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## ***Maker event \$eed funding***

The IEEE EAB Pre-University Education Coordinating Committee (PECC) has announced the establishment of Maker Event Seed Funding to assist IEEE sections, chapters, student branches, affinity groups and individual IEEE members in engaging pre-university students in organizing maker events in their local community.

A maker event is designed to be a flexible celebration of making, tinkering, creating, innovating and learning within a local community. Maker events come in the form of exhibit booths/tables, shows, workshops, and/or conferences.

Participants typically include tech enthusiasts, crafters, educators, tinkerers, hobbyists, engi-

neers, science clubs, authors, artists, students and entrepreneurs.

For detailed information regarding the Maker Event Seed Funding application process, eligibility requirements, and the application review process please refer to: [www.ieee.org/education\\_careers/education/preuniversity/maker\\_funding.html](http://www.ieee.org/education_careers/education/preuniversity/maker_funding.html).

The deadline for submitting an application for funding is 30 June 2016.

If you are interested in working on such an event please contact Lee Vishloff, [lee@vishloff.ca](mailto:lee@vishloff.ca), or other member of the executive.

# Cloud radio-access networks: coding strategies, capacity analysis, and optimization techniques



Wei Yu  
University of Toronto

**Distinguished Lecturer**

Friday 03 June

3:30 pm

Rm 418 - Macleod Bldg  
2356 Main Mall, UBC

*Everyone is welcome!*

Cloud radio access network (C-RAN) is an emerging wireless cellular architecture in which the base stations (BSs) take advantage of high-capacity backhaul links to upload signal processing and computation to a cloud-computing based central processor. The C-RAN architecture offers an enabling platform for the centralized joint encoding and joint decoding of user messages and a capability for intercell interference mitigation across the BSs.

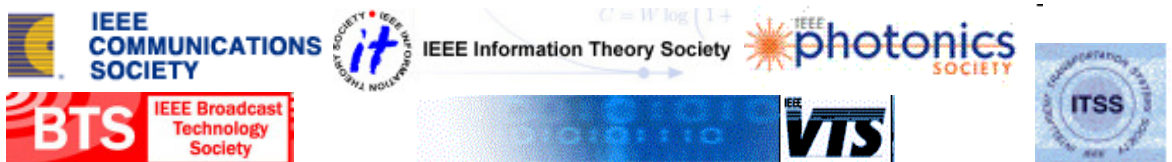
In this talk, we address the capacity analysis and optimization technique for C-RAN while specifically taking into account the finite capacity constraint on the backhaul links. In the uplink, the C-RAN architecture can be modeled as a multiple-access relay channel. We analyze a compress-and-forward scheme in which the BSs quantize the received signals and send the quantized signals to the central processor using Wyner–Ziv coding. We also propose a successive convex optimization approach for optimizing the quantization noise covariance matrix. In the downlink, the C-RAN architecture can be modeled as a broadcast relay channel. We compare the message-sharing strategy versus compression-based strategy for this setting, and show how compressive sensing and weighted minimum mean-squared error (WMMSE) techniques can be used to solve a network utility maximization problem involving joint user scheduling, BS clustering and beamforming in a user-centric message-sharing C-RAN design.

**Speaker:** Wei Yu received the B.A.Sc. degree in Computer Engineering and Mathematics from the University of Waterloo, Waterloo, Ontario, Canada in 1997 and M.S. and Ph.D. degrees in Electrical Engineering from Stanford University, Stanford, CA, in 1998 and 2002, respectively. Since 2002, he has been with the Electrical and Computer Engineering

Department at the University of Toronto, Toronto, Ontario, Canada, where he is now Professor and holds a Canada Research Chair (Tier 1) in Information Theory and Wireless Communications. His main research interests include information theory, optimization, wireless communications and broadband access networks.

Prof. Wei Yu currently serves on the IEEE Information Theory Society Board of Governors (2015-17). He is an IEEE Communications Society Distinguished Lecturer (2015-16). He served as an Associate Editor for IEEE Transactions on Information Theory (2010-2013), as an Editor for IEEE Transactions on Communications (2009-2011), as an Editor for IEEE Transactions on Wireless Communications (2004-2007), and as a Guest Editor for a number of special issues for the IEEE Journal on Selected Areas in Communications and the EURASIP Journal on Applied Signal Processing. He was a Technical Program co-chair of the IEEE Communication Theory Workshop in 2014, and a Technical Program Committee co-chair of the Communication Theory Symposium at the IEEE International Conference on Communications (ICC) in 2012. He was a member of the Signal Processing for Communications and Networking Technical Committee of the IEEE Signal Processing Society (2008-2013). Prof. Wei Yu received a Steacie Memorial Fellowship in 2015, an IEEE Communications Society Best Tutorial Paper Award in 2015, an IEEE ICC Best Paper Award in 2013, an IEEE Signal Processing Society Best Paper Award in 2008, the McCharles Prize for Early Career Research Distinction in 2008, the Early Career Teaching Award from the Faculty of Applied Science and Engineering, University of Toronto in 2007, and an Early Researcher Award from Ontario in 2006. He is recognized as a Highly Cited Researcher by Thomson Reuters. Prof. Wei Yu is a Fellow of IEEE. He is a registered Professional Engineer in Ontario.

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



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

## Environmental friendly substation and nexgen substation design ideas



Li Xiao  
BC Hydro

Substations are the key elements in transmission and distribution networks. To satisfy the increasing efficient and reliable electricity demand, more and more substations have to be installed. But locating substations can be very difficult now due to environmental focus and other regulations. The society's perception to environment has changed over years. This becomes especially challenge in urban environments where the demand for power is high, but the space available for the construction of a substation is limited.

The power companies around the world have been facing this situation and have been developing new substation design ideas. This presentation will take you to explore some of the unique designs, which are called environmentally friendly substation design and innovative NexGen substation design. The creative substations can be built outdoor blended in the beautiful landscape, or can be found in sports stadiums, beside the busy streets, adjacent to or underneath museums, hidden below community parks, in the basement of the parking lot, even under the basement of high rise buildings. This presentation will also give you a brief view of the challenges which

BC Hydro is facing when we are working on the redevelopment of downtown Vancouver substations project and bring you the visions of BC Hydro future substation.

**Speaker:** Li Xiao is a Professional Engineer in the Province of British Columbia. She received the M.Sc. degree in electrical engineering and B. Sc. degree in computer engineering from the University of Wuhan, Hubei, China. Currently, she is a Senior Engineer with the Station Electrical Group within BC Hydro Engineering, Burnaby. She has more than 26 years of experience in electrical research, IT, and station electrical design. Li Xiao expertizes in substation grounding modeling, substation circulating ground current analysis, substation indoor/outdoor design. She was the lead electrical designer for the design of BC Hydro first in-service medium voltage GIS substation - North Vancouver Substation. She has contributed to the standard of Copperweld application guide in substation grounding design. Currently she is working on preliminary concept design of the redevelopment of Downtown Vancouver substations project and shows great passion in tackling technical challenges of NexGen substation design.

Thursday 02 June

12:00PM to 1:00 PM

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

### Information

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





Nariman Farsad  
Stanford University

## Molecular communication: theoretical limits and experimental implementations

Molecular communication is a new and bio-inspired field, where chemical signals are used to transfer information instead of electromagnetic or electrical signals. In this paradigm, the transmitter releases chemicals or molecules and encodes information on some property of these signals such as their timing or concentration. The signal then propagates the medium between the transmitter and the receiver through different means such as diffusion, until it arrives at the receiver where the signal is detected and the information decoded.

This new multidisciplinary field can be used for in-body communication, secrecy, networking microscale and nanoscale devices, infrastructure monitoring in smart cities and industrial complexes, as well as for underwater communications. Since these systems are fundamentally different from telecommunication systems, most techniques that have been developed over the past few decades to advance radio technology cannot be applied to them directly.

In this talk, we first explore some of the fundamental limits of molecular communication channels. In particular, we explore the fundamental capacity limits of the molecular timing channels, where information is encoded in the time of release of chemical signals. We also evaluate how capacity scales with respect to

the number of particles released by the transmitter. Then, optimal detection in molecular timing channels is briefly discussed. We conclude the talk by presenting some of the recent experimental implementations of molecular communication systems.

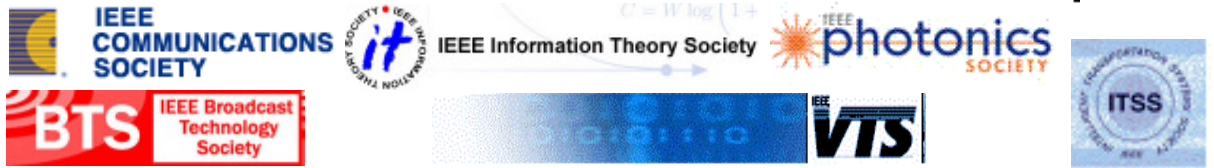
**Speaker:** Nariman Farsad received his M.Sc. and Ph.D. degrees in computer science and engineering from York University, Toronto, Canada in 2010 and 2015, respectively. He is currently a Postdoctoral Fellow with the Department of Electrical Engineering at Stanford University, where he is a recipient of Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship. Nariman has won the second prize in 2014 IEEE ComSoc Student Competition: Communications Technology Changing the World, the best demo award at INFOCOM'2015, and was recognized as a finalist for the 2014 Bell Labs Prize. He has been an Area Associate Editor for IEEE Journal of Selected Areas of Communication—Special Issue on Emerging Technologies in Communications, and a Technical Reviewer for a number of journals including IEEE Transactions on Signal Processing, and IEEE Transactions on Information Theory. He was also a member of the Technical Program Committees for the ICC'2015, BICT'2015, GLOBCOM'2015, and GLOBCOM'2016.

11 am - 12 pm  
Thursday 09 June

Rm 418 Macleod Bldg  
2356 Main Mall, UBC

Everyone is welcome!

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



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



## “Meet and Learn”

### A reporting out session on highlights from 2016 Spring AEIC EPAC and 2016 CCECE

**Wednesday 08 June  
4:30pm to 6:00pm**

**BC Hydro Edmonds, Southpoint Room  
6911 Southpoint Drive, Burnaby**

At this IEEE Vancouver IAS and BC Hydro cosponsored free event presentors who attended the 2016 Spring AEIC EPAC Meeting and the CCECE 2016 Conference will summarize event highlights and share new information of high interest to BC Hydro and others in the power industry. Three 30 minute presentations include food and refreshment. Registration by meeting notice acceptance or email is encouraged. A conference call number and Live Meeting connection will be available.

4:30 - 5:00 pm: Highlights of the CCECE 2016 -  
Constantin Pitis will present on the novel  
Benchmark-Energy-Factor (BEF) concept.

**Constantin Pitis** holds Master degree in Electrical Engineering, Rockets, Reliability Engineering and PhD in Electrical Engineering. From 1968 to 1990 he was Principal Research Scientist in Electro-Energetic Institute and Aeronautics Institute, Romania. As Project manager in South



Africa he conducted design, manufacturing, diagnose-test and application of explosion-proof motors, transformers, substations and ventilation systems for mining and heavy industries. In 2007 he joins BC Hydro. Holding 4 patents and copyright design software, he published over 60 papers on industrial systems, application engineering and benchmarking - one of his papers receives “Best Paper Award” at International Systems Conference, SysCon - 2015. Dr. Pitis is member of South African Institute of Electrical Engineers, Canadian Standard Association - CSA, Technical Board in Consortium for Energy Efficiency, Association of Energy Engineers as Certified Energy Manager, IEEE member in IAS and “Teacher In Service Program” TISP. He is also registered Professional Engineer with Engineering Council of South Africa, and the Association of Professional Engineers and Geoscientists of BC.

5:00 - 5:30 pm: Highlights of the CCECE 2016 -  
Hamed Ahmadi will present on  
Transient stability-constrained optimal power flow

**Hamed Ahmadi** is an Engineer with BC Hydro Transmission Engineering. His responsibilities include electrical aspects of the transmission line design, operation and maintenance including environmental aspects of transmission lines such as

radio interference, audible noise; electric and magnetic fields and the related induction and biological effects; tower shielding design; tower grounding; joint use of right-of-way and other topics relevant to the design, maintenance and management of BC Hydro’s transmission system assets. He holds B.A.Sc. and M.A.Sc. degrees in Electrical Engineering from the University of Tehran, Iran, and a Ph.D. degree from the University of British Columbia, Vancouver, Canada. Hamed is a registered



Engineer-in-Training in the Province of British Columbia. He is a member of the reviewing committee for the IEEE Transactions on Power Delivery and the IEEE Transactions on Power Systems.

5:30 - 6:00 pm: Highlights of AEIC EPAC - 2016

Bob Stewart will present on his attendance of the Spring 2016 Electric Power Apparatus Committee (EPAC) meeting of the Association of Edison Illuminating Companies (AEIC).

The theme of this meeting was Mobile Apparatus.

Suppliers such as Southern States, ABB, Delta Star, Siemens, plus Eaton gave presentations on what they offer now and what might be offered in the future, plus there will be presentations from other utility representatives from American Electric Power and PECO on their experience in this area.

**Bob Stewart** is a Principal Engineer responsible for the Electrical area at BC Hydro with 35 years of experience in the Transmission, Generation and Distribution areas. He is also BC Hydro’s representative on the Electric Power Apparatus Committee of AEIC. He is a Senior IEEE member and is registered as a Professional Engineer in the province of BC, plus he is the Vice President of APEGBC.



**Please contact Bob Stewart of BC Hydro at [bob.stewart@bchydro.com](mailto:bob.stewart@bchydro.com)**

**or**

**Jeff Bloemink, IAS Chapter Chair at [jbloemink@bcit.ca](mailto:jbloemink@bcit.ca) if further information is required.**

# 14th IEEE International NEWCAS Conference

June 26 - 29, 2016

Vancouver Marriot Pinnacle Downtown Hotel

On behalf of the organizing committee of the conference, we would like to invite you to participate in the 14th IEEE International NEWCAS Conference in Vancouver (June 26 to 29, 2016). Continuing the tradition of NEWCAS, the 2016 edition of the conference will be an excellent opportunity to experience a rich mix of excellent technical and social programs. The conference registration includes attending tutorials (on Sunday, June 26, 2016) and the technical program (Monday through Wednesday, June 27 to 29, 2016). If you have not registered already, you may still do so through registration link <http://newcas2016.ieee.ca>. Online registration is now open. Although you can register online or on-site at the conference venue, please note that early registration deadline is May 15, 2016. NEWCAS 2016 program includes excellent tutorials, outstanding plenary talks, superb technical sessions, and wonderful social events. Please find below some of the highlights of the program and for more information please refer to the conference web site. We are looking forward to meeting you at the conference.

Sincerely,

General Co-Chairs of NEWCAS 2016:

Mohamad Sawan (Professor, Polytechnique Montreal) and  
Shahriar Mirabbasi (Professor, University of British Columbia)

## Tutorials — Sunday June 26

### ***Tiny inductively powered Battery Chargers***

by Professor Gabriel Rincon-Mora (Georgia Institute of Technology)

### ***Phase-locked clock generation for SoC: circuit and system design aspects***

by Professor Woogeun Rhee (Tsinghua University)

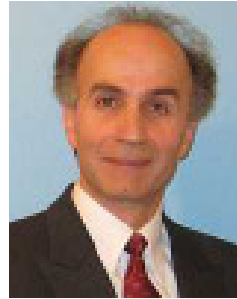
### ***Development of massively-parallel multimedia algorithms and applications in the integrated multi-core/GPU platform***

by Professor Saeid Nooshabadi (Michigan Technological University)

### ***Optimizing nanoCMOS circuits by using transistor networks***

by Professor Ricardo Reis, Universidade Federal do Rio Grande do Sul

## Plenary Talks — June 27 to 29

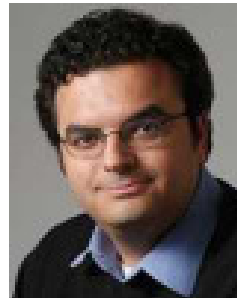


### ***Design for low power: the next frontier***

Professor Behzad Razavi,  
University of California, Los Angeles

### ***Designing (relatively) reliable systems with (highly) unreliable components***

Professor Massimo Alioto,  
National University of Singapore



### ***mm-Wave CMOS to the rescue: 5G and beyond (xG) communication and enhanced biosensing***

Professor Ali Niknejad,  
University of California, Berkeley

## Technical Program — June 27 to 29

18 technical sessions consisting of lecture sessions  
(2 parallel sessions each day),  
and one poster session per day on Tuesday and Wednesday.

## Social Events — June 26 to 28

one per day on the evenings of Sunday, Monday, and Tuesday.

## Chair's Report — May 2016

May was a busy month in the Vancouver Section. In addition to the usual activities in the technical chapters a few other things that we were involved with came to fruition:

1. 2016 IEEE International Symposium on Ethics in Engineering, Science and Technology
2. Canadian Conference on Electrical and Computers Engineering (CCECE) 2016.
3. The IEEE Canada Spring meeting, which consists of the Board meeting and an all day training session.

As part of CCECE 2016 we also hosted two forums:

- A Women in Engineering Forum on "Engineering the Future, Business Case for Diversity and Understanding Implicit Bias"
  - An Industry Forum entitled "Grow Your High-Tech Business"
- I did not attend the WIE Forum as I was the host of the Industry Forum but by all accounts it was successful attracting over 40 attendees. Congratulations go to the organizers Bob Gill who worked with IEEE Canada WIE and Lesley Shannon of SFU on this event.

The Industry Forum was a success with 80 attendees taking in the three panels: Government Support, Accelerators and Industry Veterans as well as an address by the Deputy Minister of Western Diversification Daphne Meredith. This event was a first step in beefing up our industry offerings.

### CCECE 2016

A huge congratulations goes out to the the CCECE organizing team. This conference (plus one day of tutorials) was well attended and well received.

A big thanks goes to the following local IEEE Members:

General Co-Chairs

Rodney Vaughan and Rabab Ward

Technical Program Committee Chairs

Ljiljana Trajkovic and Shahriar Mirabbasi

Tutorial Chair Ivan Bajic

Publications Hamed Shah-Mansouri and Mohamed ElGendi

Publicity Craig Scratchley

Local Arrangements Jeff Bloemink

Website and Social Media Chair Stephen Makonin

Patronage/Exhibition Chair Bob Gill

We are also grateful for the support from our student volunteers and the many IEEE members from outside our Section. As the finance chair I am expecting a surplus that we can contribute to the IEEE Vancouver Student Scholarship Fund per plan.

### Ethics 2016

The Ethics Conference was also held this month concurrent with the Region 7 (IEEE Canada) meetings mentioned above. It had quite an interesting program and I found myself wishing I could attend, instead of sitting at the Board meeting, but the meetings are an important part of my job. This symposium was organized with IEEE members from many locations. The Vancouver Section was also a financial co-sponsor of this event.

Congratulations go out to the following local members:

General Co-Chair

Ljiljana Trajkovic

Program Co-Chairs

Dan Steel and Bob Gill

Program Coordinator

Kathleen Lane

### Going Forward

Now that the Spring push is done with the AGM and the conferences, we get a bit of a breather as the fall approaches. We will use this time to plan out our industry program adjustments, plan our longer term scholarship policy (size and number) and provide some support for other conference and activities that are coming. One thing we will need are company meeting locations so we can bring some of our technical meetings closer to where people work. Drop me a note if your company has a suitable location.

**Best regards**

**Lee Vishloff**

**IEEE Vancouver Chair**

**lee@vishloff.ca**





Charles Q. Su  
Newcastle University

## Smart condition monitoring of power system equipment

During the last three decades, there have been many new developments in condition monitoring (CM) of high voltage equipment in electrical power systems. Hundreds of new instruments are in use around the world. Enormous quantities of CM data are collected from on-line and off-line tests every day. Now it might be the right time to ask “Are we using CM instruments wisely?”

In fact, one of the problems often encountered by industry is how to interpret the mass of CM data. Of course, CM program must be accurate, reliable and cost-effective for any utility. The cost includes instrumentation and on-going testing and data interpretation. The common problems experienced by industry are:

- over-usage of techniques and instruments, making CM costly;
- misunderstanding of the principles underlying the operation of CM equipment, and its capability and applicability;
- difficulty in interpreting complex and voluminous data, and therefore in diagnosing incipient faults;
- difficulty in determining the critical fault levels on which repair/replacement decisions should be based;
- difficulty in estimating sufficiently accurately the remaining service lifetime of insulation.

Given the above problems, a new concept of Smart Condition Monitoring (SCM) is proposed to wisely apply and develop new condition monitoring techniques. It should not be confused with “smart grid” which obviously has different meaning. Smart condition monitoring would be concerned on the following:

- smart selection of CM techniques
- smart sensor development
- smart data interpretation and diagnosis
- smart failure investigation and failure prevention
- smart sharing

In this seminar, the idea of SCM will be presented using case studies from power industry.

**Speaker:** Dr. Charles Su received his MEng in 1981 and PhD in 1990 (University of New South Wales, Australia). He was a tests and operations engineer from 1971-1978 and an honorary research associate at the University of Western Australia in 1985. From 1991 until 2001 he was senior lecturer, associate professor and head of the HVICM Group at Monash University, Australia. Commencing in 2002, he worked as the chief technologist at Singapore Power (SPPG) for 5 years. From 2007 to 2011 he was a professor and the chair of the Research Committee at the Petroleum Institute, UAE. He was also a guest professor at the Electrical Power University, Beijing in 2012 and Wuhan University in 2013. He is currently with Newcastle University, UK.

Charles has published two books and over 150 journal and conference papers. He received the Vice-Chancellor’s Special Commendation for Teaching Excellence at Monash University in 2001 and an IEEE Standards Award for contribution to the standard “Guide on the Measurement of Partial Discharges in Rotating Machines” in 2002. He has provided consulting services to many utilities in the world and has conducted a number of training courses for the industry in Australia, America, UAE, Singapore, China, Malaysia, Taiwan, Hong Kong and Indonesia. He is a Fellow of the IET (former IEE), a member of CIGRE A2, and a Senior Member of IEEE since 1991.

Thursday 21 July  
12:00 PM - 1:00 PM

BC Hydro  
Edmonds A01 Auditorium  
Skytrain Room  
6911 Southpoint Dr Bby



### Information

Joint Power & Energy Chair  
Rama Vinnakota  
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Jeff Bloemink  
Joint IAS/IES Chair  
j.m.bloemink@ieee.org





Takashi Matsuyama  
Kyoto University

Monday 30 May  
3:30pm

Rm 2020 Kaiser Bldg  
2332 Main Mall, UBC

**Information**

Colleen Brown  
colleenb@ece.ubc.ca

## i-Energy: smart demand-side energy management

We are proposing the concept of i-Energy for smart demand side energy management. This differs from the Smart Grid. The former aims at energy management from the consumer's viewpoint while the latter from the supplier's viewpoint. This talk presents four steps in the realization of the i-Energy concept:

- 1) Smart Tap Network for monitoring detailed power consumption patterns of individual appliances and dynamic activities of people in homes, offices, and factories,
- 2) Energy on Demand Protocol to realize the priority-based best-effort power supply mechanism as well as the automatic ceiling mechanism of power consumption in both Watts (W) and Watt hours (Wh),
- 3) Power Flow Coloring to allow versatile power flow controls depending on types and costs of power sources, and
- 4) Smart Community for bi-directional energy trading among households, offices, and factories in a local community.

**Speaker:** Professor Takashi Matsuyama is currently a professor in the Department of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University. He served as the director of the Academic Center for Computing and Media Studies (2002-2006), the director general of the Institute for Information Management and Communications (2005-2010), and a vice president of Kyoto University (2008-2010). He has been studying cooperative distribute sensing-control-reasoning systems over 30 years. Their application fields include knowledge-based image understanding, visual surveillance, 3D video, human-computer interaction, and smart energy management. He wrote more than 100 journal papers and more than 20 books including three research monographs: *A Structural Analysis of Complex Aerial Photographs*, PLENUM, 1980, *SIGMA: A Knowledge-Based Aerial Image Understanding System*, PLENUM, 1990, and *3D Video and its Applications*, Springer, 2012.



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Computer  
Engineering

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**KEYNOTE SPEAKERS** • Sushanta Mitra, Chair of Mechanical Engineering Department, York University • Raj Jain, Professor of Computer Science and Engineering, Washington University in St. Louis.

**IMPORTANT DEADLINES** • Full Paper Submission : 30th June 2016 • Acceptance Notification : 31st July 2016 • Camera Ready Paper Submission : 31st August 2016 • Registration : 31st August 2016

The conference aims to bring together scholars from different disciplinary backgrounds to emphasize dissemination of ongoing research in the fields of Information Technology, Electronics and Mobile Communication. Contributed papers are solicited describing original works in the above mentioned fields and related technologies. The conference will include a peer-reviewed program of technical sessions, special sessions, business application sessions, tutorials, and demonstration sessions.

Topics and Technical areas of interest include but are not limited to the following:

**Track I:** Information Technology • Business Intelligence and Applications • Computer Network • Evolutionary Computation and Algorithms • Image Processing and Multimedia Technology • Information Security and Encoding Technology • Signal Detection and Processing • Technique and Application of Database • Data Mining • Software Engineering • Mobile Computing • Distributed Systems • Artificial Intelligence • Visualization and Computer Graphic • Information Retrieval • Natural Language Processing • Machine Learning • Internet of Things • E-Commerce • Data Analytics and Big Data

**Track II:** Electronics • VLSI and Microelectronic Circuit Embedded Systems • System on Chip (SoC) Design • FPGA (Field Programmable Gate Array) Design and Applications • Electronic Instrumentations • Electronic Power Converters and Inverters • Control Theory and Applications • Robotics and Autonomous Systems • Intelligent Control • Optimal Control • Robust Control • Adaptive Control • Linear and Nonlinear Control Systems • Complex Adaptive Systems • Industrial Automation and Control Systems Technology • Modern Electronic Devices

**Track III:** Mobile Communication • Ad hoc networks • Body and personal area networks • Cloud and virtual networks • Cognitive radio networks • Cooperative communications • Delay tolerant networks • Future wireless Internet • Green wireless networks • Local dependent networks • Location management • Mobile and wireless IP • Mobile computing • Multi-hop networks • Network architectures • Network Security • Routing, QoS and scheduling • Satellite communications • Self-organising networks • Wireless multicasting, broadcasting and geocasting • Wireless sensor networks

## IEEE IEMCON 2016 University of British Columbia 13 - 15 October 2016

### Call for contributed papers

Prospective authors are invited to submit their full paper(s) electronically through EDAS. Papers will be reviewed by at least two referees for technical merit and content. Accepted papers must be presented at the conference by an author whose name will appear in the proceedings. For further details, and information on paper categories, please see our website.

Conference Web Site  
<http://www.ieee-iemcon.org>

REGISTRATION

[http://ieee-iemcon.org/?page\\_id=109](http://ieee-iemcon.org/?page_id=109)

CONTACT INFO

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