IEEE VANCOUVER CONTACT

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Register Now for the July 2013 Engineering Communication Workshops

Conference Workshops: July 15, 2013 at UBC

Registration is now open for the IEEE Professional Communication Society's Engineering Communication Workshops which are being offered as part of the society's annual conference at the University of British Columbia (UBC) in Vancouver, B.C. on July 15.

First is a 3-hour workshop, hosted by Dr. Hazel Sales, that is geared toward helping practicing engineers adopt new strategies and approaches to writing effectively in the workplace. Attendees will receive handouts to use during the workshop, as well as a list of helpful web sites, books, and other resources they can use for later reference.

Second, engineers might also be interested in attending a shorter workshop facilitated by Dr. Traci Nathans-Kelly and Christine Nicometo, M.S., on giving engineering presentations. If you are tired of giving and watching presentations that are nothing more than a box of bullets, this session will help you learn how to craft talks that are better when given and more useful once archived. Engineers will learn ways to make their slides more viable not only as live presentation tools, but also as archival/legacy pieces in their organizations. In keeping with the conference theme of global communication, part of the workshop will focus on how to work with more than one language when slides are involved and how slide decks can address those particular needs for technical topics. The first half of the workshop will deal with the general principles for slide design and the second half will be geared specifically towards working with dual language needs.

We encourage you to take advantage of the "early bird" discount rate and register before June 15, after this date the prices increase. To register, go to
https://www.ce.ucf.edu/WConnect/CourseStatus.awp?~~13FCNT0100

The "early bird" fees for attending these workshops are as follows:
• $150 for the Engineering Writing Workshop only
• $210 for both the Engineering Writing Workshop and the Engineering Presentations Workshop (one-day fee).

Workshop attendees are also invited to:
• The plenary session at 9:00 a.m. featuring Dr. Bernard Amadei, founder and CEO of Engineers without Borders USA.
• A complimentary networking lunch around noon on the UBC campus.

For more information about the conference, visit http://pcs.ieee.org/ipcc2013/ and for additional questions, contact Sandy Bartell, the Conference Chair, at sandy.bartell@boeing.com.

Beyond Borders: Communicating Globally
IPCC 2013 | VANCOUVER, BC

Krishnendu Chakrabarty
Duke University

Distinguished Lecturer

Friday 12 April
5:30 - 7:30 pm
Rm 2020 Kaiser Building
2332 Main Mall,UBC

Both events:
Light refreshments
Open to public
Please register so we may estimate room size and refreshments

Cosponsors: IEEE Circuits and Systems joint Chapter of Vancouver/Victoria
IEEE Vancouver Solid State Circuits and Technologies

Digital microfluidic biochips: towards functional diversity, more than moore, and cyberphysical integration

Advances in droplet-based "digital" microfluidics have led to the emergence of biochip devices for automating laboratory procedures in biochemistry and molecular biology. These devices enable the precise control of nanoliter-volume droplets of biochemical samples and reagents. Therefore, integrated circuit (IC) technology can be used to transport and transport "chemical payload" in the form of micro/nanofluidic droplets. As a result, non-traditional biomedical applications and markets (e.g., high-throughout DNA sequencing, portable and point-of-care clinical diagnostics, protein crystallization for drug discovery), and fundamentally new uses are opening up for ICs and systems. However, continued growth depends on advances in chip integration and design-automation tools. Design-automation tools are needed to ensure that biochips are as versatile as the macro-labs that they are intended to replace, and researchers can thereby envision an automated design flow for biochips, in the same way as design automation revolutionized IC design in the 80s and 90s. Biochip users (e.g., chemists, nurses, doctors and clinicians) and the biotech/pharmaceutical industry will adapt more easily to new technology if appropriate design tools and in-system automation methods are made available.

This lecture will first provide an overview of market drivers such as immunoassays, DNA sequencing, clinical chemistry, etc., and electrowetting-based digital microfludic biochips. The audience will next learn about CAD, design-for-testability, and reconfiguration aspects of digital microfluidic biochips. Synthesis tools will be described to map assay protocols from the lab bench to a droplet-based microfluidic platform and generate an optimized schedule of bioassay operations, the binding of assay operations to functional units, and the layout and droplet-flow paths for the biochip. The role of the digital microfluidic platform as a "programmable and reconfigurable processor" for biochemical applications will be highlighted. Finally, the speaker will describe dynamic adaptation of bioassays through cyberphysical system integration sensor-driven on-chip error recovery.

Speaker: Krishnendu Chakrabarty is Professor of Electrical and Computer Engineering at Duke University. His current research projects include: testing and design-for-testability of integrated circuits; digital microfluidics, biochips, and cyberphysical systems; optimization of digital print and enterprise systems. He has authored 12 books on these topics (with two more books in press), published over 430 papers in journals and refereed conference proceedings, and given over 190 invited, keynote, and plenary talks. He has also presented 30 tutorials at major international conferences. Prof. Chakrabarty is a Fellow of IEEE, a Golden Core Member of the IEEE Computer Society, and a Distinguished Engineer of ACM. He holds two US patents and he has several pending patents. He was a 2009 Invitational Fellow of the Japan Society for the Promotion of Science (JSPS). He is a recipient of the 2008 Duke University Graduate School Dean.s Award for excellence in mentoring, and the 2010 Capers and Marion McDonald Award for Excellence in Mentoring and Advising, Pratt School of Engineering, Duke University. He served as a Distinguished Visitor of the IEEE Computer Society during 2005-2007 and 2010-2012, and as a Distinguished Lecturer of the IEEE Circuits and Systems Society during 2006-2007. Currently he serves as an ACM Distinguished Speaker and a Distinguished Lecturer of the IEEE Circuits and Systems Society (2012-2013).

Krishnendu Chakrabarty
Duke University

Distinguished Lecturer

Monday 15 April
2:00 - 4:00 pm
Room EOW 430
University of Victoria

Testing and design-for-testability solutions for 3D integrated circuits

Despite the numerous benefits offered by 3D integration, testing remains a major obstacle that hinders its widespread adoption. Test techniques and design-for-testability (DfT) solutions for 3D ICs have remained largely unexplored in the research community, even though experts in industry have identified a number of hard problems related to the lack of probe access for wafers, test access to modules in stacked wafers/dies, thermal concerns, and new defects arising from unique processing steps. In this talk, the speaker will present a number of testing and DfT challenges, and describe some of the solutions being advocated for these challenges. The presentation will focus on the following hot topics: - TSV defects and on-die defects induced by TSV processing; - Test generation for TSV-induced stress; - Pre-bond testing of TSVs and die logic, recent advances in probing, non-invasive test using DfT; - Post-bond testing and DfT innovations related to the optimization of die wrappers, test scheduling, and access to dies and inter-die interconnects; - Fault diagnosis and TSV repair.

Information
Circuits and Systems chair Ljiljana Trajkovic
ljilja@cs.sfu.ca

IEEE CIRCUITS AND SYSTEMS SOCIETY
CAS

Eric Wohlstadter
UBC

Wednesday 17 April
3:30pm

KAIS 2020
2332 Main Mall, UBC

Partitioning software services for hybrid cloud deployment

"Hybrid cloud" deployment can be an attractive option for companies wanting to deploy software services on scalable public cloud infrastructure, while still assuming local control over sensitive data resources. A hybrid deployment, despite providing better control, is dif?cult to design since code and data must be partitioned and distributed ef?ciently between a public cloud and private on-premise infrastructure.

In this talk, I will describe research into semi-automated partitioning of software services for hybrid clouds. The talk will address technical challenges relevant to: (i) modeling of software execution to abstract properties salient to the hybrid partitioning problem, (ii) combining code execution models and data storage models in order to support simultaneous optimization of execution data-flow and persistent data placement, (iii) formulation of the models to use integer programming for optimization. We implemented a new software pro?ling and partitioning framework (called Manticore) to evaluate our proposed solutions. Experiments on two open-source Web application show that Manticore can help developers to determine more optimal cost/performance tradeoffs for hybrid deployment than existing approaches.

This project is joint research with Nima Kaviani of the Computer Science Department and Rodger Lea of the Media and Graphics Interdisciplinary Centre (MAGIC).

Jian Pei
Simon Fraser University

Thursday 25 April
3:30 pm

KAIS 2020
2332 Main Mall, UBC

Towards connecting big data with many people: a big data analytics approach

Big data, which refers to data sets too big and too complex to be handled using the existing database management tools, is emerging in many important applications and presenting grand challenges for database and data analytics research. In this talk, I review some exciting research on big data analytics in my group under the central theme of connecting big data with many people by enabling management, integration, exploration and application of big data. Particularly, I will showcase our recent research accomplishments, such as user preference management, context-aware on-demand data mining, graph and social network summarization and exploration, as well as the broader impact generated by connecting our technical innovations with interdisciplinary research initiatives, and industry applications and production.

Speaker: Jian Pei is currently Professor of Computing Science at the School of Computing Science at Simon Fraser University, Canada. He joined the School of Computing Science at Simon Fraser University as a faculty member in 2004. In 2002 - 2004, he was an Assistant Professor of Computer Science and Engineering at the State University of New York (SUNY) at Buffalo, USA.

He received a Ph.D. degree in Computing Science from Simon Fraser University, Canada, in 2002, under Dr. Jiawei Han's supervision. He also received a B. Eng. degree and a M. Eng. degree, both in Computer Science, from Shanghai Jiao Tong University, China, in 1991 and 1993, respectively. He was a Ph.D. candidate inPeking University, China, in 1997-1999.

His research interests can be summarized as developing effective and efficient data analysis techniques for novel data intensive applications. Particularly, he is currently interested in various techniques of data mining, Web search, information retrieval, data warehousing, online analytical processing, and database systems, as well as their applications in social networks, health-informatics, business and bioinformatics. His research has been supported in part by the Natural Sciences and Engineering Research Council of Canada (NSERC), the National Science Foundation (NSF) of the United States, Microsoft, Hewlett-Packard Company (HP), IBM Corporation, SAP Business Objects, and the Canadian Imperial Bank of Commerce (CIBC).

Currently, his priority in research is on developing industry relations and collaboration, and transferring technologies developed in his group to industry applications. He has been spending a lot of time and effort on creating collaborative industry projects and developing proof-of-concept prototypes.

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

IEEE computer society

IEEE Computational Intelligence Society

▶ DATE
APRIL 4, 2013 (THU)

▶ TIME
4:30PM TO 6:00PM

▶ VENUE
CENTRE ROOM - BC HYDRO'S EDMONDS OFFICE,
6911 SOUTHPOINT DRIVE,
BURNABY, BC

"Meet and Learn"

Technical Society Reporting Out Session - DistribuTECH

JOINT BC HYDRO/IEEE INDUSTRY APPLICATIONS CHAPTER EVENT

The IEEE Vancouver Section Industry Applications Society Chapter and BC Hydro Office are pleased to co-sponsor this technical society reporting out event. The purpose of this event is to share and transfer knowledge gained from attending technical society meetings, conferences, etc. with others in the profession. The presentations to be made at this event are from BC Hydro staff members from the Distribution and P&C Planning areas who attended the DistribuTECH Conference and Exhibition. The presentations will discuss the current state of the art in various areas, the key lessons learned, and the value to the power industry and utilities. Each presentation will be approximately 30 minutes long. Please come and meet with colleagues on topics relevant to the power industry. Food and refreshments will be provided. Registration is encouraged and the event is free-of-charge.

4:30 - 5:00 pm: "Summary of Various DistribuTECH Technical Sessions Attended" by Garry Walls

Garry Walls of BC Hydro will report out on his attendance of the 2013 DistribuTECH Conference and Exhibition. At this conference Garry attended various sessions associated with Distribution Systems and he will cover the highlights of these sessions.

Garry is presently a Senior Engineer responsible for planning the distribution system in Vancouver. He worked for eight years at Honeywell on digital control systems and for twelve years at Vancouver General Hospital where he was responsible for the electrical distribution and emergency generation systems. He has worked at BC Hydro in the Planning and Engineering Departments since August of 2005. He was heavily involved in the design of the distribution system solutions for providing reliable power to the 2010 Olympic Games held in Vancouver and Whistler. He also worked on the design and implementation of the first shore power system for cruise ship connections in Canada allowing cruise ships to use shore power rather than on board diesel generation while they are at dock. He is registered as a Professional Engineer within the province of BC.

5:00 - 5:30 pm: "New Technologies and Products, Plus Technical Seminars" by Grant Ringham/Colin MacIntosh

Grant Ringham and Coling MacIntosh of BC Hydro will be discussing the new technologies and products they viewed, as well as, some of the seminars we attended during their attendance at the 2013 DistribuTECH Conference and Exhibition.

Grant and Colin both work in BC Hydro's Distribution Standards Division in the Systems Automation and Protection Department. Grant is Intermediate Engineer who is registered as a Professional Engineer within the province of BC.

Colin graduated from the University of Victoria with a Bachelor's in Electrical Engineering. He started working for BC Hydro in 2009, and began a full-time position in Distribution Standards in 2011. In Distribution Standards, he supports distribution sensors, faulted circuit indicators, and Distribution Automation controls, including reclosers and automated switchgear. He is registered as an EIT in the province of BC.

5:30 - 6:00 pm: "Paper Presentation, Plus an Overview of Transmission Sessions and Exhibition Highlights" by Kelly Stich

Kelly Stich of BC Hydro was the lead presenter of a technical session at DistribuTECH 2013. He will provide a summary of the presentation that was given at DistribuTECH on the new high speed protection system for the new open looped distribution system for the downtown core of Vancouver. He will also give an overview of the conference from a Transmission perspective, including the technical sessions and vendor discussions in the Exhibition hall.

Kelly is a Senior Engineer in the Protection and Control Planning department of BC Hydro T&D Engineering. He has seven years of experience in transmission and distribution engineering, having worked for both sides of the organization. He is a member of IEEE - Power and Energy Society (PES). He is registered as a Professional Engineer within the province of BC.

Please contact Bob Stewart at bob.stewart@bchydro.com or Jahangir Khan at jahangir.khan@powertechlabs.com if further information is required.

Patrick M Hogan
BC Hydro

Noon - 1:00 pm
Friday 26 April
BC Hydro
Edmonds A01 - South point auditorium

Meeting the engineering challenges of building and renewing the electric transmission and distribution grid in British Columbia

The modern electric utility is facing a step-change with the advent of smart grid technologies. To reliably meet the electricity needs of our customers, we are adapting our engineering tools and delivery models. In BC, we face the challenges of building electricity infrastructure to parts of the province that are not yet connected to the grid, while at the same time renewing the existing grid that was substantially built from the 1960s to the 1980s.

This presentation will discuss how BC Hydro's engineering and design team is meeting these challenges and how we are working to reliably meet the electricity needs of our customers and safely keep their light on.

Speaker: Bio Patrick M Hogan is the VP of T&D Engineering and Design for BC Hydro. BC Hydro provides high-value, reliable power to fuel economic growth in British Columbia, is the third largest electric utility in Canada, and serves 1.8 million customers in an area containing over 94% of British Columbia's population.

Patrick's previous roles include the Senior Vice President of Distribution Asset Management and Engineering for National Grid and VP of T&D for KeySpan. He has a Bachelor's and Master's Degree in Electrical Engineering from Manhattan College and a Master's Degree in Business Administration from Hofstra Universit

Information
Power and Energy chair
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IEEE PES Power & Energy Society®

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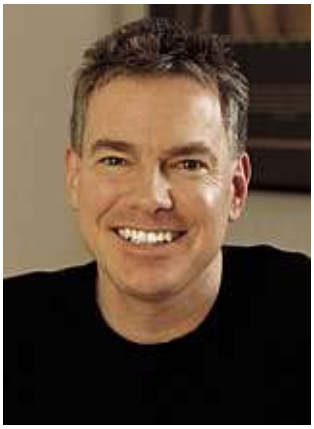

Mark Dance
Graphic Arts

Wednesday 17 April
7PM
Location:TBD

Creating value for design engineers and consultants

Mark will give a lively presentation on engineers as entrepreneurs; creating, capturing, and protecting valuable products and services; and selling customers on solutions to their problems.

Speaker: Mark Dance worked at Creo, one of the most successful BC grown tech companies, from 1994 to 2005, when it sold to Kodak for over $1.2 billion. In 1998, Mark was appointed COO and in 2000 took on the additional portfolio of President, Graphic Arts. In 2002 he assumed the role of both COO and CFO. Mark has vast experience working with many local early-stage tech companies as both an investor and board member. He has helped numerous tech companies in the areas of business strategy, distribution and partnerships, financing, pricing and product strategy, operations and more. Mark is currently on the Boards of Allnorth Engineering and CopperLeaf Technologies, and the Advisory Boards of Evoshift Communications, Awesense Wireless, Urbanstream, Crosswind Power Technologies and Allocadia Software, all of whom are BC-based companies in various stages of growth.

Information
Consultants Network chair
Jim McKay
jbmckay@telus.net

AEROTEK

Tour of Heart Force Medical

http://www.heartforcemedical.com/

Friday 19 April
4:00 - 5:00pm

Suit e212
2112 West Broadway
Vancouver, BC

The tour will be given by President and CEO, Dr. Geoff Houlton with assistance from Dr. Kouhyar Tavakolian. About Heart Force Medical: "At Heart Force Medical we provide a solution for a significant cardiac disorder, heart failure and we develop innovative products for the non-invasive assessment of cardiac function".
The event is free of charge but requires registration. Registration closes at April 12

Space is limited to 15 people and priority will be given to IEEE EMB members. Due to very limited space, please only register if you are sure that you will attend this event.

To register please email: sarak@ieee.org
and indicate if you are a member of IEEE EMB.

If your registration is successful, you will receive confirmation on April 13

Information
Engineering in Medicine & Biology chair
Rob Rohling
rohlink@ece.ubc.ca

IEEE Engineering in Medicine and Biology

James Noble
Victoria University of Wellington

Grace: A new object-oriented educational programming language

Tuesday 07 May
4:00 pm

ICICS/CS X836
2366 Main Mall
UBC

We are engaged in the design of a new object-oriented educational programming language called Grace. Our motivation is frustration with available languages, most of which are approaching 20 years old. In this talk, I'll outline the principal features of Grace: purely object-oriented, structurally typed, gradually-typed, first-class blocks (lambda expressions) which are used to build all control structures, pattern matching, a basic module system.

I'll talk about Grace's support for "dialects": sublanguages that can provide a subset of features for teaching novices, or can support flexible domain specific languages for more advanced students. I'll also discuss open issues, and listen to your reactions while all the choices are still on the table. In particular, I'll give some examples from the design process so far, showing how conceptually orthogonal design decisions all too easily end up as tightly coupled gordian knots.

For more information, see graceland.org. (This is work performed with Andrew Black, Kim Bruce, Michael Homer.)

Speaker: James Noble is Professor of Computer Science and Software Engineering at Victoria University New Zealand. He has published many papers on object-orientation, design patterns, aspects, software visualisation and software engineering in international academic conferences and journals.

He is the author of Small Memory Systems: Patterns for Systems with Limited Memory (with Charles Weir), editor of Prototype-Based Programming and Pattern Languages of Program Design 5 (with various co-editors), the Foundation Editor-In-Chief, Springer-Verlag Transactions on Pattern Languages of Programming, and on the Editorial Boards of IEEE Software, Systems Signs and Actions, and the International Journal of Agile and Extreme Software Development.

He has been on the Programme Committees of a number of conferences, including OOPSLA (including Chair of Onward! and the Doctoral Symposium), ECOOP, AOSD, TOOLS, ACCPM, AUIC, ACSC, CATS, EuroPLOP, KoalaPLoP (including as Chair), and VL/HCC.

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

IEEE computer society

IEEE Computational Intelligence Society

ICA and IVA: theory, connections, and applications to medical image analysis and fusion

Tülay Adali
University of Maryland

Distinguished Lecturer

Monday 27 May
2:00 pm

Room KAIS 2020
Kaiser Building,
2332 Main Mall,UBC

First of two SPS Distinguished Lecturers
see next page

Information
Signal Processing chair
Ivan Bajic
ivan_bajic@ieee.org

Data-driven methods are based on a simple generative model and hence can minimize the assumptions on the nature of data. They have emerged as promising alternatives to the traditional model-based approaches in many applications where the underlying dynamics are hard to characterize. Independent component analysis (ICA), in particular, has been a popular data-driven approach and an active area of research. Starting from a simple linear mixing model and imposing the constraint of statistical independence on the underlying components, ICA can recover the linearly mixed components subject to only a scaling and permutation ambiguity. It has been successfully applied to numerous data analysis problems in areas as diverse as biomedicine, communications, finance, geophysics, and remote sensing.

This talk reviews the fundamentals and properties of ICA, and provides a unified view of two main approaches for achieving ICA, those that make use of non-Gaussianity and sample dependence. Then, the generalization of ICA for analysis of multiple datasets, independent vector analysis (IVA), is introduced and the connections between ICA and IVA are highlighted, in particular in the way both approaches make use of signal diversity. Several key problems for achieving a successful decomposition, such as matrix optimization and density matching are discussed as well, along with examples of their application to medical image analysis.

Speaker: Tülay Adali received the Ph.D. degree in electrical engineering from North Carolina State University, Raleigh, in 1992 and joined the faculty at the University of Maryland Baltimore County (UMBC), Baltimore, the same year where she currently is a Professor in the Department of Computer Science and Electrical Engineering. She has held visiting positions at École Supérieure de Physique et de Chimie Industrielles, Paris, France, Technical University of Denmark, Lyngby, Denmark, Katholieke Universiteit, Leuven, Belgium, and University of Campinas, Brazil. Prof. Adali assisted in the organization of a number of international conferences and workshops including the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), the IEEE International Workshop on Neural Networks for Signal Processing (NNSP), and the IEEE International Workshop on Machine Learning for Signal Processing (MLSP).

She was the General Co-Chair, NNSP (2001-2003); Technical Chair, MLSP (2004-2008); Program Co-Chair, MLSP (2008 and 2009), 2009 International Conference on Independent Component Analysis and Source Separation; Publicity Chair, ICASSP (2000 and 2005); and Publications Co-Chair, ICASSP 2008. Prof. Adali chaired the IEEE Signal Processing Society (SPS) MLSP Technical Committee (2003-2005, 2011-2013), served on the SPS Conference Board (1998-2006), and the Bio Imaging and Signal Processing Technical Committee (2004-2007). She was an Associate Editor for IEEE Transactions on Signal Processing (2003-2006), IEEE Transactions on Biomedical Engineering (2007-2013), IEEE Journal of Selected Areas in Signal Processing (2010-2013), and Elsevier Signal Processing Journal (2007-2010). She is currently serving on the Editorial Boards of the IEEE Proceedings and Journal of Signal Processing Systems for Signal, Image, and Video Technology, and is a member of the IEEE SPS MLSP and Signal Processing Theory and Methods Technical Committees.

Prof. Adali is a Fellow of the IEEE and the AIMBE, recipient of a 2010 IEEE Signal Processing Society Best Paper Award, 2013 University System of Maryland Regents' Award for Research, and an NSF CAREER Award. Her research interests are in the areas of statistical signal processing, machine learning for signal processing, and biomedical data analysis. Information.

IEEE Signal Processing Society

Defying Nyquist in analog to digital conversion

Yonina C. Eldar
Technion - Israel Institute of Technology

Distinguished Lecturer

Monday 27 May
3:00 pm

Room KAIS 2020
Kaiser Building,
2332 Main Mall,UBC

Second of two SPS Distinguished Lecturers
see previous page

The famous Shannon-Nyquist theorem has become a landmark in the development of digital signal processing. However, in many modern applications, the signal bandwidths have increased tremendously, while the acquisition capabilities have not scaled sufficiently fast. Consequently, conversion to digital has become a serious bottleneck.

In this talk a new framework for sampling wideband analog signals at rates far below that dictated by the Nyquist rate will be presented. The focus will be both on the theoretical developments, as well as on actual hardware implementations and considerations that allow realization of sub-Nyquist samplers in practice. Applications to a variety of different problems in communications, bioimaging, and signal processing will also be described.

Speaker: Yonina C. Eldar received the B.Sc. degree in Physics in 1995 and the B.Sc. degree in Electrical Engineering in 1996 both from Tel-Aviv University (TAU), Tel-Aviv, Israel, and the Ph.D. degree in Electrical Engineering and Computer Science in 2002 from the Massachusetts Institute of Technology (MIT), Cambridge. From January 2002 to July 2002 she was a Postdoctoral Fellow at the Digital Signal Processing Group at MIT. She is currently a Professor in the Department of Electrical Engineering at the Technion - Israel Institute of Technology, Haifa, Israel. She is also a Research Affiliate with the Research Laboratory of Electronics at MIT and a Visiting Professor at Stanford University, Stanford, CA. Dr. Eldar was in the program for outstanding students at TAU from 1992 to 1996. In 1998, she held the Rosenblith Fellowship for study in electrical engineering at MIT, and in 2000, she held an IBM Research Fellowship. From 2002 to 2005, she was a Horev Fellow of the Leaders in Science and Technology program at the Technion and an Alon Fellow. In 2004, she was awarded the Wolf Foundation Krill Prize for Excellence in Scientific Research, in 2005 the Andre and Bella Meyer Lectureship, in 2007 the Henry Taub Prize for Excellence in Research, in 2008 the Hershel Rich Innovation Award, the Award for Women with Distinguished Contributions, the Muriel & David Jacknow Award for Excellence in Teaching, and the Technion Outstanding Lecture Award, in 2009 the Technion's Award for Excellence in Teaching, in 2010 the Michael Bruno Memorial Award from the Rothschild Foundation, and in 2011 the Weizmann Prize for Exact Sciences. In 2012 she was elected to the Young Israel Academy of Science and to the Israel Committee for Higher Education, and elected an IEEE Fellow.

She received several best paper awards together with her research students and colleagues. She is a Signal Processing Society Distinguished Lecturer, a member of the IEEE Bio Imaging Signal Processing technical committee, an Editor-in-Chief of Foundations and Trends in Signal Processing, and an Associate Editor for the SIAM Journal on Imaging Sciences. In the past, she was a member of the IEEE Signal Processing Theory and Methods technical committee, and served as an associate editor for the IEEE Transactions on Signal Processing, the EURASIP Journal of Signal Processing, and the SIAM Journal on Matrix Analysis and Applications.

Information
Signal Processing chair
Ivan Bajic
ivan_bajic@ieee.org

IEEE Signal Processing Society

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Applied Science

The UBC Integrated Engineering Program Seeks Industry Challengers

The **IGEN Challenge** is a prize competition intended to bring out the best in creative problem solving from UBC's Integrated Engineering (IGEN) students. We are looking for industry partners ("Challengers") to provide unsolved technical problems to our teams of IGEN students ("Collaborators"), who will work to solve them over the eight-month academic year. Each team will receive course credit for their attempt, and those who succeed in solving their challenge will win a monetary prize.

Challengers will work with the IGEN Challenge Advisory Committee in advance of the Challenge to set the scope of their project, and to determine both the prize structure and an initial estimate of project-related costs incurred by Collaborators. Each Challenger will provide a $5,000 cash prize and will cover the project costs of a minimum of $1,000 per Collaborator team involved in their challenge.

Challengers will benefit significantly from the manpower hours derived from the IGEN students, and they will obtain valuable solutions to their technical problems at a fraction of the cost of dealing with them in-house with paid employees. Challengers will retain exclusive rights to any intellectual property obtained during the Challenge. They will also benefit from an enhanced exposure and profile on UBC's campus and beyond, through a presence in Challenge-related documents and websites, as well as at all Challenge-related receptions and publicity events. The IGEN Challenge represents an ideal opportunity for industry to increase its involvement in the education and development of the next generation of innovative engineers.

For more information about the IGEN Challenge and how to get involved, please contact:

Oliver Zihlmann, Development Officer, UBC Applied Science, oliver.zihlmann@ubc.ca, 604.822.9976

Or to go our website, www.igen.ubc.ca

Calling all IEEE Members in Western Canada

Register Today!
http://www.cvent.com/d/1cqvhj/1Q

Date:
Friday, 10 May 2013 and
Saturday, 11 May 2013

Location:
Vancouver Marriott Pinnacle Downtown Hotel
Vancouver, BC, Canada

Organized Jointly By:
IEEE Educational Activities Board and IEEE Region 7 TISP Committee

Registration Deadline
Thursday, 25 April 2013

Questions
Email: l.bowlby@ieee.org

The event is free of charge for all IEEE members.

IEEE will reimburse all reasonable travel-related expenses following the workshop.

Travel-related expenses include up to a one night hotel stay and transportation to and from the workshop location.

To learn more about IEEE TISP, visit:
www.ieee.org/go/tisp

- Do you want to help elementary school and high school teachers in your local area motivate their students to learn engineering and technology in the classroom?
- Are you interested in improving the exposure of elementary school and high school students in your local area to engineering and technology through a fun, hands-on learning program?
- Are you passionate about sharing your knowledge to help influence future engineers?

Then, you should register and attend the:

IEEE Teacher In-Service Program (TISP) Training Workshop in Vancouver

In this free, 1½ day workshop, IEEE Members will:

- ✓ Learn how to provide training to local elementary school and high school teachers on the use of engineering & engineering design lesson plans and hands-on activities in the classroom
- ✓ Learn how the lesson plans may be aligned to education standards
- ✓ Learn the challenges and opportunities that exist in local elementary school and high schools
- ✓ Learn how to develop a partnership with local elementary school and high school systems
- ✓ Have the opportunity to network with other engineers and local educators

Workshop Agenda

Friday, 10 May
4:30pm – 7:00pm—Workshop Session
7:00pm – 9:00pm—Networking and Dinner

Saturday, 11 May
8:00am – 9:00am—Continental Breakfast
9:00am – 4:00pm—Workshop Session

IEEE

Register Today! http://www.cvent.com/d/1cqvhj/1Q

SHAPING THE FUTURE ENERGY INDUSTRY

Registration Is Now Open for the 2013 IEEE PES General Meeting

The 2013 IEEE Power & Energy Society General Meeting is being held at the Vancouver Convention Centre, the Vancouver Marriott Pinnacle Downtown Hotel and the Renaissance Vancouver Harbourside Hotel located in Vancouver, British Columbia, Canada.

The PES General Meeting attracts professionals from every segment of the electric energy industry. It features a comprehensive technical program, including Super Sessions, panel sessions, technical committee meetings and standards activities. Not to be missed are the technical tours, a student program, companion activities and more. This year's theme is *Shaping the Future Energy Industry.*

Super Sessions for the 2013 program include:

- Electricity Supply to Rural and Remote Communities
- Transmission System Efficiency and Reliability Improvements
- Impacts of Geomagnetic Disturbance (GMD) Events on Electric Power Systems
- Innovation and Advancements in Protection, Automation and Control for Evolving Power Systems
- Generation Mix Strategies: Solving Energy Production Challenges of the 21st Century

This year, the PES General Meeting takes place in the Vancouver, BC. Majestic mountains, sparkling ocean, rainforests and beautiful foliage all four seasons make Vancouver one of the most beautiful cities in the world – and a wonderful place to visit in July!

For more information and program updates visit *pes-gm.org/2013*

IEEE PES Power & Energy Society®

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Tracking problems in the human-in-the-loop robotics

Shahram Payandeh
Simon Fraser University

Friday 03 May
11am - noon

Room 2020
Kaiser Bldg
UBC

Human-in-the-Loop robotics is an area where robotic systems try to accommodate the feedback information received from the user to continuously re-define the tracking objective of its controller. Examples of such applications can be haptic-aided surgical application environments or visual tracking based on the notion of eye-in-the palm set-up. This talk presents an overview of solutions being investigated in the Experimental Robotics Laboratory of Simon Fraser University.

Speaker: Dr. Payandeh is a Professor at the School of Engineering Science at Simon Fraser University in British Columbia, Canada since 1991. He has received his PhD. Degree from the University of Toronto. His main area of research is in robotics and in particular in interaction modeling and coordination of networked, cooperative dynamical agents. He has more than 250 technical publications in journals and conferences. He holds 6 US patents in the field of haptic user interfaces, robotics devices and haptic rendering. He also co-authored the one of the first books in the area of medical robotics and holds one of the first patents in this area. He has publication in visual tracking of surgical tools in using laparoscopic images and developed a surgical training environment for a class of minimally invasive surgery. He is also developing a novel multi-modal surgeon computer interface for accessing information using only the surgical tools as their input devices. More recently, he has been developed a cooperative multi-camera tracking systems for even monitoring and surveillances with application to multi-dynamical agents.

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ED 09APR13

Mircea R. Stan
University of Virginia

Distinguished Lecturer

Monday 06 May
11:00 - 12:00 noon
Room EOW 430
University of Victoria
Victoria, BC

Computing with coupled spin torque oscillator (STO) arrays

As conventional CMOS technologies are running into multiple “red brick walls” there is a need for new material discoveries and new nanodevice and circuit paradigms that allow new applications that would be impractical or even impossible using traditional methods. In this talk I demonstrate how coupled STO arrays can be a very low power computing fabric that can be integrated with CMOS, have tunable frequency, high quality factor, can have their coupling controlled using multiferroics to be used in many applications, from RF filters and mixers, to onchip clock generation, to biologicallyinspired nonBoolean computation schemes.

Speaker: Mircea R. Stan received the Ph.D. and M.S. degrees in Electrical and Computer Engineering from the University of Massachusetts at Amherst and the Diploma in Electronics and Communications from “Politehnica” University in Bucharest, Romania. Since 1996 he has been with the Department of Electrical and Computer Engineering at the University of Virginia, where he is now a professor. Prof. Stan is teaching and doing research in the areas of highperformance lowpower VLSI, temperature aware circuits and architecture, embedded systems, and nanoelectronics. He has more than 8 years of industrial experience and 16 years of academic experience, has been a visiting faculty at UC Berkeley in 2004-2005, at IBM in 2000, and at Intel in 2002 and 1999. He has received the NSF CAREER award in 1997 and was a coauthor on best paper awards at ISQED 2008, GLSVLSI 2006, ISCA 2003 and SHAMAN 2002. He was the chair of the VLSI Systems and Applications Technical Committee (VSATC) of IEEE CAS in 2005-2007, general chair for ISLPED 2006 and GLSVLSI 2004, TPC chair for NanoNets 2007 and ISLPED 2005 and a Distinguished Lecturer for IEEE SSCS in 2007-2008, and for IEEE CAS in 2004-2005. IEEE Circuits and Systems Society joint Chapter of the Vancouver/ Victoria Sections Solid State Circuits and Technologies Chapter of the Vancouver Sections IEEE Circuits and Systems Society Distinguished Lecturer Program

AND..

Tuesday 07 May
5:30 - 7:30 pm

Rm 2020 Kaiser Bldg
2332 Main Mall
University of British Columbia

Breaking the 3D power delivery walls using voltage stacking

The power delivery walls include: power density (power consumption density increases beyond the heat dissipation capabilities of the technology), power and ground power delivery pins (chip power consumption requires increasing numbers of pins), 3DIC power density (physical stacking in the third dimension exacerbates the twodimensional explosion), onchip power regulation efficiency (relatively poor efficiencies achievable with onchip regulators limit the effectiveness of many low power schemes). In this talk we demonstrate how voltage stacking is a comprehensive method for addressing the power delivery walls above, with special emphasis on 3DIC.

Light refreshments will be served at both events. They are open to public. We would greatly appreciate if you would please register so that we may more accurately estimate the room size and refreshments.

Information
Circuits and Systems chair Ljiljana Trajkovic
ljilja@cs.sfu.ca

ED 05APR13

Sensor fusion in dynamical systems

Thomas B. Schön
Linköping University

Wednesday 29 May

11am - noon

Rm 2020 Kaiser Bldg
UBC

Sensor fusion refers to the problem of computing state estimates using measurements from several different, often complementary, sensors. Given that the number of available sensors is skyrocketing this technology is likely to become even more important in the future. We will provide our view of the sensor fusion problem in terms of how to attack the problem. Perhaps most importantly we will also illustrate this strategy using four different industrial/research applications, very briefly introduced below.

The four applications are:

1. Real-time pose estimation and autonomous landing of the helicopter (using inertial sensors and a camera).
2. Pose estimation of a helicopter using an already existing map (a processed version of an aerial photograph of the operational area), inertial sensors and a camera.
3. Fighter aircraft navigation (using inertial sensors, radar and a terrain elevation map)
4. Indoor pose estimation of a human body (using inertial sensors and ultra-wideband).

Speaker: Thomas B. Schön is Associate Professor with the Division of Automatic Control at Linköping University (Linköping, Sweden). He received the PhD degree in Automatic Control in Feb. 2006, the MSc degree in Applied Physics and Electrical Engineering in Sep. 2001, the BSc degree in Business Administration and Economics in Jan. 2001, all from Linköping University. He has held visiting positions with the University of Cambridge (UK) and the University of Newcastle (Australia). He is a Senior member of the IEEE. He received the best teacher award at the Institute of Technology, Linköping University in 2009.

Schön's main research interest is nonlinear inference problems, especially within the context of dynamical systems, solved using probabilistic methods. He is active within the fields of machine learning, signal processing and automatic control. He pursues both basic research and applied research, where the latter is typically carried out in collaboration with industry. More information about his research can be found on his website:
users.isy.liu.se/rt/schon/researchOverview.html

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