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Message from the chair

Dear IEEE Member,

Our Centennial Gala/AGM on March 12 was a great success. Another record breaking attendance with close to 170 IEEE members and friends was an evening worth remembering. We recalled our past section and chapter successes and honoured exceptional IEEE volunteers during the awards ceremony.

I would like to thank all our centennial sponsors for making it possible for us to make this year's AGM extra special. We are especially grateful to the three university supporters, UBC, SFU and BCIT, for coming forward as platinum sponsors of our special projects for this year. Their involvement and long term support of IEEE Vancouver and student branches is truly appreciated. Our all-time company supporter BC Hydro received a centennial plaque to commemorate the long standing relationship and support to IEEE Vancouver. We are especially thankful to the numerous past and present section volunteers as well as the financial support that came from BC Hydro towards the IEEE activities. All of these helped shape IEEE Vancouver into what it is today – the best section in the world!

We were able to gather and present some of the findings from our centennial history search and start our history exhibition with the first posters displayed at the AGM. The exhibition will grow throughout this year with the purpose of creating a permanent centennial booklet each member will want to preserve for the years to come. Our student branch volunteers from BCIT, UBC and SFU were instrumental in helping us retrieve and examine valuable historical documents. Our section vice-chair Kouros Goodarzi created the first instalment of our centennial exhibition with input and feedback from our centennial committee members.

Special recognition for their contributions to the centennial initiatives goes to:

- Nina Selak, Gruja Blagojevic for the sponsorship drive
- Nick Keenan for advertising
- Jesse Malm and Victor Tsang for the centennial website
- Pieter Botman for centennial slogan, logo competitions and sponsorship
- Kouros Goodarzi for AGM, history exhibition and awards and recognitions
- BCIT, UBC student branches, Patrick Sandi and Aryan Navabi for history search
- Charlie Henville, Jose Marti, Hermann Dommel, Ed Jull and Jahangir Khan for awards and recognitions
- Meliha Selak and Valentina Dabic for student scholarships and awards and recognitions

Finally I would like to congratulate all the volunteers recognized for their contributions with annual and centennial award plaques during the AGM.

Our next Centennial Event is coming up on April 6th at UBC when the Department of Electrical and Computer Engineering will be presented with the IEEE Vancouver Centennial Plaque during the reception in conjunction with the student Project Fair. Stay tuned for more centennial announcements!

Mazana Armstrong
IEEE Vancouver section chair
mazana.armstrong@ieee.org

Single motor neuron models: oversimple, complex, and reduced. Which to choose?

Kelvin Jones
University of Alberta

Thursday 14 April
11:00am - 12:30pm
Peter Wall Institute Conference Rooms
6331 Crescent Road
University of British Columbia

In the mid-20th century McCulloch and Pitts proposed a basic neuron model (MP neuron) that was a binary computational element: on or off. At the same time the transistor was invented at Bell Telephone Laboratories. The MP neuron and the transistor had very similar functionality and it is clear that connecting a bunch of transistors together can generate a computing device.

The MP neuron is an example of an 'oversimple' concept neuron, but it has been useful for tasks like signal processing and pattern recognition when a number of them are connected together. Forty to fifty years after McCulloch and Pitts, biophysicists interested in the relationship between form and function created increasingly complex multi-compartment models based on anatomical reconstruction of neurons. The level of detail in some of these simulations suggested that the single neuron was itself a network. These 'complex' models showed that a single neuron could demonstrate nonlinear dynamics that were not binary like the MP neuron.

What would happen if real neuronal properties, like nonlinear dynamics, were added to a neural network? How would such a network be controlled? To answer these questions we have developed a new class of reduced models for some special neurons: motor neurons that connect to the muscle of the body to generate movement. It is too early to tell, but my guess is that sensorimotor control theory is due for a paradigm shift.

Speaker: Kelvin Jones is an Assistant Professor in the Faculty of Physical Education and Recreation at the University of Alberta, with adjunct positions in the Departments of Biomedical Engineering, Computing Science and Electrical and Computer Engineering. He is also a member of the Centre for Neuroscience and Chair of the Human Research Ethics Board. Kelvin received his Ph.D. from Simon Fraser University where his affinity for motor neurons and computation was hatched in a windowless room. Besides computational work, his research is focussed on the neurodegenerative condition that targets motor neurons known as Amyotropic Lateral Sclerosis (ALS) and the neuroprotective effects of exercise on this disease.

To schedule a meeting with Dr. Jones, please contact Margaret Bloomquist at: margaret.bloomquist@pwias.ubc.ca
office: 604.822.8218

Welcome.. recent arrivals to the best section on Earth! *

Fatemeh Abdollahzadeh	ST	Eric Hulme	M	Eric Parker	ST
Arina Aboonabi	GS	Michael Hume	ST	Rob Patterson	M
Nasim Arianpoo	GS	Chia Chien Hung	GS	Mark Petersen	M
Rody Bagtes	M	Wenbo Jiang	GS	Florin Pompas	M
Michael Bates	M	Mory Kapustianyk	M	Ahmad Radaideh	ST
Mehrdad Bokharaei	GS	Zamzam Kordiboroujeni	GS	Rubaiya Rahman	GS
Brian Booth	GS	Wei Li	ST	Jarred Richter	ST
Alexey Bossak	ST	Kenan Li	ST	Roman Rochelt	M
Hicham Boukili	ST	Christopher Liaw	ST	Rafael Roman Otero	ST
Alexandra Burgin	ST	Han Liu	ST	Hamed Sadeghi Neshat	GS
Mark Cho	ST	Po Liu	ST	Maryam Saeed	ST
Dixon Chong	ST	Geoffrey Lo	GS	Nazafarin Shabehpour	ST
Patrick Cloutier	M	Vivien Lo	ST	Madhu Sharma	GS
Logan Connaughton	M	Cesar Lopez	ST	Daniel Shihundu	AM
Alex Corbett	GS	Bradford Lowe	M	Pooneh Shooshtari	GS
Alexandru Cosariu	ST	Alexander Manousiadis	ST	Nathan Skillen	ST
Neda Eskandari	ST	Nadia Marchant	AM	Michael Tang	ST
Travis Fary	ST	Tristan Markle	GS	Theodore Twist	ST
Adrian Fuxman	M	Andrea Marti	ST	James Wetherill	AM
Sean Garrity	ST	Catherine Marti	ST	Sudianto Wijaya	ST
Marco Gonzalez	ST	Yueming Mei	GS	Paul Wood	M
Arthur Gooch	M	Reza Molavi	GS	Yaniv Zadka	M
Marilyn Hay	M	Adiba Nitu	GS	Fan Zhang	ST
Shaghayegh Hosseinpour	GS	Siauhwa Ong	ST	Mohammad Zubayer	GS
Shengchun Huang	ST				

AF Affiliate - AM Associate Member - F Fellow - GS Graduate Student Member - LF Life Fellow
LM Life Member - LS Life Senior - M Member - SM Senior Member - ST Student Member

* IEEE Vancouver named Outstanding Large Section for 2009!

George Chen
BC Photonics

Monday 18 April
7pm - 9pm

BCIT Burnaby campus
SW3-1750

Photothermal techniques for materials characterization and live cells monitoring

In the '70s photothermal techniques were developed to characterize materials' properties. In recent years, photothermal techniques have been modified for studying live cells.

In this talk, pulsed photothermal reflectance (PPR) will first be introduced that can characterize thermal properties of thin films and carbon nanotubes. Using PPR, thermal conductivity of 20nm thin film and thermal boundary resistance at the interfaces can be determined. Then, photothermal response (PTR) will be introduced that can determine the thermal property of live cells under normal aqueous environment. PTR was applied for monitoring the programmed cell death (eryptosis) of human Red Blood Cells.

It is found that the thermal diffusivity of RBC increases by two folds before the dying cell proceeds into the non-linear regime. Moreover, the statistical result infers the detection of an initial stage of eryptosis before PS externalization that flow cytometry couldn't detect.

Speaker: Dr George Chen received his BS and MS in Physics from University of California, Los Angeles in 1982 and 1984 respectively, and received MS in Electrical Engineering (OPTICS) from University of Southern California in 1987. His career in Photonics began in Avimo Electro-optics, Singapore where he designed various kinds of optical systems for military, commercial and medical applications. He received his PhD degree from Nanyang Technological University, Singapore in 2000 and was a research associate there from 1999-2000. He became a faculty member in NTU in 2001 and was promoted to tenured Associate Professor before he resigned in Feb 2010.

Dr. Chen is the founder of BC Photonics Technological Co. which specializes in research and development of Biomedical technology. He is the author or coauthor to more than 50 international publications and a reviewer of many Photonics related journals. His research interests include Bioimaging and Biosensing, Thermal Characterization of Thin Film and Nanostructures, and Diffused Optical Wireless Communication.

Information
Joint Communications
chair Alon Newton
alon.newton@gmail.com

IEEE COMMUNICATIONS SOCIETY

BTS IEEE Broadcast Technology Society

IEEE COMMUNICATIONS SOCIETY

IEEE Information Theory Society

ITSS

IEEE photonics SOCIETY

VTS

The Joint Communications chapter of IEEE Vancouver

representing the following IEEE societies

- Broadcast Technology
- Communications
- Information Theory
- Intelligent Transportation Systems
- Photonics
- Vehicular Technology

is seeking a volunteer to take on the position of vice chair

For your chance to share the excitement of volunteering in one of the most active chapters in IEEE Vancouver history - do it now - be first to email Joint Communications chair Alon Newton at anewton@ieee.org

Volunteering at E-Fest 2011

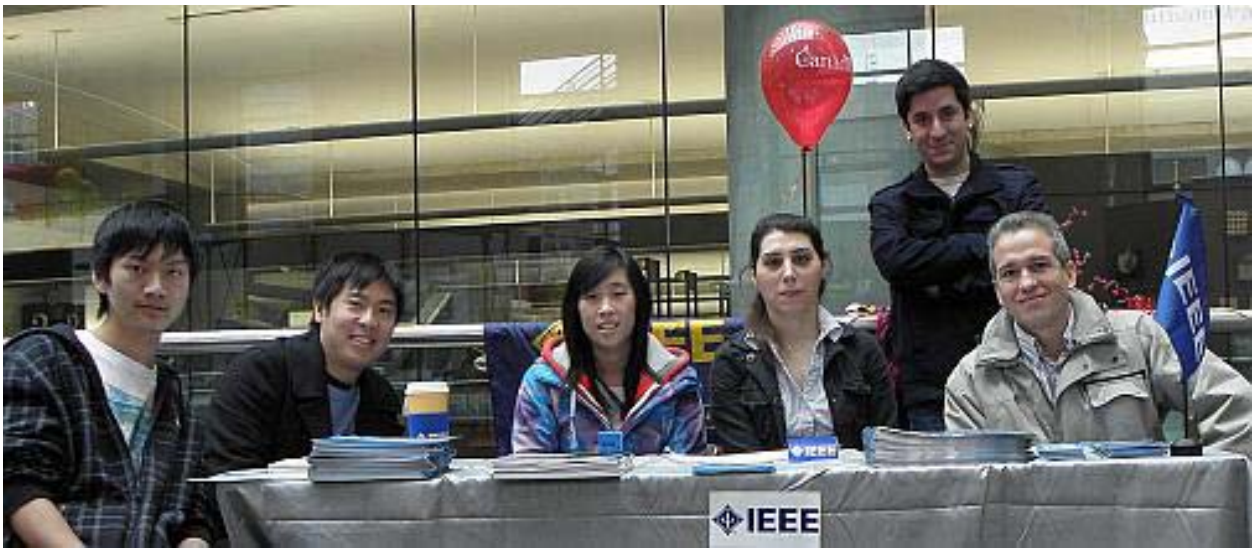
March is this year's National Engineering and Geoscience Month (NEGM), and IEEE Vancouver is once again proud to be one of the participants for this ever-growing event held at the core of downtown Vancouver at the Vancouver Public Library on March 19. This year's event attracted hundreds of Vancourites from children, enthusiasts, to family and friends.

The SFU IEEE student branch was thrilled to have recruited six students to volunteer and help with the event. Our graduate students - Reza Qarehbaghi, Carlos Diaz, and Duncan Chan, undergraduate students, Lexi Chor, and Soudeh Mousavi, and high school student Kevin Cai, have together dedicated their Saturday afternoon to represent IEEE Vancouver on behalf of SFU to promote IEEE to the community.

Throughout the day, we actively engaged with event participants, answering their questions about the IEEE organization, giving out pamphlets and swags, and explaining to prospective members the benefits of joining IEEE. We came across many curious individuals, some of whom were ready to sign up to become a member on the spot!

I was especially happy to see a diverse group of students from SFU interested to volunteer and help and as a result developed a greater appreciation for IEEE. In the end, through the many thoughtful and meaningful interactions made, I wholeheartedly felt this event fostered an opportunity for our volunteers to learn about IEEE and other engineering organizations and clubs, network with others and made new friends, all while learning and promoting IEEE to the public.

Student branch chair, Duncan Chan, dchana@sfu.ca



Kevin Cai, Duncan Chan, Lexi Chor, Soudeh Mousavi, Reza Qarehbaghi (standing, photographer), and Carlos Diaz

Bowling night social

On March 3rd, 2011, IEEE WIE, GOLD and UBC student branch jointly held the first bowling night social in the section at the Varsity Ridge bowling center in Vancouver. It was attended by 23 guests comprising IEEE members and their companions. The guests divided into four teams and the games started right after pizza dinner. The evening was filled with exciting moments and great shots some of which you can view in the provided pictures.

I wish to thank the organizing units IEEE WIE, IEEE GOLD and IEEE UBC student branch for sponsoring the event. The recognition extends to volunteers who contributed to organizing the event: Saba Ardeshiri (UBC student branch), Dana Hoffmann (IEEE WIE), Sara Khosravi (IEEE WIE) and Andy Tsai (IEEE GOLD).

Zahra Ahmadian - IEEE WIEaffinity group

IEEE Joint Aerospace and Electromagnetics Chapter

University of British Columbia
Department of Electrical and Computer Engineering
MacLeod Building, 2356 Main Mall, Room 418

Tuesday, 19 April 2011 - 13:30 – 16:00

Inside the Agilent PNA-X Vector Network Analyzer

Steve Hall, Applications Engineer
Agilent Technologies

The PNA-X high performance network analyzer is a highly integrated and flexible microwave test system for measuring active devices such as amplifiers, mixers, and frequency converters. The combination of two internal signal sources, a signal combiner, S-parameter and noise receivers, pulse modulators and generators, and a flexible set of switches and RF access points provide a powerful hardware core for a broad range of linear and nonlinear measurements, all with a single set of connections to your device-under-test (DUT).

During this seminar you will have the opportunity to learn about the internal workings of this highly flexible tool. We will explore block diagrams, measurement setups, and make application-based measurements. We will also explore the built in highly flexible switching network that provides on-the-fly test system reconfiguration and integration with external instruments such as power meters, signal analyzers and signal generators.

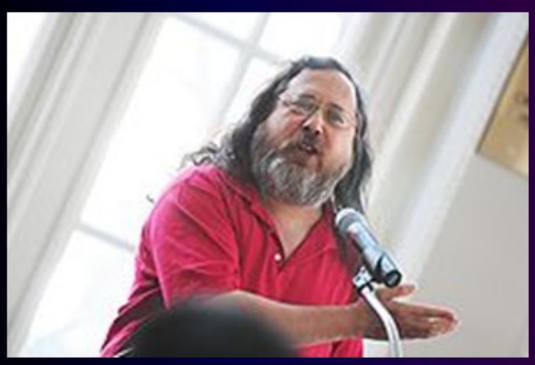
For more information, please contact Dave Michelson, *davem@ece.ubc.ca*

GLOBAL MONDAY PRESENTS

RICHARD STALLMAN

Sponsored by the UNBC Department of Computer Science, Northern BC Subsection of the IEEE, and CIPS Prince George Omineca Section

Free Software and Your Freedom



Richard Stallman speaks about the goals and philosophy of the Free Software Movement, and the status and history of the GNU operating system, which in combination with the kernel Linux is now used by tens of millions of users world-wide.

Richard Stallman launched the development of the GNU operating system (see www.gnu.org) in 1984. GNU is free software: everyone has the freedom to copy it and redistribute it, as well as to make changes either large or small. The GNU/Linux system, basically the GNU operating system with Linux added, is used on tens of millions of computers today. Stallman has received the ACM Grace Hopper Award, a MacArthur Foundation fellowship, the Electronic Frontier Foundation's Pioneer Award, and the Takeda Award for Social/Economic Betterment, as well as several honorary doctorates.

Monday, April 4th

Place: 7-212 Time: 6:00 pm

University of Northern British Columbia
3333 University Way, Prince George, BC, V2N 4Z9
(250) 960-5555

The Silicon Valley Scene – Why and How It Works

Many people want to duplicate Silicon Valley, but that's difficult (and not necessarily a good idea). This talk shows how SV works, plus broader lessons that can be learned from its ups and downs and applied elsewhere. Some requirements are well-known, like: good universities, a skilled talent pool, and real venture capital (the most likely lacking item). Some are not so obvious, like: cheap working space, the right sorts of lawyers and banks, Fry's Electronics, the right restaurants, risk-taking culture, and sometimes unusual social behavior: In many places, if entrepreneurs started companies and failed, that's The End, and they'd never get funded again, so many don't try. **This lecture could be of particular interest to Commerce and Computer Science Majors.**

What: Dr. John Mashey on "*The Silicon Valley Scene – Why and How it Works*"

When: Time 1:30pm – 2:30pm| Monday, April 4, 2011

Where: University of Northern British Columbia, Room 7-152

Dr. Mashey is a computer scientist who moved from Bell Labs to Silicon Valley in 1983. He managed software at Convergent Technologies, was a VP and company officer at MIPS Computer Systems both pre- and post- IPO, and later Chief Scientist at Silicon Graphics, all venture capital-funded companies. Semi-retired in the typical way done here, he lives a few miles from the epicenter of venture capital, Sand Hill Road. He has done due diligence research for venture firms, is an advisor for several start-ups, has helped several get funding.

Free and open to the public. For more information, please call 250 960-6378.