



WWW.IEECONTACT.ORG

JULY 2015
CIRCULATION 3534

VOLUME 46
NUMBER 07

- SFU Student Branch McNaughton Centre opening
- Connected vehicle technologies
- Life Members sponsors Sony Pictures Imageworks tour
- Evolution toward 5G cellular: key challenges
- On change point detection using variation denoting
- Workshop and site tour at Zaber Technologies
- Upcoming IEEE Conferences in Vancouver area
- Multimedia volunteers needed



IEEE prohibits discrimination, harassment and bullying.
info: <http://www.ieee.org/web/aboutus/whatis/policies/p9-26.html>

SFU Student Branch McNaughton Centre opening ceremony

The Simon Fraser University IEEE Student Branch has recently announced the opening of the IEEE McNaughton Learning Resource Centre after receiving a grant from the IEEE Canadian Foundation. This grant has allowed the student branch to purchase new engineering equipment such as robotics kits, and Micro-Processor boards, and has enhanced the students' learning experiences by providing them with an opportunity to get involved with more hands-on engineering projects.

The Centre will allow students access to a variety of tools and equipment which is not provided by the school or faculty, and will improve the students' educational experience at Simon Fraser University.

This year the SFU IEEE Student Branch also formed a Branch Chapter of the IEEE Systems, Man, and Cybernetics (SMC) Society which will bring great improvements to our robotics committee by providing students with an advanced, educational experience.

To celebrate the opening of the SFU IEEE McNaughton Learning Resource Centre and the SMC Branch Chapter, we invite you to attend the opening ceremony which will be held at Simon Fraser University Burnaby Campus. Students from various SFU IEEE Student Branch committees as well as other engineering clubs and groups from SFU will be present to showcase their projects and/or involvement within the university community.

Simon Fraser University Burnaby Campus
Applied Science Building North Atrium

Friday 26 June 2015

12:30 – 5:00pm

Presentations / speeches around 4:00 - 4:30pm

For more information, please contact Michael Fujiwara at mfujiwar@sfu.ca.



Wenlong Jin
U California, Irvine

Connected vehicle technologies: communication system analyses and green-driving strategies

Connected vehicle technologies can transform the transportation sector, improving the safety, mobility, and environmental impacts. My collaborators and I have focused on some theoretical issues related to the fundamentals and applications. This talk is divided into two parts. In the first part, I will discuss basic characteristics of connected vehicle systems, also known as vehicular ad hoc networks, built on the dedicated short range communications. In particular, I will present mathematical models for estimating instantaneous connectivity and communication throughputs under general vehicular traffic patterns.

In the second part, I will discuss applications of connected vehicle technologies in the development of green-driving strategies. For freeway stop-and-go traffic, I will present a distributed cooperative strategy based on vehicle-to-vehicle communications and the simulation and field test results. For arterial traffic, I will present a feedback control strategy based on infrastructure (signal)-to-vehicle communications. To conclude, I will present some related efforts within our group.

Speaker: Dr. Wenlong Jin (BS in Automatic Control, University of Science and Technology of China, 1998; PhD in Applied Mathematics, UC Davis, 2003) is an Associate Professor of Civil and Environmental Engineering at UC Irvine. He is interested in developing fundamental and systematic concepts and methods for modeling, analyzing, monitoring, and controlling transportation systems, through interdisciplinary approaches based on behavioral modeling, mathematical analysis, systems theory, and information and communication technologies.

He has been a principal or co-principal investigator of over twenty federally- and state-sponsored projects. Dr. Jin has co-authored 42 peer-reviewed journal articles, most of which were published by Transportation Research, Transportation Science, and other top journals, 37 conference proceedings, and five reports, and has given over 40 invited talks and conference presentations. He is an editorial board member of Transportation Research Part B and an Associate Editor of Transportmetrica B.

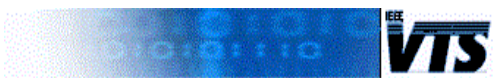
Monday 29 June

11 am

Rm 418, Macleod Bldg
2356 Main Mall, UBC



IEEE Information Theory Society



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

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

IEEE Vancouver Life Members is sponsoring a Sony Pictures Imagesworks tour

Sony Pictures Imagesworks is hosting a tour of their Vancouver labs for IEEE Vancouver members.

Wednesday 22 July
2:30pm - 3:30pm
500 - 725 Granville Street, Vancouver

If you would like to attend please contact
IEEE Vancouver Life Members Chair
Dr. Abhijit Sen at abhijit.sen@kpu.ca



IEEE

IEEE Okanagan Subsection Presents

Ekram Hossain, IEEE Fellow
Dept. of Electrical and Computer Engineering,
University of Manitoba



Evolution toward 5G cellular: Key challenges and enabling technologies

Time & Date at OC: 6 pm, July 13th, 2015. **Location:** E103, [Okanagan College](http://www.okanagancollege.ca), 1000 KLO Rd, Kelowna, BC V1Y4X8 ([parking](#) info). **Registration Page:** <http://tinyurl.com/o8fob93>.

Time & Date at UBCO: 11 am, July 14th, 2015. **Location:** EME, UBC, Okanagan Campus, Kelowna, BC. **Registration Page:** <https://meetings.vtools.ieee.org/m/35083>.

Talk Abstract: The evolving fifth generation (5G) cellular wireless systems will have a multi-tier architecture consisting of macrocells, different types of licensed small cells, relays, and device-to-device (D2D) networks to serve users with different quality-of-service (QoS) requirements in a spectrum and energy-efficient manner. Starting with the visions and requirements for 5G cellular networks, the key challenges in the design and deployment of these networks will be discussed and several enabling technologies for these networks will be reviewed. In particular, concepts of tier-aware resource allocation, distributed uplink cell association and power control, cognitive spectrum access by network tiers, mode selection and power control for D2D communication, radio frequency (RF) energy harvesting-based D2D communication, and interference management in multi-tier cellular networks in presence of energy harvesting will be discussed.

Speaker Biography: Ekram Hossain (IEEE Fellow) is currently a Professor in the Department of Electrical and Computer Engineering at University of Manitoba, Winnipeg, Canada. He received his Ph.D. in Electrical Engineering from University of Victoria, Canada, in 2001. His current research interests include design, analysis, and optimization of wireless/mobile communications networks, cognitive radio systems, and network economics. He has authored/edited several books in these areas (<http://home.cc.umanitoba.ca/~hossaina>). Dr. Hossain serves as the Editor-in-Chief for the IEEE Communications Surveys and Tutorials, and an Editor for IEEE Wireless Communications. Also, currently he serves on the IEEE Press Editorial Board. Previously, he served as the Area Editor for the IEEE Transactions on Wireless Communications in the area of "Resource Management and Multiple Access" from 2009-2011, an Editor for the IEEE Transactions on Mobile Computing} from 2007-2012, and an Editor for the IEEE Journal on Selected Areas in Communications - Cognitive Radio Series from 2011-2014. Dr. Hossain has won several research awards including the University of Manitoba Merit Award in 2010 and 2014 (for Research and Scholarly Activities), the 2011 IEEE Communications Society Fred Ellersick Prize Paper Award, and the IEEE Wireless Communications and Networking Conference 2012 (WCNC'12) Best Paper Award. He is a Distinguished Lecturer of the IEEE Communications Society.

Refreshments will be provided. For further information please contact **youry at ieee.org**.

On change point detection using total variation denoting

Bo Wahlberg
KTH Royal Institute of Technology, Stockholm, Sweden

Thursday, June 25, 2015, 3:30pm
KAIS 2020, Kaiser Building, ECE Department, UBC

<https://sites.google.com/site/spschaptervancouver/talks/wahlberg2015>

Abstract

This presentation concerns the use of l_1 regularization for segmentation of a data with respect to changes in certain model parameters. We will analyze the problem of segmenting a time-series with respect to changes in the mean value using the fused lasso method. This problem is also referred to as total variation (TV) denoising or l_1 -mean filtering and has many important applications. The key idea is to notice that the optimality conditions for this problem can be analyzed using reflecting brownian bridge theory. We will give conditions when and when not the l_1 regularization "trick" works for this sort of problems. We show that the TV denoising suffers from the so-called stair-case effect, which leads to detecting false change points and also discuss how to modify the algorithm to avoid this defect. We also discuss how to extend the results to l_1 -trend filtering and outline some optimization algorithms that allow for solving huge fused lasso problems in a very efficient way.

Biography

Bo Wahlberg received the M.Sc. degree in Electrical Engineering in 1983 and the Ph.D. degree in 1987 from Linköping University, Sweden. He was a post-doc at University of Newcastle, Australia, in 1988. In December 1991, he became Professor of the Chair of Automatic Control at KTH Royal Institute of Technology, Stockholm, Sweden. He was a visiting professor at the Department of Electrical Engineering, Stanford University, USA, August 1997 - July 1998 and August 2009 - June 2010, and vice president of KTH 1999 - 2001. He is a Fellow of the IEEE for his contributions to system identification using orthonormal basis functions.



He is a co-founder of Centre of Autonomous Systems and the Linnaeus Center ACCESS on networked systems at KTH. He is the KTH founding director and PI for the Wallenberg Autonomous Systems Program, that recently was granted 200 million USD over ten years for research into autonomous systems and software development. His research interests include system identification, modeling and control of industrial processes, and statistical signal processing with applications in autonomous systems. Bo Wahlberg is currently visiting University of British Columbia for two months.

Sponsored by the
Vancouver Chapter of the
IEEE Signal Processing Society

Information
SPS Chair Ivan Bajic
ivan_bajic@ieee.org

Workshop & Site Tour at Zaber Technologies: Applications of Automation Technology

Host: Zaber Technologies Inc.



Co-hosted with IEEE Joint CS/RA/SMC Chapter in Vancouver Section

Date: Thursday, June 25, 2015

Time: 3:00pm – 6:00pm

Place: #2 – 605 West Kent Ave. N, Vancouver, BC V6P 6T7

Speaker(s): Applications Engineers, Sofia Moreno and Albert David

Website: www.zaber.com

Zaber designs and manufactures motorized devices and systems that can be used in automating many sub-micron positioning applications. Positioning technology is used in many different markets, including photonics and optics, life sciences, industrial automation, and microscopy.

This free seminar and site tour will give participants a chance to learn about Zaber, their R&D capabilities, and company history and culture. There will also be live product demos, Q&A with Zaber's engineers, and a site tour of our production facilities.

Registration is required for this event as seats are limited. Deadline for registration closes on Monday, June 22, 2015, 5:00pm PST.

To register, please email contact@zaber.com and provide your Name, Company, and Telephone number. If you have any food allergies, please also include a note in your email, as light refreshments will be served.

Agenda

2:50pm – 3:00pm – Arrive* and sign-in at Zaber Technologies (1st Floor)

3:00pm – 4:45pm – Introductions and presentation on Zaber

4:45pm – 5:30pm – Site tour

5:30pm – 6:00pm – Product demos and Q&A

*Free parking available.

Sponsored by the joint chapters of
IEEE Control Systems, Robotics
and Automation, and Systems,
Man and Cybernetics societies

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



Upcoming IEEE conferences in Vancouver area

2015 IEEE International Conference on Software Quality, Reliability & Security

03 - 05 August 2015 — Richmond BC

<http://paris.utdallas.edu/qrs15/>

6th Internat'l Conference and Workshop on Computing and Communication

15 - 17 October 2015 — Vancouver BC

<http://www.iemcon.org/>

IEEE 7th International Conference on Cloud Computing Technology and Science

30 November - 03 December 2015 — Vancouver BC

<http://2015.cloudcom.org/>

16th ACM/IFIP/USENIX International Middleware Conference

08 - 11 December 2015 — Vancouver BC

<http://2015.middleware-conference.org/>

Multimedia volunteers needed for..

- recording of audio and video at **IEEE Vancouver** technical presentations
- editing and post processing of audio and video
- maintaining multimedia equipment
- investigating internet based delivery methods
- planning web site integration including online tools
- conducting training workshops and collaborating with other teams / organizations
- setting up and facilitating webcasts

Contact Pieter Botman p.botman@ieee.org