



Signal Processing

Flow Detection and Anonymous Networking

Prof. Lang Tong
Cornell University

Friday 15 May 330 - 430pm
Room KAIS 2020, Fred Kaiser Building
2332 Main Mall, UBC

DISTINGUISHED LECTURER

In a wireless network, transmission activities can be easily monitored using simple devices. Given the record of transmissions from a set of nodes, one may be able to ascertain whether these nodes are engaged in some networking operations. While the content of a wireless transmission can be protected by cryptographic techniques, the acts of transmission may reveal critical information about network operations such as routing and multicasting. In this talk, we consider two related problems. The first is the problem of flow detection: given observations from a set of traffic sensors, to what extent can the presence of an information flow be detected? We present results on the fundamental limit of detectability. The second problem is anonymous networking: to what extent can we hide an information flow. Here we use information theoretic measures to characterize the tradeoff between anonymity vs. network throughput.



Speaker: Lang Tong is the Irwin and Joan Jacobs Professor in Engineering at Cornell University. He received his PhD degree from the University of Notre Dame and was a Postdoc Research Affiliate at Stanford U. Lang Tong's research interest lies in the general area of statistical signal processing, communication systems, and networks. He received the 2004 Best Paper Award from the IEEE Signal Processing Society, the 2004 Leonard G. Abraham Prize Paper Award from the IEEE Communications Society, and the 1993 Outstanding Young Author Award from the IEEE Circuits and Systems Society.

Info: Z. Jane Wang - zjanew@ece.ubc.ca

Industry Applications

Industrial Tour: Canadian Circuits Inc

Friday 22 May 300pm - onward
12-13140 88th Avenue, Surrey, BC

From the wire-wrapped circuit boards of WWII era radios, to today's sophisticated iPhones - printed circuit board (PCB) technology has evolved in an unprecedented pace. While consumer electronic products have become indispensable parts of our daily lives, we rarely get an opportunity to experience how a PCB is actually designed and built.

Canadian Circuits Inc. has been working in this highly competitive technical industry since 1993. The company provides state-of-the-art PCB fabrication solutions that include:

- Electrical Testing
- Carbon-Screening for keypad contacts & conductive tracks
- Peel Coat Peelable Solder mask
- In-house Photo-Plotting Services
- Copper plating up to 5 oz.
- Rigid-Flex Circuits as thin as 5 mil.
- Control Impedance capability

The tour at Canadian Circuits will allow us experience the full-cycle PCB fabrication process, current state-of-the-art and relevant technical challenges & solutions.

Canadian Circuits Quality Management System is registered to ISO 9001:2000.

<http://www.canadiancircuits.com>

Info: RSVP IAS Chair Jahangir Khan: jahangir.khan@powertechlabs.com or Sergio Bertani: spbertani@yahoo.com

Control and Communication Department until 1988. He worked as manager in Prestige Engineering Co. which is specialized in consultation, acceptance tests, design and import of test equipments and other specialized electrical parts 1992-2007.

He holds twelve patents all in optical fiber as sensor, and participated in more than fifty conferences.

Info: Alon Newton - anewton@ieee.org

Joint Communications

Replacement of RTUs by IED, LAN and WAN and More

Mahmud Wasfi
IEEE SM

Monday 18 May 700 - 900pm
Room 1750, BCIT SW3

Up to the nineteen's, substation protection was based on copper wires from the relays and transformers to the substation control room with remote terminal unit (RTU) in the control room connected to substation equipments through copper wires and to control centers by power line carrier (PLC) with data speed of about 2-3 Kb/s. In the nineteen's microprocessor relays were introduced for many functions such as metering, protection, automation, control, digital fault recording and reporting, but still using RTUs though with much advanced technology and connected to the control centers through radio, coaxial and optical fiber channels with a speed of up to 38.4 Kb/s.



Since the introduction of IEC61850 in 2004, things has dramatically changed. Relays are connected to intelligent electronic devices (IEDs) and these IEDs are connected to each other and to the control room by means of an optical fiber Ethernet local area network (LAN) and to control centers and other substations by means of optical fiber Ethernet wide area network (WAN) with a speed of up to 100 Mb/s. Copper cables are no longer used. The control system is distributed, protection is much faster and more reliable with saving both in material and manpower.

Speaker: Mahmud Wasfi was born in Baghdad. He received the B.Sc in electrical and electronic engineering from Manchester University in England in 1957, and M.Sc from Birmingham University in England in 1970. In 1960, he joined Iraqi Airforce; was a teacher in Radar and Radio Institute from 1960 to 1963, and was commander of Radar and Radio Maintenance Unit 1964 to 1967, Chief Signal Officer from 1970 to 1973, during this time he was also Project Manager of Western Coaxial Cable Project 1970-1972. He was then loaned to The Ministry of Communication as Coaxial Cable Projects Manager 1973-1978. In 1978 he was transferred to State Organization of Electricity as head of

Circuits and Systems

3-D Image Processing for Free Viewpoint System and Electronic Holography

Dr. Kenji Yamamoto
NICT, Japan

Friday 01 May 2009 1100am - 1200pm
ASB 9705, SFU

Webcast

http://www.ensc.sfu.ca/~jyel/ieee/2009_Kenji.html

As the ability of electronic imaging devices, such as video cameras and liquid crystal display (LCD), continues to advance dramatically, 3-D imaging system has attracted a great deal of attention. It can be applied in many fields, such as the preservation of cultural heritage and traditional dancing, free viewpoint television, educational applications, and entertainment.



In this talk, we will present the following two topics. The first topic is the latest development of multi-view video coding (MVC) and our contributions in it. The successful application of multi-view videos in 3-D

imaging systems needs technological advances in many fields. One of them is MVC. Many approaches have been studied for MVC, and the MPEG committee has been working on it since 2001. The basis of almost all studies is the standard MPEG coding with interview prediction. We have proposed to include the following two techniques to MVC. The first one is to use view interpolation technology, which synthesizes interpolated pictures and use them as reference pictures. The second one is to correct the luminance and chrominance of other views for interview prediction and view interpolation prediction (color correction). Since each camera has its own photoelectric variation, the correction is necessary and very effective.

In the second topic, we will introduce the Integral Photography (IP) camera, which can capture ray information of 3-D objects. We will also discuss multi-view video system and electronic holography system that use the IP camera. Holography is the technology to display ideal 3-D objects in space. Therefore, it has long been studied to use holography for 3-D display. Because the technology to manufacture fine pitch LCD is gradually maturing, electronic holography that uses LCD for displaying hologram has been studied extensively recently. Our group aims at realizing ultra-realistic communications, and tries to develop a real-time color holography sys-

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Earth Day founder
Denis Hayes
on spring, Obama,
and social networking



http://blogs.spectrum.ieee.org/tech_talk/2009/04/earth_day_founder_denis_hayes.html

tem that captures 3-D objects and displays them in real time. Our developed system will be introduced in this talk.

Kenji Yamamoto received his Ph.D. from Nagoya University, Japan in 2007. He is currently an expert researcher at Universal Media Research Center, National Institute of Information and Communications Technology (NICT), Japan. His research interests include 3-D image systems, such as multi-view video

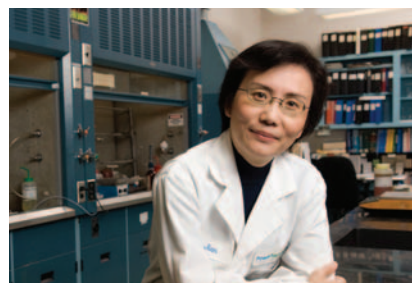
system and Integral Photography camera to capture the ray information of 3-D real objects, multi-view video coding to compress the captured data, depth estimation to synthesize new view image, and electronic holography to display 3-D objects.

Sponsors: This event is co-sponsored by IEEE Victoria Chapter of Circuits & Systems **Info:** Ljiljana Trajkovic - ljilja@cs.sfu.ca

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Mark your Calendar

31st International Conference on Software Engineering

<http://www.cs.uoregon.edu/events/icse2009>

May 16th-24th 2009, Vancouver, Canada



The International Conference on Software Engineering (ICSE) is the premier software engineering conference, providing a forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, experiences and concerns in the field of software engineering.

High quality, cutting edge research presentations.

25 different workshops focusing on a wide variety of Software Engineering themes.

New Ideas and Emerging Results providing a forum for the exchange of novel research ideas that have not yet been fully evaluated.

Research Demo Track demonstrating early implementations of tool support for novel and innovative software engineering techniques and processes.

Co-located events. Software Requirements and Design: A Tribute to Michael Jackson; ICPC (International Conference on Program Comprehension); MSR (Mining Software Repositories); ICSP (International Conference on Software Process); PROMISE (Predictor models)

Doctoral Symposium for Ph.D. students.

SCORE, an undergraduate and graduate software-engineering contest whose finals will be presented at ICSE 2009.

A rich offering of tutorials with detailed presentations from well recognized and gifted speakers on the latest software engineering trends.

Software Engineering in Practice track, providing a content-rich practitioner-oriented track focused on industry relevant issues. This track includes presentations by respected software engineering experts on topics including case studies, industrial best practices, successes, and ongoing industrial challenges.

Location: ICSE 2009 will be held in Vancouver, a beautiful city on the west coast of Canada next to the Pacific Ocean and the coastal mountains.

General Chair:
 Stephen Fickas
 University of Oregon, USA

Program Chairs:
 Jo Atlee, University of Waterloo, Canada
 Paola Inverardi, University of Aquila, Italy.



IEEE Vancouver Section Executive 2009/2010 Nominations

Balloting for the 2009/2010 activities year will commence on 20 April 2009 in order to complete the process for the change of officers at the Annual General Meeting on 11 May 2009. The Nominations Committee proposes the following nominations for the Section Executive for the Activities Year May 2009 - April 2010:

SECTION OFFICERS

Chair Dave Michelson
 Vice-Chair Mazana Armstrong
 Treasurer Kouros Goodarzi
 Secretary Alon Newton

SOCIETY CHAPTER CHAIRS

Aerospace & Geosciences Remote Sensing vacant
 Circuits and Systems Ljiljana Trajkovic
 Communications Alon Newton
 Computer Sathish Gopalakrishnan
 Control Systems Ryoza Nagamune
 Electron Devices Bonnie Gray
 Engineering in Medicine and Biology Ezra Kwok
 Industry Applications Jahangir Khan
 Power and Energy Glen Tang
 Power Electronics Rasvan Mihai
 Prof'l Communication & Technology Mgmt .. Kouros Goodarzi
 Product Safety and Reliability Steven McClain
 Signal Processing Z. Jane Wang
 Solid State Circuits Resve Saleh
 Systems, Man and Cybernetics Ozge Uncu

We need nominees for the Aerospace & Geosciences Remote Sensing Society

Members are invited to propose nominees for the open positions or additional nominees for all positions. Nominations should be forwarded to the Nominating Committee (contact information below) by 20 April 2009 and should be supported by signatures of 10 members (with a grade of Fellow, Senior Member, or Member)

CALL FOR VOLUNTEERS

The IEEE Vancouver Section is seeking volunteers to take on a leadership role in helping to deliver the historical levels of high quality technical programs to our members. The main requirements of IEEE volunteer leaders are willingness to help the technical development of their peers, and membership in the IEEE technical society that they volunteer for. In addition, the Nominating Committee seeks volunteers in the following appointed position: Archivist

CONTACT INFORMATION

Deadline for nominations is 20 April 2009.
 Deadline for appointed positions is 30 April 2009.
 Please contact Rasvan Mihai by telephone at 604-233-7608 or by email at Rasvan_Mihai@plugpower.com
 Nominating Committee 2009-2010: Dejan Lenasi, Rasvan Mihai, Paul Bowler

31st International Conference on Software Engineering Vancouver 16 - 24 May 2009

<http://www.cs.uoregon.edu/events/icse2009/home/>

The ICSE 2009 program is designed to provide a rich variety of options for both practitioners and academics including keynote speakers, tutorials, research demos, workshops, and many other opportunities. Early conference registration is now open: Please visit <https://server2.regmaster3.com/conf/ICSE09/register.php> for details.

Early registration closes on April 11

Highlights

- Software Engineering in Practice track on Wednesday and Thursday, providing a content-rich practitioner-oriented track focused on industry relevant issues. This track includes presentations by respected software engineering experts on topics including case studies, industrial best practices, successes, and ongoing industrial challenges <http://www.cs.uoregon.edu/events/icse2009/SEIP/>
- 26 different half-day and full-day tutorials
- 25 different workshops focusing on a wide variety of Software Engineering themes
- Keynote speakers - Carlo Ghezzi - Steve McConnell - Pamela Zave
- High quality, cutting edge research presentations
- New Ideas and Emerging Results providing a forum for the exchange of novel research ideas that have not yet been fully evaluated.
- Research Demo Track demonstrating early implementations of tool support for novel and innovative software engineering techniques and processes.

Co-located events • Software Requirements and Design: A Tribute to Michael Jackson; • ICPC (International Conference on Program Comprehension) • MSR (Mining Software Repositories) • ICSP (International Conference on Software Process) • PROMISE (Predictor models) • Doctoral Symposium for Ph.D. students. • SCORE, an undergraduate and graduate software-engineering contest whose finals will be presented at ICSE 2009.

For further information please visit the general ICSE 2009 website <http://www.cs.uoregon.edu/events/icse2009/home/>
 Jane Cleland-Huang, PhD Joao Araujo, PhD ICSE 2009 Publicity Chairs
 Relayed by Philippe Kruchten, Local Computer chapter chair and Co-Chair of the Software Engineering in Practice track.

Electric Supply for the Vancouver 2010 Olympics

Harold Nelson
BC Hydro

Tuesday 05 May 1200 - 100pm
BC Hydro Dunsmuir Auditorium
2nd Floor 333 Dunsmuir Street Vancouver



With ten city venues throughout the Lower Mainland and seven mountain venues at Whistler and Cypress, the Vancouver 2010 Olympic and Paralympic Winter Games has been compared to putting on eight to ten Super Bowls simultaneously for 17 days. The 2010 Winter Games will need high levels of electric reliability to support the unique requirements associated with hosting an event that will attract more than three billion televi-

sion viewers and 75 million website visits worldwide. BC Hydro will be providing clean, reliable power for the Games and will leverage its Power Smart expertise to ensure the Games are energy efficient. The unique challenges and solutions being implemented to deliver power to each of the 17 Olympic venues will be presented.

Speaker: Harold Nelson is BC Hydro's Engineering Manager for the 2010 Olympics. He is an electrical engineer with degrees from UBC in Electrical Engineering and Business Administration. He has extensive experience in the design and operation of high voltage distribution systems developed over 30 years at BC Hydro.

Info: For more information on upcoming events for the IEEE PES Vancouver Chapter, please visit our website at: <http://vancouver.ieee.ca/powereng> or contact the Chapter Chair, Glen Tang, at glen.tang@bchydro.com



Essential Technologies for Energy Efficiency & Management

Gurshan Sidhu
Consultant

Friday 28 May 1200 - 100pm
BC Hydro Edmonds - Auditorium
Centre Room
(near Edmonds Skytrain Station)
6911 Southpoint Drive, Bby



In 2003, a widespread blackout affected 50 million people in eight U.S. states and two Canadian provinces. The following year, the U.S. Department of Energy, Office of Electric Transmission and Distribution, formed a group of stakeholders in the electric industry to design "GRID 2030." The aim of this workshop was to develop a road map that represented the critical GRID architecture, accelerate technology acceptance, strengthen the electric market, and develop private/public partner-

ships. GRID 2030 requires the addition of an "intelligent layer".

This "Smart-Grid" must be able to identify and repair problems, see disturbances in real-time and permanently monitor the system giving it the ability to transform data into information and make decisions. A combination of advanced data acquisition, signal processing, control algorithms, and integration from National Instruments will allow the complex convergence of this system. During this session we will discuss how through programmable automation controllers (PACs) we are able to combine all of the capabilities of several platforms to address this need for a convergence

of technologies.
Speaker: Gurshan Sidhu graduated with a mechanical engineering degree from the University of Victoria and a diploma from Columbia Institute of Technology. Gurshan joined National Instruments in August of 1998 as an Applications Engineer where he had the opportunity to work with different virtual instrumentation applications across various industries, platforms, and vendors. Since May of 1999, Gurshan has been based in the British Columbia area as a field engineer, working to help local companies evaluate, design, and implement solutions for their measurement and control applications. Prior to joining NI in 1998, Gurshan was a senior systems engineer at Honeywell Measurex.
Info: For more information on upcoming events for the IEEE PES Vancouver Chapter, please visit our website at: <http://vancouver.ieee.ca/powereng> or contact the Chapter Chair, Glen Tang, at glen.tang@bchydro.com



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The 2009 Particle Accelerator Conference (PAC09) will take place in Canada's beautiful West Coast City of Vancouver, British Columbia from May 4th to 8th, 2009. PAC09 is hosted by TRIUMF, and is jointly sponsored by the NPSS (IEEE) and the DPB (APS).

This well-established conference series is of particular significance to Accelerator Scientists, Engineers, Students and Industrial Vendors interested in all aspects of particle accelerator technology.

The Scientific Program comprises invited speakers, contributed orals, poster sessions, an Industrial Forum and an exciting Student Program. PAC09 is committed to reaching out to young researchers in the field, and has set a budget to partially support a limited number of qualifying accelerator students



<http://www.triumf.info/hosted/PAC09/>

Vancouver is a beautiful and dynamic city set in a spectacular natural environment. Springtime in Vancouver is particularly resplendent, as the sun reflects off the last remnants of snow on the mountains and sparkles across the ocean below. There are indoor and outdoor activities to please everyone, and PAC09 will take place in the heart of downtown, close to

shopping, attractions, and the ocean. We encourage you to come to PAC09 to experience our City and share in the enthusiasm and events as we prepare to host the 2010 Winter Olympics, less than one year away. I look forward to welcoming you to PAC09.

Sincerely, Paul Schmor, PAC09 Conference Chair