IEEE VANCOUVER CONTACT

WWW.IEEECONTACT.ORG

IEEE Annual Social Event

Greetings! **Stop thinking about technology for an afternoon and join your family and IEEE friends for a fun-filled afternoon knocking down the pins.**

It will probably be raining so this will be a great way to have some fun and get in some conversation (and exercise).

Adults $15 — school-aged children $7.50
Food & Prizes included!
**But space is limited
so please register by Wed 11 Nov at**
https://meetings.vtools.ieee.org/m/36453

**Register right after you are done reading
Contact so you don't miss out.
See you there!**
Contact Lee for more info if needed 604-218-0822

**Saturday 21 November — 2 - 4 pm (arrive 15 minutes early)
Zone Bowling, 228 Schoolhouse St, Coquitlam (next to Silver City Theatre)**

Control and optimization in Smart Grids

Xinghuo Yu
RMIT University

Distinguished Lecturer

Monday 16 November
4:30PM to 6:00 PM

BC Hydro Edmonds A01
Auditorium Center Room
6911 Southpoint Dr, Bby

Refreshments served

Cosponsors
Power & Energy and
Circuits & Systems

Information
RSVP to attend
or audit remotely
Jeff Bloemink
Joint IAS/IES Chair
j.m.bloemink@ieee.org

Smart Grids are electric networks that employ innovative and intelligent monitoring, control, communication, and self-healing technologies to deliver better connections and operations for generators and distributors, flexible choices for prosumers, and reliability and security of electricity supply. Smart Grids are complex cyber-physical network systems in nature that face many new technological challenges for the future developments.

In this talk, we will first give a brief overview of Smart Grids and their recent developments, focusing on broad challenging research issues from a control and optimization perspective. The future impact of Cyber-Physical Systems on Smart Grids will also be discussed. Some of our recent research projects in this field will be reported as case studies.

Speaker: Xinghuo Yu is the Founding Director of Platform Technologies Research Institute at RMIT University (Royal Melbourne Institute of Technology), Melbourne, Australia. His research interests include variable structure and nonlinear control, complex and intelligent systems, and smart energy systems.

Professor Yu is serving/served as Associate Editor of IEEE Transactions on Industrial Electronics, IEEE Transactions on Automatic Control, IEEE Transactions on Circuits and Systems Part I, IEEE Transactions on Industrial Informatics. He received a number of awards and honors for his contributions, including 2013 Dr.-Ing Eugene Mittelmann Achievement Award of IEEE Industrial Electronics Society and 2012 IEEE Industrial Electronics Magazine Best Paper Award. In 2015 he was named a Highly Cited Researcher by Thomson Reuters which ranks him among the top 1% most cited for his subject fields and year of publication.

Professor Yu is a Fellow of the IEEE, Vice-President for Publications and an IEEE Distinguished Lecturer of IEEE Industrial Electronics Society.

Introduction to Intellectual Property

Paul Cyr
UBC

Monday 16 November
Noon -1:00 pm
Rm 2020 Kaiser Bldg
2332 Main Mall, UBC

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

Industry Liaison Office
UBC's University-Industry Liaison Office (UILO) facilitates industry interaction
with the research expertise, discoveries and capacity of UBC and its affiliated teaching hospitals.
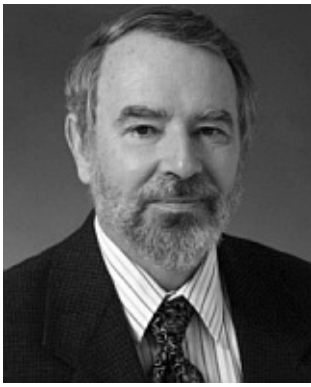
http://www.uilo.ubc.ca/welcome

This event is free of charge but requires registration which closes
Friday 13 November
To register, please email: sarak@ieee.org
and indicate if you have IEEE EMB membership.

**IEEE Engineering in
Medicine and Biology**

Radiation effects in optoelectronic devices

Allan Johnston
Jet Propulsion Lab

The talk begins with a discussion of the physics of optoelectronic devices, including heterostructures that are important in III-V semiconductors. A brief discussion of radiation environments is included, along with methods to evaluate the effects of different proton and electron energies on damage in optoelectronics. The next section discusses displacement damage effects in detectors, light-emitting diodes, and laser diodes, noting the extreme sensitivity of some types of light-emitting diodes that has caused failure of several fielded space systems. The course also discusses optocouplers, including single-event upset from protons and heavy ions that cause those devices to be extremely sensitive to spurious pulses in typical space environments. A brief discussion of radiation effects in optical fibers and optical communication systems is also included.

Speaker: Allan Johnston is a Principal Engineer at the Jet Propulsion Laboratory, a federally funded research center that is managed by the California Institute of Technology for NASA. He has more than thirty years of experience in radiation effects, and has participated in the design of several space craft, including the Cassini mission to Saturn, and several Mars exploration programs at JPL. He has published more than 100 technical papers, and is a Fellow of the IEEE.

In October IEEE-USA E-books offers the free E-Book
Would Have Liked to Know That! -- Book 2: Managing Your Manager

Author Maura Schreier-Fleming writes that managers give clues to how you should work with them. You will learn what those clues are and how they will help you develop effective persuasion strategies for working with your manager. When you use these strategies, you will be more productive, have less stress, and be more likely to get what you want, as you work with your manager. Schreier-Fleming is the author of "Real-World Selling for Out-of-this-World Results" (2002) and "Monday Morning Sales Tips" (2009). She is a former lubrication engineer for Mobil Oil and is chair of the IEEE Dallas Consultants Network.

Get your free e-book from 01 October to 15 November by going to http://shop.ieeeusa.org/usashop/product/careers/76750.
Log in with your IEEE Web account, add the book to your cart and use promo code OCTFREE at checkout.

In November, IEEE-USA E-books will offer
The Best of Today's Engineer: On Licensure - Volume 1

This compilation of articles by Georgia C. Stelluto will help you understand the licensure process, why you should pursue it, exam development and how to effectively study for and pass licensure exams.

The Vancouver Joint Management Chapter is currently looking for volunteers
to take on roles as Vice Chairs in the each of following societies:
IEEE Technology Management Society (TMC-14)
IEEE Education Society (E-25)
IEEE Professional Communications Society (PC-26)
If you are interested in taking on the role of Vice Chair in one of these societies,
please contact Joint Management Chair mr.darrell.koskinen@ieee.org

Convexity, sparsity, nullity and all that....

Hamid Krim
North Carolina State U

Distinguished Lecturer

Monday 23 November

Time: TBA

Location: TBA

High dimensional data exhibit distinct properties compared to its low dimensional counterpart; this causes a common performance decrease and a formidable computational cost increase of traditional approaches. Novel methodologies are therefore needed to characterize data in high dimensional spaces. Considering the parsimonious degrees of freedom of high dimensional data compared to its dimensionality, we study the union-of-subspaces (UoS) model, as a generalization of the linear subspace model. The UoS model preserves the simplicity of the linear subspace model, and enjoys the additional ability to address nonlinear data. We show a sufficient condition to use l_1 minimization to reveal the underlying UoS structure, and further propose a bi-sparsity model (RoSure) as an effective algorithm, to recover the given data characterized by the UoS model from errors/ corruptions.

As an interesting twist on the related problem of Dictionary Learning Problem, we discuss the sparse null space problem (SNS). Based on linear equality constraint, it first appeared in 1986 and has since inspired results, such as sparse basis pursuit, we investigate its relation to the analysis dictionary learning problem, and show that the SNS problem plays a central role, and may naturally be exploited to solve dictionary learning problems. Substantiating examples are provided, and the application and performance of these approaches are demonstrated on a wide range of problems, such as face clustering and video segmentation.

Speaker: Hamid Krim (ahk@ncsu.edu) received his BSc. MSc. and Ph.D. in Electrical Engineering. He was a Member of Technical Staff at AT&T Bell Labs, where he has conducted R&D in the areas of telephony and digital communication, where he has conducted R&D in the areas of telephony and digital communication systems/subsystems. Following an NSF postdoctoral fellowship at Foreign Centers of Excellence, LSS/University of Orsay, Paris, France, he joined the Labratory for Information and Decision Systems, MIT, Cambridge, MA as a Research Scientist and where he was performing and supervising research.

He is presently Professor of Electrical Engineering in the ECE Department, North Carolina State University, Raleigh, leading the Vision, Information and Statistical Signal Theories and Applications group. His research interests are in statistical signal and image analysis and mathematical modeling with a keen emphasis on applied problems in classification and recognition using geometric and topological tools. He has served and is currently serving on the IEEE editorial board of SP, and the TCs of SPTM and Big Data Initiative, as well as an AE of the new IEEE Transactions on SP on Information Processing on Networks, and of the IEEE SP Magazine. He is also one of the 2015-2016 Distinguished Lecturers of the IEEE SP Society.

Information
Vikram Krishnamurthy
vikramk@ece.ubc.ca

Maysam Ghovanloo
Georgia Institute Technology

Distinguished Lecturer

Friday 30 October

4:00 - 5:00 PM

TRIUMF Auditorium
4004 Westbrook Mall
Vancouver BC

Cosponsoring Chapters

Circuits and Systems

Joint Solid-State Circuits

Electron Devices

Women in Engineering

Implantable and wearable microelectronic devices to improve quality of life for people with disabilities

Implantable microelectronic devices (IMD) and neuroprostheses are finding applications in new therapies thanks to advancements in microelectronics, microsensors, RF communications, and medicine, which have resulted in embedding more functions in IMDs that occupy smaller space and consume less power, while offering therapies for more complex diseases and disabilities. I will address the latest developments in key building blocks for state-of-the-art IMDs, particularly on the analog front-end, RF back-end, and power management.

IMDs have been quite successful in neuroprosthetic devices, such as cochlear implants and deep brain stimulators. They have been recently approved for vision and are being considered for brain-computer interfacing (BCI) to enable individuals with severe physical disabilities to control their environments, particularly by accessing computers. Implantable BCIs, however, are highly invasive and should be used when there are no less invasive alternatives that would offer similar benefits. They can also be utilized as advanced tools for neuroscience research on freely behaving animal subjects.

I will talk about the example of a smart cage, which can wirelessly power, communicate with, and track sensors implanted in or attached to small freely behaving animals. At the same time, novel minimally-invasive methods are being explored for individuals with severe paralysis to make the best use of their remaining abilities to control their environments. An example of such technologies is a wireless and wearable brain-tongue-computer interface (BTCI), also known as the Tongue Drive System (TDS), which enables individuals with tetraplegia to control their environments using their voluntary tongue motion.

Speaker: Maysam Ghovanloo received the B.S. degree in electrical engineering from the University of Tehran, and the M.S. degree in biomedical engineering from the Amirkabir University of Technology, Tehran, Iran in 1997. He also received the M.S. and Ph.D. degrees in electrical engineering from the University of Michigan, Ann Arbor, in 2003 and 2004. Dr. Ghovanloo developed the first modular Patient Care Monitoring System in Iran where he also founded a startup to manufacture physiology and pharmacology research laboratory instruments.

From 2004 to 2007 he was an Assistant Professor in the Department of ECE at the North Carolina State University, Raleigh, NC. Since 2007 he has been with the Georgia Institute of Technology, School of Electrical and Computer Engineering, where he is an Associate Professor and the founding director of the GT-Bionics Lab. He has 5 issued patents and authored or coauthored more than 150 peer-reviewed conference and journal publications on implantable microelectronic devices, integrated circuits and micro-systems for IMD applications, and modern assistive technologies.

Dr. Ghovanloo is the general chair of the IEEE Biomedical Circuits and Systems (BioCAS 2015) in Atlanta, GA (Oct. 22-24, 2015). He is an Associate Editor of the IEEE Transactions on Biomedical Engineering and IEEE Transactions on Biomedical Circuits and Systems. He served as an Associate Editor of IEEE Transactions on Circuits and Systems, Part II (2008-2011), as well as a Guest Editor for the IEEE Journal of Solid-State Circuits and IEEE Transactions on Neural Systems and Rehabilitation Engineering. He has also served on the Imagers, MEMS, Medical and Displays subcommittee of the International Solid-State Circuits Conference (ISSCC) from 2009-2014. He has received the National Science Foundation CAREER Award, the Tommy Nobis Barrier Breaker Award for Innovation, and Distinguished Young Scholar Award from the Association of Professors and Scholars of Iranian Heritage.

Information
Joint Applied Physics
Chair
Ahmed Hussein
Ahmed.Hussein@unbc.ca

Bethanie Stadler
University of Minnesota

Friday 20 November

4:00 - 5:00 PM

TRIUMF Auditorium
4004 Westbrook Mall
Vancouver BC

Cosponsoring Chapters

Circuits and Systems

Joint Solid-State Circuits

Electron Devices

Women in Engineering

Magnetic nanowires:
Revolutionizing hard drives, RAM, and cancer treatment

Magnetic nanowires can have many names: bits, sensors, heads, artificial cilia, sensors, and nano-bots. These applications require nanometer control of dimensions, while incorporating various metals and alloys. To realize this control, our 7- to 200-nm diameter nanowires are synthesized within insulating matrices by direct electrochemistry, which negates sidewall damage such as that caused by lithographical patterning of vacuum-deposited structures. Our nanowires can easily have lengths 10,000x their diameters, and they are often layered with magnetic (Co, Fe, FeGa, FeNi, Ni) and non-magnetic (Ag, Cu, Au) metals as required by each application.

This talk will reveal synthesis secrets for nm-control of layer thicknesses, even for difficult alloys, which has enabled studies of magnetization reversal, magneto-elasticity, giant magnetoresistance (GMR), and spin transfer torque (STT) switching. In addition, this lithography-free synthesis yields 10-nm diameter nanowires that have resistivities of only 5.4mðWð.ðcm (nearly that of bulk copper) due to negligible sidewall roughness. Therefore, these nanowires will mitigate the ITRS Roadmap's "Size Effect" Grand Challenge which identifies the high resistivities in small interconnects as a barrier to continued progress along Moore's Law (or better). Ten-nm diameter trilayers of [Co(15nm)/Cu(5nm)/Co(10nm)] have also met or surpassed all of the criterion for the world's smallest read heads with 30 © resistance and 19% magnetoresistance. High magnetoresistance is also possible in other multilayered nanowires that exhibit excellent properties for mulit-level nonvolatile random access memory (RAM) using STT switching at very low current densities (100kA/cm2). If the insulating growth matrix is etched away, the nanowires resemble a magnetic bed of nano-sea-weed which enables microfluidic flow sensors and vibration sensors. Finally, we have incubated various nanowires with several healthy and cancerous cell lines, and find that they are readily internalized by all cell types thus far. Careful magnetic design of these "nano-bots" enables external steering, nano-barcode identification, and several modes of therapy. In short, by the end of this talk, I hope you will be convinced that magnetic nanowires can and will revolutionize hard drives, RAM, and cancer treatment.

Speaker: Bethanie Stadler works on the integration of nanomagnetic and photonic materials with a variety of platforms to allow the development of practical devices and systems. This includes magnetic nanowires for magnetoelectronics (including hard drive heads), microfluidic flow sensors and actuators, acoustic/vibration sensor applications, and cellular biomarkers. In photonics, Stadler works on the integration of magnets, magneto-optical garnets waveguides, and nanostructures for magnetophotonic crystals with semiconductor platforms for isolator and sensor applications.

Stadler received her PhD from MIT in 1994 and her B.S. from Case Western Reserve University in 1990, both in Materials Science and Engineering. She held a National Research Council postdoctoral fellowship at the Air Force Rome Laboratory before joining Electrical and Computer Engineering at the University of Minnesota, where she is also on the Graduate Faculty of Chemical Engineering and Materials Science. Her research there has been awarded the NSF CAREER award and a McKnight Presidential Fellowship. Stadler has served both as Director and Secretary of the international Materials Research Society, and has been asked to teach "Nanomagnetics" for the IEEE Magnetic Summer School in Chennai India and in Assis Italy.

Information
Joint Applied Physics
Chair
Ahmed Hussein
Ahmed.Hussein@unbc.ca

An out-of-step event in the Peruvian Power System

Charles F. Henville
Henville Consulting Inc.

Monday 30 November
12:00pm - 1:00pm

BC Hydro
Edmonds A01 Auditorium
6911 Southpoint Dr, Bby

Information
Joint Power & Energy Chair
Rama Vinnakota
Rama.Vinnakota@bchydro.com

This presentation describes the analysis of a disturbance in the Peruvian Power System, in which an out-of-step condition between two regions arose and persisted for more than 60 seconds. The interconnected Southern-Western Region and the National Grid were operating at frequencies at up to 5 Hz difference. The presentation includes a theoretical discussion of the phenomenon, and shows how this particular incident was analysed using digital transient recorders. The analysis demonstrated the asynchronous interconnection of the two regions and their subsequent resynchronization after manual generation shedding. The out of step condition resulted in significant voltage swings on the transmission system. We will include a discussion of how remedial action schemes such as the BC Hydro generation shedding schemes prevent such voltage fluctuations.

Speaker: Charles (Charlie) Henville earned his BA and MA (in engineering) from Cambridge University, England, and MEng. from the University of British Columbia. He has worked as a protection engineer for 27 years for a BC Hydro, and since 2005 as principal of his own consulting firm. Charlie is active in the Institute of Electrical and Electronic Engineers (IEEE) especially the Power and Energy Society (PES). He is a past Chair of the Vancouver PES Chapter, and the IEEE Vancouver Section and of several Vancouver Section committees. Has is also a past Chair of the PES Power System Relaying Committee, and is a Fellow of the IEEE.

In addition to his wide ranging skills in modeling power systems and applying and setting protective relays, he is an experienced presenter of technical subjects. He is adjunct faculty at the University of Wisconsin, Madison, Gonzaga University, and the University of British Columbia. Charlie is a registered professional engineer in the provinces of British Columbia, and Alberta, Canada.

CALL FOR PAPERS

Cybercrime: Linking Research, Policy, and Practice
The 4th International Conference on Cybercrime and Computer Forensic (ICCCF)
12-14 June 2016
Simon Fraser University

http://www.apatas.org/icccf/icccf-2016/

For IEEE / TELUS Student Innovation Challenge information please visit
http://vancouver.ieee.ca/InnovationChallenge2015

CCECE 2016

THE 29TH ANNUAL IEEE CANADIAN CONFERENCE ON ELECTRICAL AND COMPUTER ENGINEERING

15—18 MAY, 2016 / VANCOUVER, CANADA

Advancing Society Through Electrical and Computer Engineering

— CALL FOR PAPERS —

The 29th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2016) will be held in Vancouver, British Columbia, Canada from May 15 to 18, 2016. CCECE is the flagship conference for researchers, students, and professionals in the area of Electrical and Computer Engineering from Canada and around the world to meet annually in a Canadian city to disseminate their research advancements and discoveries, to network and exchange ideas in order to strengthen existing partnerships and foster new collaborations. CCECE 2016 general theme, Advancing Society Through Electrical and Computer Engineering reflects the profound impact of ECE research on our daily lives. CCECE 2016 will address the following many themes which are listed and described to the right. CCECE 2016 will address the following themes:

- ❖ Bioengineering
- ❖ Communications and Networks
- ❖ Computer and Software Techniques
- ❖ Control and Robotics
- ❖ Devices, Circuits, and Systems
- ❖ Power and Energy Circuits and Systems
- ❖ Signal Theory and Signal Processing

Paper submission guidelines and be found on the conference website: http://ccece2016.ieee.ca.

— CALL FOR TUTORIALS —

CCECE 2016 tutorials will be held on Sunday, May 15, 2016. Each tutorial will be 3-hours long. The Organizing Committee invites tutorial proposals across the broad areas of electrical and computer engineering and related fields. Tutorial proposal may involve a single speaker, or a group of speakers, and should include:

1. Title
2. Name(s) and affiliation(s) of the speaker(s)
3. Tutorial summary (two pages maximum), including importance and timeliness of the topic
4. Intended audience
5. Brief description of the materials (slides, code) to be provided to the audience
6. Brief biographies of speakers (300 words maximum), highlighting prior experience in delivering conference tutorials.

Proposals from industry and combined industry-academia proposals are especially encouraged. To submit the proposal, please **send via email a PDF document containing the required information** by November 29, 2015, to the Tutorials Co-Chairs:

Ivan Bajic (ibajic@sfu.ca) and Thomas Johnson (thomas.johnson@ubc.ca)

CALL FOR PAPERS

Please read the following paper submission guidelines before submitting your papers:

- Paper submission deadline is on **January 15, 2016**.

- All papers must be submitted through the IEEE WCCI 2016 online submission system. For special session papers, please select the respective special session title under the list of research topics in the submission system. For papers submitted to the cross-disciplinary and CI applications special sessions track, please click on the IEEE CEC 2016 paper submission link, and in the "Main Research Topic", select the respective special session title under "Section 8. Cross-Disciplinary and CI Applications". Any paper submitted to the cross-disciplinary and CI applications special sessions track (if accepted and presented) will be published in one of the three conference proceedings (IJCNN, Fuzzy-IEEE or IEEE CEC) that is most fitting. Such decision will be made by the Special Session Organizers in consultation with the Special Session Chair and one of the three Conference Chairs.

- In order for your papers to be included in the congress program and the proceedings, final accepted papers must be submitted and the corresponding registration fees must be paid by April 15, 2016.

- IEEE WCCI 2016 will present the Best Overall Paper Awards and the Best Student Paper Awards to recognize outstanding papers published in each of the three conference proceedings (IJCNN 2016, FUZZ-IEEE 2016, IEEE CEC 2016). The awards will be judged by an Awards Committee and the recipient of each award will be given a certificate of the award and a cash prize to be presented during the conference banquet at IEEE WCCI 2016.

If you encounter any problems with the submission of your papers, please contact the Paper Submission Chair Dr. Ke Tang.

- Submit papers to IJCNN 2016: http://ieee-cis.org/conferences/ijcnn2016/upload.php
- Submit papers to FUZZ-IEEE 2016: http://ieee-cis.org/conferences/fuzzieee2016/upload.php
- Submit papers to IEEE CEC 2016*: http://ieee-cis.org/conferences/cec2016/upload.php

For papers submitted to the cross-disciplinary and CI applications special sessions track, please click on the IEEE CEC 2016 paper submission link.

LaTeX and Word Templates. To help ensure correct formatting, please use the style files for U.S. Letter as template for your submission. These include LaTeX and Word. Violations of any of the above paper specifications may result in rejection of your paper.

Manuscript Style Information. Only papers prepared in PDF format will be accepted. Paper Length: Up to 8 pages, including figures, tables and references. At maximum, two additional pages are permitted with overlength page charge of US$125/page, to be paid during author registration. Paper Formatting: double column, single spaced, #10 point Times Roman font. Margins: Left, Right, and Bottom: 0.75" (19mm). The top margin must be 0.75" (19 mm), except for the title page where it must be 1" (25 mm). No page numbers please. We will insert the page numbers for you.

Note: Violations of any of the above specifications may result in rejection of your paper.

http://www.wcci2016.org

Consistency in a cloudy world

Neeraj Suri
TU Darmstadt

Monday 09 November

Rm 2020/2030 Kaiser
2332 Main Mall, UBC

Refreshments at 3:30pm
Presentation at 4pm

The label "Cloud" attracts considerable hype and also sprawls across the immense ecosystem of servers, clients, communication, storage and edge elements. Despite this fuzz, fundamentally it is data and especially the integrity of the data across this spectrum of disparate Cloud elements that drives the value of the Cloud and associated Big Data! While data consistency is indeed a key driver, this desired consistency also needs to be achieved efficiently (low latency wait-freedom, high availability) and in a robust manner resilient to the operational and deliberate disruptions (both crashes and attacks are a given with the ever expanding scale of Cloud!). This talk describes approaches for efficient & robust data consistency for Cloud Servers/Storage, and extensions to mobile and cyber-physical systems.

Speaker: Neeraj Suri is the TUD Chair Professor of "Dependable Systems and Software" at TU Darmstadt, Germany and also affiliated with the Univ. of Texas at Austin. Following his PhD at the Univ. of Massachu-setts at Amherst, he has held both industry and academic positions at Allied-Signal/Honeywell Research, Boston Univ., Saab Endowed Chair Professor, multiple sabbaticals at Microsoft Research, and also receiving trans-national funding from the EC, German-DFG/BMBF/DAAD, US-NSF/DARPA/ONR/AFOSR, NASA, Microsoft, Amazon, Google, IBM, Oracle, SAP, Hitachi, Saab, Volvo, Daimler, GM and others.

He is a recipient of the NSF CAREER award, as well as Microsoft and IBM Faculty Awards. Suri's professional services span associate Editor-in-Chief for the IEEE Trans. on Dependable and Secure Computing, editorial boards for IEEE Trans. on Software Engineering, IEEE Trans. on Parallel and Distributed Systems, ACM Computing Surveys, IEEE Security & Privacy and many others. He serves on advisory boards for Microsoft and multiple other US/EU/Asia industry and university advisory boards. Suri chaired the IEEE Technical Committee on Dependability and Fault Tolerance, and it's Steering Committee.

Complex Networks in Smart Energy Systems: modeling, control and optimization

Xinghuo Yu
RMIT University

Distinguished Lecturer

Tuesday 17 November

Room 2020/2939
Fred Kaiser Building
2332 Main Mall, UBC

Refreshments at 3:30pm
Presentation at 4pm

Complex networks are a network with non-trivial topological characteristics, which can be found everywhere around us, such as neural systems, food webs, metabolic networks, ecological networks, power grids, and wireless communication networks. The study of complex networks is an emerging research field stimulated by empirical investigations of many real-world complex networks.

In this talk, we will first give a brief overview of recent developments of Complex Networks research from spatio-temporal viewpoints. We will then report on some of our recent work in modeling, control and optimization in Complex Networks for Smart Energy Systems, including power network augmentation, economic energy dispatch, and power network vulnerability analysis. Finally, the future challenges in these areas will be discussed.

Speaker: Xinghuo Yu received BSc and MSc degrees from University of Science and Technology of China, Hefei, China, in 1982 and 1984, and PhD degree from South-East University, Nanjing, China in 1988, respectively. He is with RMIT University (Royal Melbourne Institute of Technology), Melbourne Aus-tralia, where he is the Founding Director of RMIT Platform Technologies Research Institute and Professor of Information Systems Engineering. His research interests include variable structure and nonlinear control, complex and intelligent systems, and smart energy systems. He has published over 500 refereed papers in technical journals, books and conference proceedings, and received over 11,000 Google Scholar citations for his work with h-index 50. Professor Yu is serving/served as Associate Editor of IEEE Transactions on Industrial Electronics, IEEE Transactions on Automatic Control, IEEE Transactions on Circuits and Systems Part I, IEEE Transactions on Industrial Informatics, and several other scholarly journals. He received a number of awards and honors for his contributions, including 2013 Dr.-Ing Eugene Mittelmann Achievement Award of IEEE Industrial Electronics Society and 2012 IEEE Industrial Electronics Magazine Best Paper Award. He has been named a Highly Cited Researcher by Thomson Reuters.

Professor Yu is a Fellow of the IEEE and several other learned academies. He is Vice-President for Publications and an IEEE Distinguished Lecturer of IEEE Industrial Electronics Society.

Silicon-assisted external-cavity lasers for high-connectivity computing systems

Ashok Krishnamoorthy
Oracle

Monday 23 November

Room 2020 / 2030
Fred Kaiser Building
2332 Main Mall, UBC

Refreshments at 3:30
Presentation at 4pm

Interconnect will play a critical role in the overall system performance and energy consumption of future computing systems. To provide ubiquitous connectivity between and within such systems, work around the world has focused on developing silicon photonic components, including high-bandwidth modulators, detectors, and WDM components. A key requirement for such high-speed optical interconnects is an efficient light-source. We motivate the application of silicon-assisted lasers as the light-source for such high-bandwidth optical interconnects and present recent promising results in the area of hybrid, tunable external-cavity lasers.

Speaker: Dr. Ashok Krishnamoorthy is an Oracle Architect and its Chief Technologist, Photonics. He also serves as Principle Investigator for the Oracle-DARPA UNIC/POEM initiatives on silicon "photonics-to-the-chip". Previously, he was a Distinguished Engineer & Director at Sun Microsystems responsible for advanced optical interconnect and silicon photonics development, prior to that President and CTO of AraLight, a Bell Labs spinout, and before that a founding member of technical staff of the Optical Data Networks research dept. at Bell Labs. For his early work on optical interconnected systems he was awarded the 2005 ICO international prize in Optics. His honors include the IEEE Distinguished Lecturer award, Eta Kappa Nu?s outstanding engineer citation, the Chairman?s Award from Sun Microsystems, as well as several team and best-paper awards. He is a distinguished member of Tau Beta Pi, and is a fellow of the Optical Society of America and the IEEE. He received his PhD from UCSD, an MS from USC, and a BS (hons.) from the California Institute of Technology. Dr. Krishnamoorthy has contributed over 275 technical publications, delivered over 90 conference invited talks, and holds 130+ US patents.

BlueDBM: a multi-access, distributed flash store for big data analytics

Arvind
MIT

Monday 30 November

Room 2020 / 2030
Fred Kaiser Building
2332 Main Mall, UBC

Refreshments at 3:30
Presentation at 4pm

Complex analytics of the vast amount of data collected via social media, cell phones, ubiquitous smart sensors, and satellites is likely to be the biggest economic driver for the IT industry over the next decade. For many "Big Data" applications, the limiting factor in performance is often the transportation of large amount of data from hard disks to where it can be processed, i.e. DRAM. We will present BlueDBM, an architecture for a scalable distributed flash store which is designed to overcome this limitation in two ways. First, the architecture provides a high-performance, high-capacity, scalable random-access storage. It achieves high-throughput by sharing large numbers of flash chips across a low-latency, chip-to-chip backplane network managed by the flash controllers. Second, it permits some computation near the data via a FPGA-based programmable flash controller. We will present the preliminary results on accelerating complex queries using BlueDBM consisting of 20 nodes and up to 20TB of flash.

Speaker: Arvind is the Johnson Professor of Computer Science and Engineering at MIT. ArvindR%s group, in collaboration with Motorola, built the Monsoon dataflow machines and its associated software in the late eighties. In 2000, Arvind started Sandburst which was sold to Broadcom in 2006. In 2003, Arvind co-founded Bluespec Inc., an EDA company to produce a set of tools for high-level synthesis. In 2001, Dr. R. S. Nikhil and Arvind published the book "Implicit parallel programming in pH". Arvind's current research focus is on enabling rapid development of embedded systems.

Arvind is a Fellow of IEEE and ACM, and a member of the National Academy of Engineering and the American Academy of Arts and Sciences.

Consultant Network

3 Circles of Growth for Consultants: How to land more clients and increase your fees
by Michael Zipursky

About the speaker:

Michael Zipursky is the CEO of Consulting Success. He is an expert in helping consultants create marketing systems that consistently attract their ideal clients and increase their fees. Michael's work has been featured in MarketingProfs, Financial Times, Huffington Post, HR Executive, Institute of Management Consultants, Consultant News, Maclean's and many other publications. He is the author of Consulting Success System, the Masters of Consulting and 5 other industry resources. Over 6000 consultants around the world have taken Michael's training and each week over 20,000 people read his consulting newsletter.

Date: Nov 18, 6pm
Location: Downtown Vancouver, exact location TBD

Professional Services Management
by Kayne MacGladrey

About the speaker:

Kayne's career as an information security consultant has spanned more than 20 years. He has travelled extensively, to many exotic locations, meeting extraordinary people along the way and learning much about himself. Kayne considers himself extremely lucky that his chosen career has given him these opportunities.

Today, he uses what he's learned over the past two decades to support a team of talented professionals who have chosen a similar path. He works with each consultant to understand his or her career and life goals, and then to help create an environment in which they can achieve the highest level of success and meaning possible. Kayne's greatest joy is watching people grow intellectually and emotionally, overcoming challenges they never realized they could.

Date: Nov 10, 7pm
Location: BCIT Downtown campus

Information
Consultant Network Acting Chair
Scott Tully
s.t.tully@ieee.org