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Message from the chair

With the summer behind us, the section has started a new surge of activities from technical meetings organized by different chapters to social event and administration work behind the scene that make it all happen. These events, have been announced through our standard channel of the Contact newsletter that all members receive electronically every month by email. The announcements are also posted on our website at vancouver.ieee.ca and the Tweeter feed and our LinkedIn group are also used to advertise the events. You can visit our website to subscribe to these to stay informed of the section activities.

The two events being held in November that I am personally looking forward to include the section annual social event and a technical meeting being held jointly with IEEE UBC student branch and a couple other local associations. The social event, this year, will be a bowling night and I am sure will be a lot of fun to attend. We are hoping to see many of the younger members as well as our senior and life members. It should provide an excellent opportunity to network with your peers and colleagues and open up possibilities for our students to meet and get inspiration from our more experienced members. I urge you all to attend the event. For more information on the event and to register, please refer to the announcement in this issue of Contact.

The other event of note is a talk on Fuzzy Logic that is being organized for the morning of November 19th at UBC. Professor Lotfi A. Zadeh, the father of Fuzzy Logic and Fuzzy Set Theory will be presenting his keynote speech. As someone who has done research based on this theory, I myself am very excited to have him as a guest here in Vancouver. The event is organized by the section and sponsored by Society of Iranian Canadian Professionals of BC (SICAP), UBC's Persian Club, Iranian Engineers of British Columbia Association (IEBCA), SFU Iranian Club, IEEE Vancouver Joint Control and Automation Chapter, and IEEE Vancouver Joint Computing Chapter. Registration and details of the event are included in this issue of Contact and posted on our web site.

Every year, in mid-October, IEEE Canada board (aka Region 7 board) meets for the fall session. This year, the meeting was held in London, ON and I attended on behalf of the section. As usual, section chairs provided their reports and shared experiences and best practices. The main discussions on the agenda was the 2013 budget. The past year has seen major improvement in our financial governance and reporting.

This has all been thanks to Kash Hussain's efforts as IEEE Canada treasurer. The fall meeting also has elections for the area chair roles and nominations for the region 7 positions. There are three areas in region 7 namely, West, East, and Central. Vancouver section is part of the Western area. It is my pleasure to announce that I have been elected as the 2013 chair of the IEEE Canada western area. The focus in 2013 will be on better communications across sections, better arrangements for distinguished lecturer tours, and possibility of multi-section events. Specifically, the proximity of Victoria and Vancouver section, North and South Alberta, and North and South Saskatchewan sections should provide better opportunities for shared distinguished lecturers meetings and/or joint events.

During the fall meeting, as it is customary with any board meeting a few awards were presented. I am happy to announce that our section was among the short list of award winners again this year. The section was recognized as the exemplary large section for 2012. I would like to congratulate all the volunteers who worked hard in the years leading to 2012 to make the section the best in Canada. Specifically, the centennial committee volunteers and leaders have been instrumental in winning this award. We have been a recipient of this award numerous times in the past.



Our nomination committee has prepared the nomination list for officers and executives for 2013. Please take the time to review their bios posted on our website and consider volunteering for the positions that do not have nominees. The sections livelihood depends on a healthy stream of volunteers to give back to their professional community. Announcements on election will be sent out by email very shortly and I urge you to consider voting as this would be the first year we are holding the elections in line with IEEE Member and Geographic Activities (MGA) rules and regulations. This year will be a precedent to establish sound and fair election practices and I believe we all have a responsibility to ensure its success. Please vote.

In conclusion, I would like to invite you all to participate in our local events to meet other members and expand your personal network. The section has many opportunities to get involved and we all look forward to seeing you in the near future.

Kouros Goodarzi
IEEE Vancouver chair- krs@ieee.org

Advanced materials for clean fossil and biomass energy technologies



Edward M. Sabolsky
West Virginia University

Distinguished Lecturer

Tuesday 20 November
11:30 am - 1:30 pm

ASB 9896
Engineering Science
Simon Fraser University

Information
Electron Devices chair
Bonnie Gray
bgray@sfu.ca
or
Ajit Khosla
khosla@gmail.com

In light of global warming and the ever present need for domestic energy sources, new energy systems that operate efficiently on both traditional fossil fuels and renewable fuels such as biomass are required. Solid Oxide Fuel Cell (SOFC) systems are one of these systems that have garnered a great deal of attention over the past decade as a potential source of low- to no-emissions for both mobile auxiliary power, as well as, for megawattscale stationary power. Most commercialized SOFCs operate on hydrogen fuel; however, operating SOFCs with fossil fuels is highly desirable due to their low cost and availability. For example, the use of coal syngas produced through various efficient gasification processes could push energy generation efficiency upwards of 60%. A similar technology termed as Direct Carbon Fuel Cells (DCFCs) can operate on solid-carbon feeds at relatively high theoretical efficiencies (~80-100%). This same DCFC technology can also function on alternative fuel feed stock, which includes solid biomass and human waste products.

Researchers at West Virginia University (WVU) are investigating both fuel cell technologies in order to provide near-term solutions to the worldwide pollution and energy issues, while advanced carbonneutral/zero-emission technologies are developed and finally implemented into cost-effective practice. In addition,

research on advanced high-temperature, nano-derived chemical sensors to monitor fuel streams for fuel cells and process/waste streams from coal gasifiers is also being completed in order to advance these technologies. The presentation will provide an overview of research being completed at WVU on SOFC and DCFC systems, and the advanced micro-chemical sensors for system monitoring. This presentation will touch on the processing, microstructural control, electrochemical enhancement, impurity interaction, and stability remediation strategies in order to increase the direct application of these technologies.

Speaker: Dr. Edward M. Sabolsky joined the Department of Mechanical and Aerospace Engineering at West Virginia University (WVU) as an Assistant Professor in 2008. Before joining WVU, he held the position of Senior Research Scientist at Saint-Gobain High-Performance R&D Center (Northboro, MA) and Fuel Cell Group Leader at NexTech Materials, Ltd (Lewis Center, OH). Dr. Sabolsky received his B.S. degree in Ceramic Science and Engineering from the Ohio State University in 1996, and later earned his Ph.D. in Materials Science and Engineering from Pennsylvania State University in 2001. Dr. Sabolsky's research focuses on the development of materials for applications in fuel cells, batteries, electromechanical devices and ceramic-based micro/nano-sensors.



IEEE Electron Devices Society



Tips on effective presentation design and delivery



Cristian A. Linte
Mayo Clinic

Thursday 22 November
4:00 - 5:00pm

DMP 101
Hugh Dempster Pavillion
6245 Agronomy Rd, UBC

Information
EMBS chair
Rob Rohling
rohlink@ece.ubc.ca

For many of us oral presentations can be the prime means for communicating our ideas and our research, not only to our peers, but also to our employers and to potential customers. As students, you are no exception – the prospect of an oral presentation can be daunting, the pressure is on to make a good impression with your research. That we as scientists presenting sometimes very complicated scientific ideas and results need not necessarily be a recipe for a sleep inducing “death by PowerPoint” presentation, rather there are simple ways in which we can all try and make our presentations effective and captivating.

This session aims to give you some all-round pointers on the “dos” and “don’ts” of preparing and delivering an effective presentation that best conveys your ideas smoothly, understandably and, most important, succinctly.

Speaker: Cristian A. Linte holds an academic appointment as Assistant Professor of Biomedical Engineering at Mayo Clinic in Rochester, MN, USA. He joined the Biomedical Imaging Resource as a research fellow in January 2011, sponsored by a NSERC post-doctoral fellowship to investigate novel paradigms for visualization and surgical navigation for minimally invasive therapy. Prior to his appointment at Mayo, Cristian completed his PhD in Biomedical Engineering at the University of Western Ontario

during 2006–2010, under the mentorship of Dr. Terry Peters at Robarts Research Institute.

His research focused on the development, evaluation and pre-clinical integration of image guidance techniques for surgical navigation of minimally invasive cardiac interventions. His research has been disseminated in more than 40 journal articles and peer-reviewed conference proceedings and has been recognized with several distinctions at international congresses. Cristian has secured over \$400,000 in federal funding during his graduate and post-graduate academic training and he is currently a co-investigator on a NIH - NIBIB grant at Mayo Clinic aimed at the development of image guidance and modeling technologies for minimally invasive catheter-guided ablation therapy for atrial fibrillation treatment. Cristian has served on the scientific review boards of several journals and conferences and has organized several international workshops.

In 2011, Cristian was recognized with the IEEE MGA GOLD Achievement Award for his leadership and contribution to the IEEE Engineering in Medicine and Biology Society.





Jonathan Rose
University of Toronto

Creative applications for mobile devices: bringing apps to other disciplines

We can be justly proud of the avalanche of progress that has occurred in the past 5 years in mobile devices, making use of every branch of Electrical and Computer Engineering. Their computational capability, mixed with high-speed wireless networking, friendly user interfaces and sophisticated sensors (accelerometers, gyroscopes, barometers, proximity detectors, light sensors, high-resolution cameras and microphones) have given rise to a burst of creativity from the authors of new apps. Despite all the novel apps already invented, I believe we have only scratched the surface of what is possible, as we learn how to use and create with these devices, and as the forces of competition and economics bring new technology to the consumer.

This seminar will describe a new graduate course 'Creative Applications for Mobile Devices' that is open to all graduate students at the University of Toronto. Graduate students in every field are mixed with programmers to enable the creation of new research-oriented, and field-specific apps. The course has been taught for two years, and I will describe how it is structured (with an eye to convincing one of you to do the same) and some of the delightfully creative results in surgery, museum studies, physiotherapy, nursing, driving, education, and many more.

Closer to my research home, I will also describe some recent work on using FPGAs to accelerate computer vision tasks inside smartphones, and will contemplate the advent of embedded FPGAs inside the highly integrated systems on chip inside modern phones.

Speaker: Jonathan Rose is a Professor in the Edward S. Rogers Sr. Department of Electrical and Computer Engineering at the University of Toronto. He received the Ph.D. degree in Electrical Engineering in 1986 from the University of Toronto. From 1986 to 1989, he was a Post-Doctoral Scholar and then Research Associate in the Computer Systems Laboratory at Stanford University. In 1989, he joined the faculty of the University of Toronto. He spent the 1995-1996 year as a Senior Research Scientist at Xilinx, in San Jose, CA, working on the Virtex FPGA architecture. From 1989 until 1999 he was an NSERC University Research Fellow.

In October 1998, he co-founded Right Track CAD Corporation, which delivered architecture for FPGAs and Packing, Placement and Routing software for FPGAs to FPGA device vendors. He was President and CEO of Right Track until May 1, 2000. Right Track was purchased by Altera, and became part of the Altera Toronto Technology Centre, where Rose was Senior Director until April 30, 2003. His group at Altera Toronto shared responsibility for the development of the architecture for the Altera Stratix, Stratix II, Stratix GX and Cyclone FPGAs. His group was also responsible for placement, routing, delay annotation software and benchmarking for these devices, and for the placement and routing software for the Altera Apex 20K and Flex 10K FPGAs. From May 1, 2003 to April 30, 2004 Rose held the part-time position of Senior Research Scientist at Altera Toronto. He has worked for Bell-Northern Research and a number of FPGA companies on a consulting basis.

Thursday 29 November
4:00 pm

MCLD 418
2356 Main Mall
UBC Vancouver Campus

Information
Computer Society chair
Sathish Gopalakrishnan
sathish@ece.ubc.ca



Ahmed Hussein
UNBC

Dual Fluid Reactor: A novel design that will revolutionize nuclear power

The Dual Fluid Reactor, DFR, is a novel nuclear reactor concept based on the Generation IV Molten-Salt Reactor (MSR) concept and the liquid-metal cooled reactors (SFR, LFR) with the major improvement that the molten-salt fuel is not used as coolant but the heat is removed in a separate liquid-lead loop. It is a fast reactor, that consumes all fissionable materials like U235, U238, Pu239, natural Thorium, etc. It has much simpler design, and produces much less nuclear waste than currently used nuclear power reactors. It does not emit any radioactivity or green house gases during operation. It costs as much as a coal fired power station to construct and operate. There are more benefits that will be discussed in the talk.

Speaker: 2005-present Professor Emeritus of Physics at UNBC. 2011-present Associate Member of Institute of Nuclear Solid State Physics (ISNP), Berlin, Germany. 1994-2005 Founding Professor and Chair of Physics at

UNBC. 1976-1993 Assistant, Associate, Full Professor at King Fahd university of Petroleum and Minerals(KFUPM), Saudi Arabia. B.Sc. Applied Physic, University of Alexandria, Egypt. M.Sc. and Ph.D. Nuclear Physics, University of Alberta.

Conducted research in Nuclear and Particle Physics at TRIUMF and Los Alamos National Laboratory(USA). Currently active in research projects at TRIUMF in nuclear Astrophysics and Particle Physics. At ISNP we are developing a new type of a nuclear power reactor, the Dual Fluid Reactor(DFR).

Over \$68 million research grants in individual and group projects from KFUPM and NSERC. Editor, International Journal of Engineering Education.

Member of IEEE, and the Canadian Association of Physicists (CAP).

Friday 30 November
10:30 - 12:00

Room 7-158
(Agora Building)

Information
Jernej Polajnar
IEEE NorthernBC chair
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Ed: 22Nov12



A live stream of this presentation
can be followed at
<http://livestre.am/1mMjm>

Steven Pai
BC Hydro
Gordon Dobson-Mack
BC Hydro

Transfer variability and the need for new limits on the Grid

Tuesday 20 November
12:00 Noon - 1:00 pm

BC Hydro
Edmonds A01
South Point Auditorium

The variability of power transfers across the transmission grid is increasing due to growing levels of variable energy resources ("VERs") being installed and the techniques and procedures that are being employed to provide cost-effective balancing services to facilitate their integration. Dynamic transfers is a technique to transfer the responsibility for managing variability from one Balancing Authority Area ("BAA") to another with the result that power transfers across the grid vary as the BAAs seek to balance load and generation. The key questions that arise are: How much and how frequently can unanticipated changes in transfer across a Flow gate occur between manual adjustments without causing unacceptable adverse impacts?

This presentation will discuss transfer variability and the need for Variable Transfer Limits ("VTLs") in addition to traditional System Operating Limits ("SOLs") to ensure that system operating conditions remain within a safe region. It will also explore whether changes to the planned operating point due to transfer variability could result in reliability, customer or equipment impacts. The concept of a Static vs. Variable Transfer nomogram and potential interactions between these variables will be shown with an example of the interconnection between British Columbia and Washington (Path 3). With increasing Transfer Variability, a new methodology is needed for calculating transmission limits. Transmission planners,

operators and schedulers need to come to terms with how Variable Transfer Limits can be applied.

Speakers: Steven Pai has worked for BC Hydro and the former BCTC for a total of 38 years with the last 36 years in various transmission system planning functions including Regional Planning, Bulk System Planning, Analytical Studies, Grid Operations Planning and Performance Planning. His present role is Chief Planning Engineer in the department of Transmission and Stations Planning of BC Hydro.

Gordon Dobson-Mack joined BC Hydro as an EIT in 1990 and currently he works at Powerex - BC Hydro's wholly owned energy marketing subsidiary - as their Transmission Issues Manager. Previously Gordon has worked in Transmission Planning, Transmission Scheduling, Power Supply Operations (PSOSE) and System Operations (SCC).

In October 2010, Steven and Gordon were invited to participate in the Dynamic Transfer Capability Task Force. Comprised of Transmission Planners and Operators from the US Pacific Northwest, California and British Columbia, the DTC Task Force investigated how variable transfers can impact the transmission system and whether transfer variability needs to be limited. A CIGRE Canada paper entitled Transfer Variability and the Need for New Limits on the Grid was published in September 2012.

Information
Power and Energy chair
Rama Vinnakota
Rama.Vinnakota@bchydro.com



Carrie Gallant
VIRTUS

The art of negotiation

IEEE WIE Vancouver has partnered with Society for Canadian Women In Science and Technology (SCWIST) and Division for Advancement of Women in Engineering and Geoscience (DAWEG) to provide you a series of personal branding workshops this fall

Bring your questions and prepare to be enlightened with this informative session. Here is an sneak peek into the topics that will be discussed during the workshop:

- ready to clinch the deal?
- how to dissect your contract of offer?
- how to research on fair compensation?
- do you know the inside rules of counter-offering?
- what do HR/employers think?

Speaker: Carrie Gallant is passionate about up-lifting the economic and earning power of women leaders and entrepreneurs. If you've struggled with asking for what you want because you don't know what to say, or how to say it, Carrie can help you. Carrie is a former practising lawyer, an executive coach, speaker and mediator, who specialises in helping her clients uncover and master their powers of influence, negotiation, and navigating

difficult conversations so they can create the career, business and lifestyle they want.

A strong believer in partnering with others, Carrie is a business mentor and coach with VIRTUS, a negotiation consultant with ENS (Empowering Negotiation Success) International and a certified facilitator with Authentic Leadership Global. Carrie is also a qualified assessor of the Myers Briggs Type Indicator® (MBTI®), a Niche Breakthrough Secrets® Specialist and a Money Breakthrough Method® Coach.

An educator at heart, Carrie was an adjunct professor at UBC's Faculty of Law for eight years, and is a Mentor with Canadian Youth Business Foundation, the YWCA Connect to Success Program and the CoRe Conflict Resolution Society.

Tuesday 06 November
06:30 - 08:30pm

Welch Room
YWCA
535 Hornby Street
Vancouver

Admission charge: \$5.00 for the first 5 IEEE WIE members.

Register at:

https://meetings.vtools.ieee.org/meeting_view/list_meeting/14911

if above link is closed register at:

www.eventsbot.com/events/eb094315127

Information
Women In Engineering
Affinity chair
Zahra Ahmadian
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FUZZY LOGIC

What is Fuzzy Logic & what does it have to offer?



A presentation by **Professor Lotfi A. Zadeh**

- a Fellow of the Institute of Electrical and Electronics Engineers, the American Academy of Arts and Science, the Association for Computing Machinery, the Association for the Advancement of Artificial Intelligence and the International Fuzzy Systems Association
- recipient of IEEE Educational Medal, IEEE Richard W. Hamming Medal, IEEE Medal of Honor Benjamin Franklin Medal, 24 honorary doctorates and an inductee into the IEEE Intelligent Systems' AI's Hall of Fame

Date: 19 November, 2012

Time: 10:30am to 12:00 noon
(Networking & registration at 10:00am)

Location: Rooms 2020-2030
Kaiser Bldg, UBC

Contact: Shahriar Mirabbasi
shahriar@ece.ubc.ca



The Society of Iranian Canadian Professionals (SICAP), Iranian Engineers of British Columbia Association (IEBCA), University of British Columbia Electrical and Computing Engineering Department, UBC IEEE Student Branch, UBC Persian Club, SFU Iranian Club, and IEEE Vancouver Section are pleased to invite you to the event of 2013. The event is free to the public but registration is required. Please visit the link below to register.

<http://goo.gl/zVx3u>



IEEE VANCOUVER SECTION



Electrical and
Computer
Engineering



UBC IEEE
Student Branch





Philippe Pasquier
Simon Fraser University

Computational creativity

The ability to invent and use tools is a defining characteristic of human beings: from the invention of the wheel to the development of cell phones, technology and humans have been co-evolving. In recent years, artificial intelligence has been successful at endowing machines with autonomous and proactive behaviors to achieve tasks that normally rely on human intelligence. Computational creativity is a new and expanding field that attempts to simulate human creativity, and to discover creative processes that are beyond human capability. This field brings together academics and artists to design systems that are capable of making creative decisions.

an artist, he has served as a member or administrator of several artistic collectives (Robonom, Phylm, MIJI), art centers (Avatar, Bus Gallery) and artistic organizations (P: Media art, Machines, Vancouver New Music) in Europe, Canada and Australia. His scientific research focuses on the development of models and tools for endowing machines with autonomous, intelligent or creative behavior. His contributions ranges from theoretical research in artificial agent theories to applied artistic research in computational creativity and generative art.

Friday 23 November
1:00-2:30 PM

Room 10-4588
TAL Bldg
UNBC

Speaker: After studying computer science, artificial intelligence and cognitive sciences in Europe, Canada and Australia, Philippe Pasquier joined Simon Fraser University's School of Interactive Arts and Technology (SIAT) in January 2008 as an assistant professor. Philippe Pasquier is both a scientist specialized in artificial intelligence and a multi-disciplinary artist. As

His work has been shown internationally and funded and supported by more than 20 scientific and or cultural institutions including the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC) the Canadian Council for the Arts (CCA), the French Ministère de la Culture et de la Communication, the Australian Research Council and the Australian Council for the Arts.

Information

Jernej Polajnar
IEEE NorthernBC chair
jernej.polajnar@gmail.com



Ed: 09Nov12



Kian Mehravaran
UBC Okanagan

Alternative energy: today and tomorrow

The industrial revolution has caused an unprecedented and rapid change in our way of lives since the 18th century. These changes were fuelled by coal, and later in the 20th century, by petroleum. However, the comfort and convenience brought by the Hydrocarbon based economy has not been without its side effects. Issues such as pollution, peak oil, and global warming are forcing us to change our view of the world and seek alternative and renewable sources of energy. Some of these sources have been around long before the industrial revolution, such as hydro and wind power, and some like fuel cells and photovoltaic panels are new and evolving technologies.

Speaker: Dr. Mehravaran received his Ph.D. in Mechanical Engineering from Michigan State University in 2005. His dissertation was on micro-gravity effects on turbulent flames and LES/FMDF modeling of high-speed turbulent flames with detailed chemistry.

Wednesday 21 November
5pm-6pm

EME 1202
UBC Okanagan campus

Pizza and drinks will be provided after the talk

In this talk, following a review of the traditional power generation cycles and their limitations, alternative energy methods and their potential for replacing the existing sources are discussed. The state of the art and future trends in some of these technologies will be reviewed.

After graduation, he was as a research associate in the University of Karlsruhe, under a collaborative research program funded by the German government. He worked on understanding and modeling curvature and stretch effects on turbulent premixed flames using DNS. He has worked in air-conditioning and power-generation industries as well.

Prior to joining UBC-Okanagan, he was a Research Associate in Imperial College London, where he developed models for Large Eddy Simulation (LES) of diesel fuel injection, under the project titled "LES/CMC of diesel engine combustion with detailed chemistry".

Information

IEEE Okanagan chair
Julian Cheng
julian.cheng@ubc.ca



Ed: 09Nov12



The IEEE Vancouver social event this year is a bowling event at REVS bowling facility in Burnaby.
<http://www.revs.ca/revs-burnaby/>

5502 Lougheed Highway, Burnaby
just besides the Holdom SkyTrain station

Saturday 10 November
6:00pm - 8:00pm

Parking is not free but the ticket can be validated towards a future bowling purchase.
Or if you use the SkyTrain who needs to park?

***Only \$20
per person***

..but you have to register, here:
https://meetings.vtools.ieee.org/meeting_view/list_meeting/14491

