IEEE VANCOUVER CONTACT

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UBC Electrical and Computer engineering is looking for project proposals for its new Capstone Design Project courses (see ece.ubc.ca/CapstonePartners).

Senior students in teams of 4 to 6 will work on projects proposed by industry, or other organizations. Each team is supervised by a faculty member, acting as the technical director, and assisting or pointing the student to appropriate technical expertise, and you'll act as the client. The projects can be general projects in electrical and computer engineering, or more specialized: software engineering, energy, biomedical devices, and microsystems.

UBC is requesting project proposals from industry groups that are willing to act as clients for the student teams. This involves regular interaction with the team, much like a firm doing subcontract design work. The students provide approximately 1,000 person-hours of beginner's time on each project and are required to build a working prototype by the end of the project. Each team receives some financial and material resources, and access to the UBC department workshops, but the best and most successful projects will be those in which the client invests significant additional resoucrces.

If you have some backburner projects that are reasonably open-ended in terms of design (i.e., not just implementation), and not too critical for your firm, let us know.

Write to capstones@ece.ubc.ca or contact the NSERC design chair, Philippe Kruchten, at (604) 827-5654.

Please indicate your interest in becoming an ECE capstone partner by writing to capstones@ece.ubc.ca

Projects will run from September 2013 to mid-April 2014.

See ece.ubc.ca/CapstonePartners for more details!

Wei Song
University of New Brunswick

Improving multipath TCP for cooperative community by fast ACK and congestion window adaptation

Pooling mobile nodes in vicinity as a collaborative community offers an opportunity for multi-homed mobile nodes to enable multipath transmission even when there is no multiple access coverage. Multipath Transport Control Protocol (MPTCP) has been standardized by Internet Engineering Task Force (IETF) to support simultaneous delivery of transport control protocol (TCP) packets over multiple interfaces of multi-radio mobile devices.

Although MPTCP provides an efficient solution to aggregate the available bandwidth of multiple paths via relays, the goodput of MPTCP is usually far lower than the aggregate throughput when packet collisions exist in the collaborative community when a contention-based channel access.

In this seminar, I will introduce how we use a fast ACK mechanism and a congestion window adaption algorithm for the MPTCP source, so as to mitigate the variation of end-to-end path delay, reduce out-of-order packets, and achieve a more stable goodput.

Speaker: Wei Song received her Ph.D. degree in electrical and computer engineering from the University of Waterloo, Canada, in 2007. Since 2008, she has worked as a postdoctoral research fellow at the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley. In July 2009, she joined the Faculty of Computer Science, University of New Brunswick, as an Assistant Professor. She received a Best Paper Award from IEEE WCNC 2007, a Top 10% Award from IEEE MMSP 2009 and a Best Student Paper Award from IEEE CCNC 2013.

Her current research interests include the heterogeneous interworking of wireless networks, cooperative wireless networking, mobile hotspots, cross-layer design for multimedia QoS provisioning. She has served on the Technical Program Committee for many conferences. She co-chaired the Wireless Access Track of IEEE VTC Fall 2010, the General Symposium of IWCMC 2011, and the Wireless Communications Symposium of IEEE GLOBECOM, 2011. She is also an Associate Editor of IEEE Transactions on Vehicular Technology, and an Editor of Wiley's journal of Wireless Communications and Mobile Computing

Tuesday 30 April
11 am

Rm 2020 - Kaiser Bldg,
2332 Main Mall, UBC

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

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Cognitive radio: enabling seamless connectivity in an increasingly wireless world

Alexander Wyglinski
Worcester Polytechnic Institute

Wednesday 01 May
11 am

Rm 418, Macleod Bldg
2356 Main Mall, UBC

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

Wireless communication networks enable all members of society to connect with each other. With the prevalence of cell phones, laptops with built-in WiFi, Bluetooth headset, and other similar devices in our everyday world, we are totally immersed in communication technology. Moreover, our connectivity is almost entirely ubiquitous and its reach extends to the most remote corners of the planet.

However, given the growing amount of wireless chatter and transmissions surrounding us across the airwaves, the ability for wireless technology to accommodate this amount of growth is quickly approaching a critical limit in terms of how many more devices can be supported across the same frequency within the context of the current regulatory framework used to simultaneously handle this plethora of wireless appliances.

In this talk, we will examine one potential solution to this issue called cognitive radio. In particular, several innovative solutions and initiatives involving cognitive radio designed to address this growth issue, as well as a description of several cognitive radio research activities currently underway at the Wireless Innovation Laboratory (http://www.wireless.wpi.edu/) at WPI, will be presented.

Speaker: Dr. Alexander M. Wyglinski is internationally recognized as an expert in the field of wireless communications, specializing in cognitive and software-defined radio, dynamic spectrum access, cyber-physical systems and security, and wireless system optimization and adaptation. He is an Associate Professor of Electrical and Computer Engineering at Worcester Polytechnic Institute (WPI), Worcester, MA, Director of the Wireless Innovation Laboratory (WI Lab), and the Lead Investigator of the Cyber Physical and Secure Systems (CPASS) initiative at WPI.

Dr. Wyglinski received his B.Eng. and Ph.D. degrees in 1999 and 2005 from McGill University, and his M.Sc.(Eng.) degree from Queen,s University in Kingston in 2000, all in Electrical Engineering. Throughout his academic career, Dr. Wyglinski has published over 30 journal papers, over 75 conference papers, 9 book chapters, and two textbooks. Dr. Wyglinski's research activities have been or are currently being sponsored by organizations such as the Defense Advanced Research Projects Agency (DARPA), the Naval Research Laboratory (NRL), the Office of Naval Research (ONR), the Air Force Research Laboratory (AFRL) Space Vehicles Directorate, The MathWorks, Toyota InfoTechnology Center U.S.A., and the National Science Foundation. Dr. Wyglinski is a Senior Member of the IEEE, as well as a member of Sigma Xi, Eta Kappa Nu, and the ASEE

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

IEEE Vancouver's Life Members Affinity Group
is looking for a new person to chair the life members affinity group.

By becoming active in this group you can:
• remain active in you local IEEE section • contribute to the social good in the IEEE and general communities
• advance your professional interests • enjoy the company of your peers

If you are interested in this position as chair please contact
Steven McClain stevenmcclain@ieee.orgor Alon Newton anewton@ieee.org

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IEEE Vancouver also requires an Archivist to assess, organize, preserve, and maintain control over the section's archive, currently stored at BCIT.

If you have an interest in IEEE Vancouver's 100 year history and are able to help us with this worthy activity, please contact Steven McClain stevenmcclain@ieee.orgor Alon Newton anewton@ieee.org

Startups – opportunities and challenges

Narayan Sainaney

Thursday 02 May
6 pm to 9 pm

SFU Downtown Campus
Rm 1415 Harbour Centre
515 West Hastings St

Co-sponsors:
Joint Management
Joint Computing
Joint Communications

Information
Joint Management chair
Adam Krolak
a.krolak@ieee.org

Vancouver has a vibrant and quickly growing startup ecosystem with over 400 companies. A number of venture capital firms, angel investors, and incubators are active to help local entrepreneurs develop their businesses. Consequently, Vancouver is said to be one of the best places for startups. Still, there are real challenges that new companies face in the first years and only some of them grow into profitability.

Narayan will start with a short presentation, sharing his hands-on experience on going from a great idea to finding partners, raising money from angels and VC, all the way to shipping your product to your first customer. He will talk about opportunities and challenges that most new startups will have: choosing the right idea, shaping the organisation at various stages of development, choosing the best financing options, and more.

The presentation will be followed with an open forum where you can ask your questions, start a discussion, and share your experiences. The event is free and open to public. Please confirm your attendance.

Speaker: Narayan Sainaney is a technology entrepreneur and business strategist with over 15 years of expertise. Narayan's has worked on high profile products for Microsoft (Office 97, PhotoEditor), Adobe (Acrobat 4.0, Illustrator 7.0), Aldus (PageMaker 6.5), Apple as well as the Government of BC. As an entrepreneur Narayan co-founded Mindquake Software, Digital Snaps, Vitrium System, Brainify.com and moj.io. He has experience in raising capital, building management teams, developing products, establishing market presence and executing sales.

As an intellectual property expert, Narayan has successfully built trademark, copyright and patent portfolios. Narayan lends his experience and expertise to start-ups, acting as Chief Technology Officer and as an advisor and mentor to fellow entrepreneurs and management teams. He focuses on new market and product development to that critical profitability stage. Narayan holds a Bachelor of Science degree, with a specialization in Computer Science, from the University of British Columbia and an MBA from the Sauder School of Business at UBC. When not working, Narayan is an avid sailor and amateur astronomer.

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.

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

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

James Noble
Victoria University of Wellington

Tuesday 07 May
4:00 pm

ICICS/CS X836
2366 Main Mall
UBC

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

Grace: A new object-oriented educational programming language

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.

IEEE computer society

IEEE Computational Intelligence Society

Catherine Roome
BC Safety Authority

Thursday 09 May
06:00 to 08:00pm

Room1425
SFU Harbour Centre
515 West Hastings St

Information
Women In Engineering
Affinity chair
Tanaya Guha
tanayaguha@gmail.com

An engineer's journey

Catherine will share insider secrets about being a senior executive, woman, engineer (not necessarily in that order!) The path to career success is different for everyone, so this personal story will be about things that worked, or didn't work and how taking risks and making mistakes were part of her path.

She will also be fairly bossy about learning how to negotiate - so you'll need to pay attention! And finally, Catherine will share her reading list, and is looking forward to learning from those attending what they are currently reading and talking about.

Speaker: Catherine believes that people have an extraordinary capacity to contribute to a vision they believe in. Becoming President and Chief Executive Officer in April 2011, Catherine applies her broad experience from other organizations — and in particular her acumen for risk management — to delivering BCSA's vision of safe technical systems, everywhere. A creative, principled leader, Catherine envisions a better future.

A professional engineer, and recipient of several business and leadership awards, Catherine received her degree in electrical engineering from the University of Victoria. Her leadership style continues to encourage the unique brilliance and potential that exists in everyone

IEEE Women in Engineering We

Cam Matheson
BC Hydro

Thursday 23 May
12:00 Noon - 1:00 PM

BC Hydro
Edmonds A01
Sky train Auditorium

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

The future of the BC Hydro system – choices, challenges and opportunities

The professionals who plan and build for the future of the BC Hydro system will be faced with some unique challenges and opportunities in the next several years stemming largely from a convergence of several factors.

These include the need to refurbish the transmission and distribution networks, significant upgrades that are required on the generating fleet, potential new load growth in BC's industrial sector, the operationalization of the smart meters, the advent of emerging energy products facilitated by grid modernization, the continued move toward clean energy and conservation initiatives, and the costs pressures on electricity rates that will force BC Hydro to be selective about which of these components will take priority.

Speaker: Cam is currently the Vice-President of Asset Investment Management at BC Hydro and has worked in a wide variety of business groups in his 16 years at BC Hydro including the Customer Care, Generation and Energy Planning portfolios.

In his current role Cam is responsible for planning, regulatory and portfolio management functions for the T&D group, as well as the interconnection processes for complex customer and IPP interconnections. This group is responsible for planning and optimizing $1.2 billion of capital work annually.

Cam has been a witness for numerous BC Hydro regulatory filings and has extensive experience in public consultation regarding BC's electricity system.

IEEE PES Power & Energy Society®

PES

Thomas B. Schön
Linköping University

Wednesday 29 May

11am - noon

Rm 2020 Kaiser Bldg
UBC

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

Sensor fusion in dynamical systems

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

CSS IEEE Control Systems Society

Systems, Man, & Cybernetics Society

Robotics & Automation 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

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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

IEEE International Professional Communication Conference

Engineering communication workshops

Monday 15 July
Rm A102 Buchanan Bldg UBC

915 am - noon
Hazel Sales will present new strategies and approaches to writing effectively in the workplace

130 - 415 pm
Traci Nathans-Kelly and Christine Nicome discuss general principles for slide design and working with dual language needs

Earlybird rates until June 15
$150 morning workshop only
$210 for both workshops
complimentary networking lunch included

Register: https://www.ce.ucf.edu/WConnect/
For more visit http://pcs.ieee.org/ipcc2013/
For more questions write conference chair Sandy Bartel at sandy.bartell@boeing.com.

Beyond Borders: Communicating Globally
IPCC 2013 | VANCOUVER, BC

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

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Information
Signal Processing chair
Ivan Bajic
ivan_bajic@ieee.org

Defying Nyquist in analog to digital conversion

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.

IEEE Signal Processing Society

Startup Weekend

an event focused at launching successful startups and various relevant skills

The event this year will focus on hardware engineering and disruptive technological innovation. It will be complemented by several other events and workshops, including boot-camps by Microsoft, Google, and Mozilla. Startup Weekend attendees primarily include three types of people: businessmen/ businesswomen, designers, and engineers. This is where we come in! The event is intended for serious entrepreneurs who wish to proceed with founding a business that will benefit from the mentoring offered by Startup Weekend and its affiliated events. Stay tuned for future IEEE events on the startup topic, including a startup event co-organized by the Joint Management Chapter and others on May 22nd. The main Startup Weekend event is scheduled for the end of May. Some of the complementary events will be held at an earlier time. For additional information on Startup Weekend Vancouver, see http://vancouver.startupweekend.org/#organizers. The engineering contact person for Startup Weekend Vancouver is Ophir Kendler – ophir2k@ieee.org. Please note that spots at Startup Weekend have been reserved for IEEE members and an access code has been generated, therefore it is preferred that IEEE members who wish to join the event should first contact the engineering contact person

IEEE Vancouver 2013 AGM

IEEE Vancouver held its 2013 AGM and gala at Vancouver Convention Center on 23 March Over 100 members and guests attended and enjoyed an evening of networking, fine food and interesting presentations from Dr. Vijay Bhargava and Dr. Rodney Vaughan respectively representing AGM platinum sponsors from UBC and SFU. IEEE Vancouver chair Alon Newton thanked all sponsors for their support including BCIT, the AGM's gold sponsor.

IEEE Vancouver student scholarships were awarded

• Thurb Cushing Scholarship	Tae Jin Moon
• Hector J. MacLeod Scholarship	Mani Malekesmaeili
• John Deane Scholarship	Adrian Wong

Presentations by Dr. Keith Brown, president-elect, IEEE Canada, Kip Morison, Chief Technology Officer, BC Hydro, and keynote speech by Isidor Buchmann, founder and CEO of Cadex Electronics, followed dinner. Mr.Buchmann spoke of the history of Cadex, his background as an entrepreneur, and many interesting aspects of battery technology.

Circuits and Systems society Vancouver - Victoria joint chapter chaired by Dr. Ljiljana Trajkovic was named IEEE Vancouver's Best Small Chapter and Power & Energy joint chapter chaired by Rama Vinnakota was named as the section's Best Large Chapter.

Other 2012 honours include: Ophir Kendler for IEEE Vancouver's Volunteer Excellence award; BCIT's student branch chaired by Koji Otomo for Best Student Branch; Dr Joseph Yan for outstanding student branch counselor; BCIT for Best Company/Institute support.

IEEE Vancouver recognition plaques were presented to the winner of IEEE Canada W.S. Read Outstanding Service Award, Dr. Vijay Bhargava and to the winner of IEEE Power Engineering Medal, Dr. Hermann Dommel.

This year's AGM was organized by Vice chair Steven McClain, and a large team of volunteers. IEEE Vancouver is grateful to all sponsors and volunteers who helped make this event a success.

Some AGM volunteers (from left)
Koji Otomo (BCIT)
Andrea Luk (UBC)
Adrian Wong (UBC)
Theo Twist (UBC)
Janine Santiago (BCIT)
Saba Ardeshiri (UBC)
Simon Dahonick (UBC)
Sam McWhannel (BCIT)
Jackson Li (BCIT)

AGM photos are available at
https://picasaweb.google.com/118016318598831402198/VancouverSectionAGMAndGalaMarch232013

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

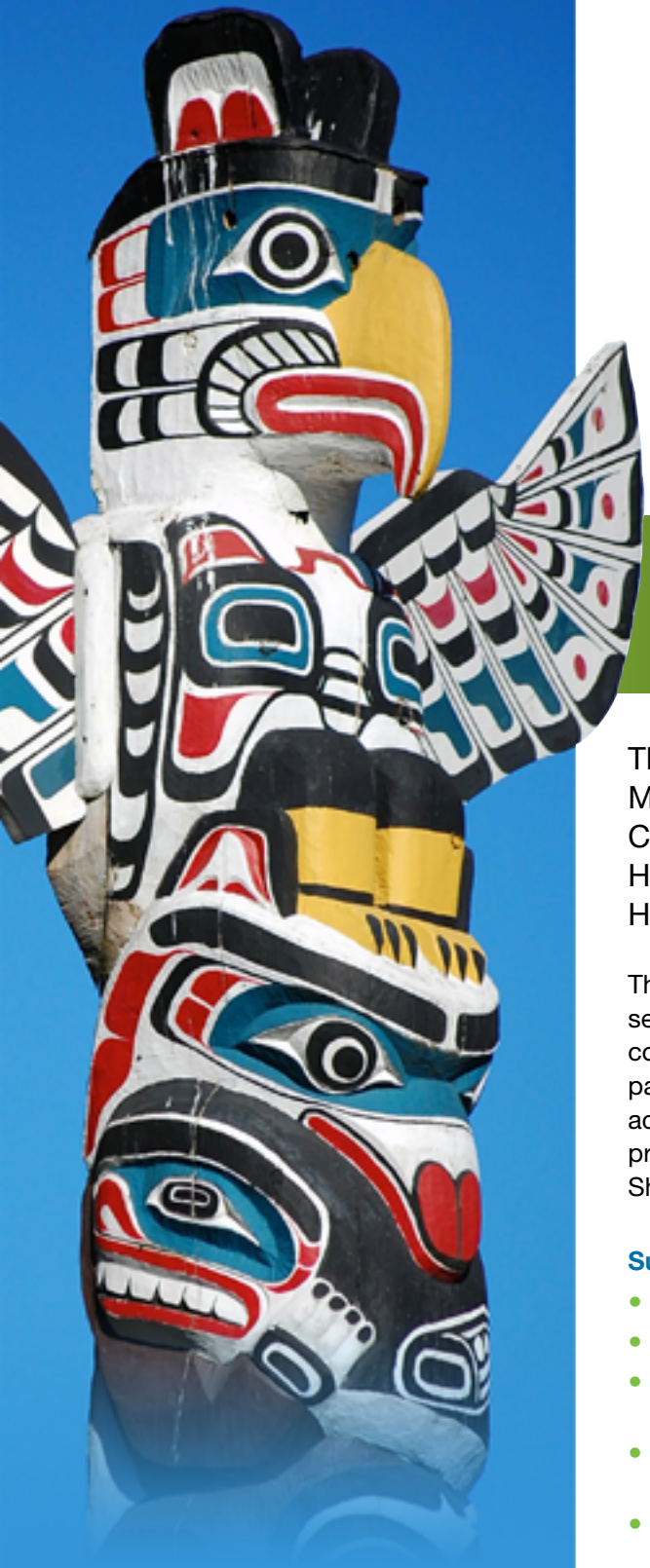
Workshop Agenda

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



2013 IEEE PES General Meeting

Vancouver, BC | July 21-25

SHAPING THE FUTURE ENERGY INDUSTRY

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!

REGISTRATION IS NOW OPEN!

For more information and program updates visit

pes-gm.org/2013

IEEE PES Power & Energy Society™

IEEE

Gokhan Bora Esmer
Marmara University

Thursday 16 May
2:00pm - 3:30pm

Simon Fraser Univ Bby
Room ASB 9896
Applied Sciences Building

Fundamentals of holography, fast computation of computer-generated holography and super-resolution in digital holography

Holography is one of the three-dimensional (3D) visualization techniques that satisfies all the depth-cues. It paves the way for obtaining an optical replica of a captured 3D scene by regenerating the diffracted waves from that scene. Holography is employed in vast amount of application areas, such as in optical computing, optical metrology and microscopy, non-destructive testing and 3D imaging.

Dynamic holographic reconstructions can be achieved by employing digital holographic video displays which are pixelated devices. In practice, spatial light modulators (SLMs) are used in such purposes. The pixelated structure of SLMs can affect the quality of reconstructed objects. Hence, in order to obtain better reconstructions, pixelated structure of SLMs has to be taken into consideration. Rapid calculation of the diffraction field which is emitted by the object is just as important as the accuracy of the diffraction field. In digital holography, diffraction field of a 3D object can be captured by devices formed as arrays of sensors. Although, capturing high resolution diffraction field paves the way for reconstructing objects with sharper edges and wider viewing angles, there are some imposed limitations on the capturing devices. For instance, when the size of sensors are decreased, power of the captured light will drop, conversely power of the shot noise will increase. Hence, the quality of the captured pattern may be plummeted. With the aim to capture high resolution diffraction fields, super-resolution algorithms can be used.

Speaker: G. Bora Esmer received the Ph.D. degree in Electrical and Electronics Engineering in 2010 from Bilkent University, Turkey. He worked as an instructor in Bilkent University for the following semester. In 2011, he joined the faculty of Engineering at Marmara University in Istanbul, Turkey. He is currently an Assistant Professor in the Department of Electrical and Electronics Engineering at Marmara University. He visited the Tampere University of Technology and the University of British Columbia in 2012 and 2013, respectively. His research interests are in the areas of 3D visualization techniques, digital holography and computer-generated holography. He is a member of IEEE and OSA.

Registration: https://meetings.vtools.ieee.org/meeting_view/list_meeting/18557

Information
Signal Processing chair
Ivan Bajic
ivan_bajic@ieee.org

IEEE Signal Processing Society

AUTO21 Connected Vehicle / ITS Workshop

Friday 17 May

8:30 am - 5:00 pm

ANGUS 492 - Sauder School of Business

2053 Main Mall - UBC

Technical Program
http://www.icics.ubc.ca/workshops/vehicle2013/tech.html

Free Registration
http://www.icics.ubc.ca/workshops/vehicle2013/register.html

Website
http://www.icics.ubc.ca/workshops/vehicle2013/index.html