the evening with a door prize!

	Until 03 March	Earlybird until 06 February
Member	**$35**	**$25**
Guest	**$45**	**$40**
Student	**$20**	**$20**
Life members	**$20**	**$20**
Late registration (all attendees)		**$45 after 03 Mar**

Learn more at the AGM web page:
http://www.vancouver.ieee.ca/AGM2015

ORDER YOUR TICKETS TODAY at
https://meetings.vtools.ieee.org/m/31627
at the EARLY BIRD RATE

Tour of Ultrasonix Medical Corporation - Analogic Ultrasound

Monday 23 February

4:00pm to 5:00pm

The event is free of charge but requires registration

The company develops and manufactures diagnostic ultrasound systems designed to make ultrasound easy to use in many areas of patient care. More than 7000 Ultrasonix systems have been sold worldwide. Founded in 2000, Ultrasonix Medical Corporation was acquired by Analogic Corporation in 2013. Registration closes at February 13th. The tour will be conducted by the Research Manager Reza Zahiri and Vice President Engineering and Managing Director John Percival.

Space is limited to 25 people and priority will be given to IEEE EMB members.

To register please email: sarak@ieee.org and indicate if you have IEEE EMB membership. If your registration is successful, you will receive confirmation on February 16th.

Engineering in Medicine & Biology Chair
Sara Khosravi
sarak@ieee.org

IEEE Engineering in Medicine and Biology

Dave Michelson to serve on Canadian URSI committee

Dave Michelson
UBC

Prof. Dave Michelson, Director of UBC's Radio Science Lab, has accepted the National Research Council of Canada's invitation to serve on the Canadian National Committee (CNC) for the International Union of Radio Science (URSI) for a term of three years, effective immediately, and ending 31 December 2017. This term is renewable once, upon mutual agreement.

Prof. Michelson's assignment will be to serve as the Canadian Representative for URSI Commission F - Radio Wave Propagation and Remote Sensing. In this role, he will be coordinating Canadian contributions to Commission F activities including the annual Canadian Radio Science Meeting, the upcoming 2015 IEEE APS/URSI Symposium to be held in Vancouver in July, and the next URSI General Assembly to be held in 2017.

Locally, Prof. Michelson's URSI responsibilities will align with his responsibilities as chair of the IEEE Joint Aerospace and Electromagnetics Chapter.

Those interested in learning more about URSI activities and how they might become involved are encouraged to contact Prof. Michelson at davem@ece.ubc.ca.

Radio science encompasses the knowledge and study of all aspects of electromagnetic fields and waves. The International Union of Radio Science (Union Radio-Scientifique Internationale), a non-governmental and non-profit organisation under the International Council for Science, is responsible for stimulating and co-ordinating, on an international basis, studies, research, applications, scientific exchange, and communication in the fields of radio science. http://www.ursi.org/

9th IEEE/ACM International Symposium on Networks-on-Chip

September 28 to 30, 2015
Vancouver, Canada

Call for Papers

The International Symposium on Networks-on-Chip (NOCS) is the premier event dedicated to interdisciplinary research on on-chip, chip-scale, and multichip package scale communication technology, architecture, design methods, applications and systems. NOCS brings together scientists and engineers working on NoC innovations and applications from inter-related research communities, including computer architecture, networking, circuits and systems, packaging, embedded systems, and design automation.

Topics of interest include, but are not limited to:

NoC Architecture and Implementation

- Network architecture (topology, routing, arbitration)
- NoC Quality of Service
- Timing, synchronous/asynchronous communication
- NoC reliability issues
- Network interface issues
- NoC design methodologies and tools
- Signaling & circuit design for NoC links

NoC Analysis and Verification

- Power, energy & thermal issues(at the NoC, un-core and/or system-level)
- Benchmarking & experience with NoC-based hardware
- Modeling, simulation, and synthesis of NoCs
- Verification, debug & test of NoCs
- Metrics and benchmarks for NoCs

Novel NoC Technologies

- New physical interconnect technologies, e.g., carbon nanotubes, wireless NoCs, through-silicon, etc.
- NoCs for 3D and 2.5D packages
- Package-specific NoC design
- Optical, RF, & emerging technologies for on-chip/in-package interconnects NoC Application
- Mapping of applications onto NoCs
- NoC case studies, application-specific NoC design
- NoCs for FPGAs, structured ASICs, CMPs and MPSoCs
- NoC designs for heterogeneous systems, fused CPU-GPU architectures, etc
- Scalable modeling of NoCs

NoC at the Un-Core and System-level

- Design of memory subsystem (un-core) including memory controllers, caches, cache coherence protocols & NoCs
- NoC support for memory and cache access
- OS support for NoCs
- Programming models including shared memory, message passing and novel programming models
- Issues related to large-scale systems (datacenters, supercomputers) with NoC-based systems as building blocks

On-Chip Communication Optimization

- Communication efficient algorithms
- Multi/many-core communication workload characterization & evaluation
- Energy efficient NoCs and energy minimization

Electronic paper submission requires a full paper, up to 8 double-column IEEE format pages, including figures and references. The program committee in a double-blind review process will evaluate papers based on scientific merit, innovation, relevance, and presentation.

Submitted papers must describe original work that has not been published before or is under review by another conference or journal at the same time. Each submission will be checked for any significant similarity to previously published works or for simultaneous submission to other archival venues, and such papers will be rejected. Please see the paper submission instructions for details.

This year will also include one or more industrial sessions on the architecture of future NoC platforms. The objective of these sessions is to provide a forum for industry leaders to share their experiences and perspectives on the technical challenges facing future platforms and discuss potential solutions. Check the submission page for details on submissions to this session. These sessions will feature a small number of papers (4-6) covering experiences from industrial design and development.

Proposals for tutorials, special sessions, and panels are also invited. Please see the detailed submission instructions for paper, tutorial, special sessions, and panel proposals at the submission page.

Important Dates

Abstract registration deadline
February, 27th, 2015

Notification of acceptance
May 5th, 2015

Full paper submission deadline
March 6th, 2015

Final version due
June 1st, 2015

Industry Session submission deadline
March 23rd 2015

Contact Information

General Co-Chairs:
Andre Ivanov, University of British Columbia
ivanov@ece.ubc.ca
Diana Marculescu, Carnegie Mellon University
dianam@cmu.edu

Program Co-Chairs:
Partha Pratim Pande, Washington State University,
pande@eecs.wsu.edu
Jose Flich, Universitat Polit•cnica de Val•ncia,
jflich@disca.upv.es

Transient model and its application in model-based control and calibration of automotive powertrains

Tielong Shen
Sophia University, Tokyo

Friday 27 February
10:30-11:30am

Kaiser 2020/2030
2332 Main Mall
UBC

Sponsored by the joint chapters of IEEE Control Systems, Robotics and Automation, and Systems, Man and Cybernetics and joint chapters of Industry Applications and Electronics

Information
CS/RA/SMC
Joint chapter Chair
Ryozo Nagamune
nagamune@mech.ubc.ca

For internal combustion engines, modeling and control of transient behavior are important issues to improve the efficiency and the emission performance. Recently, the attention in automotive industry has been focused on model-based development technology. Meanwhile, in the community of control theory, mathematical model has been essential tools for control strategy design and simulation validation of dynamical systems.

This talk addresses the topic of model-based real-time optimization problems for control and identification of advanced powertrains. Three case studies will be introduced. First, model predictive control approach is presented to the torque tracking problem of gasoline engines. Second, model-based experiment design problem is addressed to achieve the transient model. Finally, an engine-in-the-loop simulation system is demonstrated with testing results of a receding horizon optimal energy management strategy of HEVs.

Speaker: Tielong Shen received the Ph.D. degree in Mechanical Engineering from Sophia University, Japan. From April 1992, he has been a faculty member of the Chair of Control Engineering in Department of Mechanical Engineering, Sophia University, where he currently serves as full Professor. Since 2005, he is also served concurrently “Luojia Xuezhe” Chair Professor of Wuhan University, and Visiting Professor for several universities including University of Science and Technology of China, Yanshan University, etc. He also joined Newcastle University, Australia, as Visiting Fellow in 2003, and University of Rome “Tar Vergata”, Italy, as Visiting Professor, in 2009.

His research interests include control theory and applications in automotive systems, power systems, and mechanical systems. From 1997, he has been serving as Chief Editor, Regional Editor, Associate Editors, and Guest Editors for several international journals including Transaction of SICE, Japan, International Journal of Modeling, Identification and Control, International Journal on Robust and Nonlinear Control, Asian Journal of Control, Control Theory and Technology, and The IEEE Control System Society Conference Editorial Board. Dr. Shen was also serving as Chairs/co-chairs for many international conferences. He is now serving as General Chair of CCC&SICE2015, and Publicity Chair of ECC2015.

He is currently a member of the IEEE Technical Committee on Automotive Control and IFAC Technical Committee on Automotive System Control. Dr. Shen has author/co-authored eleven text books in Japanese, English and Chinese, respectively, and has published more than 140 research papers in peer-reviewed major journals.

Robotics & Automation Society

Systems, Man, & Cybernetics Society

CSS IEEE Control Systems Society

IEEE Industry Applications Society

IAS

1951-2011 IES 60th anniversary

Frank Tip
Samsung Research

Monday 23 February

4:00 pm
(3:40 refreshments)

Kaiser 2020/2030
2332 Main Mall
UBC

ECE Colloquium and
Distinguished Visitor Talk

Automatic fault detection, localization, and repair for PHP web applications

PHP web applications routinely crash or generate invalid HTML.

In this presentation, I will present techniques for automatically detecting, localizing and repairing failures in PHP web applications. I will first discuss how existing techniques for dynamic symbolic execution and fault localization can be adapted to detect and localize faults in PHP programs.
Then, for situations where a PHP application generates malformed HTML pages, I will present a constraint-based technique that automatically infers a fix by solving a system of string constraints derived from the application's test suite.

In an evaluation of this work, we detected and localized many faults in PHP applications, including hundreds of HTML generation errors. Our constraint-based repair technique was able to repair most of these successfully.

Joint work with: Shay Artzi, Danny Dig, Julian Dolby, Michael D. Ernst, Laurie Hendren, Adam Kiezun, Todd Millstein, Amit Paradkar, Marco Pistoia, Hesam Samimi, and Max Schaefer.

Speaker: Frank Tip is a Principal Engineer in the Frontier Computer Science Lab atSamsung Research America in San Jose, California and an Adjunct Professor at the David R. Cheriton School of Computer Science at the University of Waterloo.

Previously, he was a Professor and Cheriton Research Chair in the David R. Cheriton School of Computer Science at the University of Waterloo (2012-2014), and a Research Staff Member and Manager at the Software Technology Department at the IBM T.J. Watson Research Center (1995-2012).

He received his PhD in 1995 from the University of Amsterdam. Frank's research interests include: Program Analysis, Refactoring, Test Generation, Fault Localization, Automated Program Repair, Data-Centric Synchronization, and Analysis of Web Applications