



Joint Communications

**Modern Communication Methods for
SCADA** (Supervisory Control and Data Acquisition)

Tom Dunn
Dayton & Knight Ltd

Monday 19 November 700-900pm
BCIT Town Square A (SE2 212A)

In the thirty years that I have been associated with radio communications systems, the industry has taken giant steps to deliver faster, bigger bandwidth, more reliable, less expensive equipment to their customers. This presentation will start with telemetry systems from the sixties and seventies and proceed to the systems that are available in the marketplace today.



With the implementation of appropriate security measures receiving full attention in the water supply industry, many municipalities are faced with the challenge of not only monitoring their facilities through SCADA, but adding remote video surveillance and datalogging for security at remote sites. Most municipalities today already have SCADA systems in place, but those using radio communications as the primary backbone have been limited to traditional small bandwidths of less than 9600 bps. This leaves Municipalities with only minimal bandwidth for datalogging retrieval and remote surveillance applications.

Recently there has been an explosion in wireless products available on the market that will allow municipalities to leverage their existing infrastructure and available resources. These wireless products are based on the Ethernet communications media that is the underlying core in most office networking environments.

This presentation will review fundamental concepts of wireless Ethernet communication, design considerations for implementation into new and existing Municipal SCADA systems, benefits of using wireless Ethernet versus conventional radio systems, and its application with datalogging retrieval and video surveillance systems.

The author has over 15 years of SCADA automation and consulting engineering experience in water, waste water, and oil and gas industries with both plant and wide area SCADA systems, in Canada, the United States, and South America.

Speaker: (continued page 2)

Power Engineering

**Wireless IP Applications
in BC Hydro Telemetry**

Harry Lee
BC Hydro

Thursday 22 November Noon-100pm
BC Hydro Edmonds Aud'm Skytrain Room

Wireless IP networks have enjoyed an unprecedented build out over the past 5 years. The surging demand for mobile data has resulted in carriers investing large sums of money with infrastructure. Stationary industrial data applications have benefited from the recent ubiquity of these networks.



More economical pricing plans, wider coverage, ease of deployment and the "always on" connection has also made it an enabling technology for numerous telemetry applications.

This presentation discusses BC Hydro applications for automated meter reading and the challenges faced with integrating legacy protocols with a wireless IP environment. The focus of the talk will be on practical solutions and diagnostics tools and methods for setting up and maintaining these applications on the wireless network.

Speaker: Harry Lee is a Specialist Engineer with BC Hydro. He received his Electrical Engineering degree from the University of British Columbia in 1982 and is a registered Professional Engineer in the Province of B.C. He joined B.C. Hydro in 1982 as an electrical research engineer in the R&D division and he is currently in the Protection and Control Services department in the Engineering Division.

Harry has been involved with many technology-related projects including EHV electro-optic transducers, travelling-wave fault location, GPS-synchronized phasor measurements, data communications networks and cyber-security issues for electric systems.

Info: For more information on upcoming events for the Vancouver Chapter of the IEEE PES, please visit our web page <http://ewh.ieee.org/reg/7/vancouver/powereng/> or contact the Chapter Chair, Meliha Selak, by e-mail at meliha.selak@bchydro.com

My laboratory has designed and developed tissue-engineered models of human digits utilizing cells from normal calves and a variety of biodegradable polymer scaffolds. We have most recently investigated middle phalanx constructs



consisting of a polymeric midshaft wrapped with bovine periosteum (a source for both chondrocytes producing cartilage and osteoblasts providing bone) and sutured at each of its ends with a polymer sheet separately seeded with chondrocytes.

We have shown that such constructs form bone in their midshaft regions and cartilage on their ends. The end cartilages remarkably develop into growth plates that resemble normal tissue in vivo, assessed by gene expression, protein and matrix production, and structural organization.

We have now begun a study of these middle phalanx models that are wrapped over only half their length with periosteum. Results to date show that the end region adjacent to the periosteum-covered midshaft half develops growth plate cartilage as usual but the end region adjacent to the uncovered midshaft half fails in that respect. Further interrogation of this so-called half model should yield insight into the mechanisms and events that elaborate both an engineered bovine middle phalanx and a normal human middle phalanx (and possibly the long bones in general).

Speaker: Dr. William Landis is currently Professor of Biochemistry and Molecular Pathology in the Department of Integrative Medical Sciences at the Northeastern Ohio Universities College of Medicine in Rootstown, OH. He took his BS degree in Physics at the University of Massachusetts (Amherst), an SM degree in Biology at the Massachusetts Institute of Technology and a Ph.D. degree in Biophysics at the Massachusetts Institute of Technology. On taking his doctorate, he moved to Children's Hospital and the Harvard Medical School and was a member of the faculty there before relocating to Ohio. Dr. Landis now also holds joint appointments at Case Western Reserve University, the University of Akron, Kent State University, and the University of Pennsylvania. His major research interests are in understanding normal and pathological mineralization in vertebrate tissues (the skeleton and dentition) and in fabricating bone, cartilage and tendon by tissue engineering. This work has been supported over several years by grants from the NIH and NASA.

Info: Ezra Kwok - ezra@chml.ubc.ca

DISTINGUISHED LECTURE

**From Black Art to the iPhone -
the Silicon Radio Frequency IC Decade**

Professor John R. Long
ERL/DIMES, TU Delft

Wednesday 14 November - 400pm
2020 Kaiser Bldg
University of British Columbia

The growth in mobile communication technology over the past decade has astonished the experts and exceeded almost everyone's expectations. Driven by innovations in radio architecture, circuit design and technology scaling as predicted by Moore's Law, perhaps it should be no surprise that we're riding an exponential growth curve. With current cellular phone sales exceeding one billion units per year and a projected market for mobile communication technology and services of greater than \$1,000 billion (Canadian) by 2020, RF IC technology is driving innovation in data networking and personal connectivity.

The milestones in radio frequency IC technology that have resulted in today's single-chip GSM radios are reviewed in the first part of this presentation. However, even as we look back and celebrate our success and the 20th anniversary of GSM telephony, constraints on RF IC performance imposed by deep submicron CMOS technology are dimming the prospects of developing truly scalable analog/RF circuits using conventional circuit topologies. Potential solutions to the design of adaptive, wideband and possibly scalable RF receiver front-ends will be described. Finally, some of the current research directions in millimetre-wave, ultrawideband and wireless sensor networks that may enable tomorrow's RF IC applications are outlined.

Speaker: John Long received the B.Sc. in Electrical Engineering from the University of Calgary in 1984, and the M.Eng. and Ph.D. degrees in Electronics from Carleton University in Ottawa, Canada, in 1992 and 1996, respectively. He was employed for 10 years by Bell-Northern Research, Ottawa (now Nortel Networks R&D) involved in the design of ASICs for Gbit/s fibre-optic transmission systems, and from 1996 to 2001 as an Assistant and then Associate Professor at the University of Toronto. Since January 2002 he has been chair of the Electronics Research Laboratory at the Delft University of Technology in the Netherlands. His current research interests include low-power and broadband/mm-wave transceiver circuitry for highly-integrated wireless applications, and electronics design for high-speed data communication systems.

Professor Long currently chairs the RF circuits subcommittee for the 2008 International Solid-State Circuits Conference (ISSCC), and is a member of the technical program committees for the ESSCIRC, ICUWB, and European microwave (EuMW) conferences.

He is a Distinguished Lecturer for the IEEE Solid-State Circuits Society, a former Associate Editor of the IEEE Journal of Solid-State Circuits, and Past General Chair of the IEEE Bipolar/BiCMOS Circuits and Technology Meeting (BCTM). He is a recipient of the NSERC Doctoral Prize, Douglas R. Colton and Governor General's Medals for research excellence, and Best Paper Awards from the ISSCC in 2000 and 2007, IEEE-BCTM 2003, the 2006 RFIC Symposium, and EuMW 2006.

Info: Res Saleh, IEEE Vancouver SSSS Chair
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(continued from page 1)

Speaker: Tom Dunn is a SCADA and communications specialist with Dayton & Knight Ltd. Electrical Power and Automation (EPA) group. Dayton & Knight Ltd. is an engineering consulting company which specializes in civil, mechanical, structural, environmental, process, electrical and automation projects for the water and waste water industry.

Their primary clients are municipal, regional, provincial and federal governments. Dayton & Knight's main office is in North Vancouver and they have 84 employees working in this and four other branch offices in British Columbia.

Tom has a Senior Engineering Technician's Certificate from the British Columbia Institute of Technology (BCIT). He is a member of the British Columbia Water and Waste Association (BCWWA) and the Instrument Systems and Automation Society (ISA). Tom has been with Dayton & Knight Ltd. since 1999 and is involved in Regional Wide Supervisory Control and Data Acquisition (SCADA) systems and wireless communications projects.

Prior to Dayton & Knight Ltd., Tom worked for 18 years with Motorola Communications and specialized in integrating RF Telemetry systems designed and built by Motorola's Fixed Data Group. He recently retired from the Canadian Naval Reserve as a Naval Radio Operator and Chief Petty Officer 2nd Class. He is also a Ham Radio Operator with his Advanced Certificate (VE7TD).

Info: Email Joint Communications Chair,
Alon Newton, anewton.ieee@gmail.com

2007 IEEE Annual Election

The 2007 IEEE Annual Election is open through Thursday 01 November 2007 1200pm Central daylight time 1700 GMT).

The election booklet and ballots were mailed to members September 1st and ballots must be received at IEEE no later than November 1st, 2007. Any ballot received after this date will not be counted. To vote electronically (which is fast and easy), use the control number and an e-signature included in the ballot received from IEEE.

Please vote today at
<https://www.directvote.net/ieee/>

Joint Communications

Tour of Ascalade Communications

09 November 2007 - 500pm
12051 Riverside Way, Richmond

Ascalade Communications Inc. is an innovative company that designs, develops and manufactures digital wireless and communication products. Ascalade's products include Voice over Internet Protocol (VoIP) phones, cordless phones with Digital Enhanced Cordless Telecommunication (DECT) technology, digital wireless baby monitors and digital wireless conference phones.

Space is limited

For more information and to register contact Sergio Bertani at spbertani@yahoo.com



<http://www.ieee.org/alias>

**New IEEE Vancouver Ethic, Professionalism and Conference Committee
headed by Prof. Eduard Babulak**

As Chair of the IEEE-Vancouver Ethics, Professionalism and Conference Committee, I wish to promote the IEEE Code of Ethics, Professional Development and growth of each of member of IEEE-Vancouver section, while making sure that they have access to all Conferences and related events available in Greater Vancouver area. I believe that it is important to make sure that IEEE Vancouver section and all its members are well informed about all the relevant technical Conferences and similar events that are held in Vancouver.

With regards to Professionalism, I would be most glad to act as a Mentor to younger colleagues and student members. I believe that it is important to promote the IEEE Code of Ethics and excellence for all. In case that it may become necessary, I will be glad to act as an Arbitrary and/or Ombudsman for the IEEE Vancouver section, to make sure that all disputes/conflicts are solved in a most professional and ethical manner. It is my sincere desire to promote the highest professional and ethical standards of the IEEE Vancouver section as well as an excellent reputation nationally and worldwide. Prof. Eduard Babulak



Prof. Eduard Babulak MSc, PhD, P.Eng., Eur.Ing., CEng., SMIEEE
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FDU-Vancouver: <http://www.fdu.edu/vancouver>
Copernicus: <http://my.indexcopernicus.com/babulak>
Madrid: <http://www.it.uc3m.es/ebabulak/index.html>

Upcoming Technical Conferences in Vancouver

- <http://www.sigmod08.org/>
- <http://www.imua2008.ca/>
- <http://www.e-healthconference.com/>
- <http://www.wicsa.net/>
- <http://www.embc2008.com/>
- <http://www.globe2008.ca/>
- <http://www.cla.ca/conference/2008/index.htm>
- <http://www.north08.webdirections.org/>
- <http://www.confabb.com/conferences/23666>
- <http://www.cacmid.ca/2008conference.shtml>
- <http://www.kdnuggets.com/meetings/>
- <http://www.edtechtalk.com/node/1793>
- <http://www.first.org/conference/2008/papers.html>
- <http://www.first.org/newsroom/globalsecurity/152539.html>
- http://www.massivetechshow.com/van08/attendees/register_van08.asp
- <http://www.canadianpubliclibraries.blogspot.com/2007/06/cla-vancouver-2008.html>

Power Electronics and Product Safety and Reliability

**Product Safety For Emerging Power
Generation Technologies (fuel cells)**

Harry Deo
Tekion Canada

Wednesday 21 November 600pm
BCIT Town square B

Fuel cells are an old technology but only in the past 20 years they took the road to commercial use. Ensuring the safe use of emerging technologies should be of utmost importance to design engineers. Product safety considerations in design and third party certification can be difficult for emerging technologies. How is it being done for the current fuel cell systems and what should the considerations be for other new technology applications? How do businesses and the society benefit from such practices? All these questions will be answered by Harry Deo, who is Principal Safety and Certifica-

tion Engineer at Tekion Canada. He graduated from SFU and is member of APEGBC. In the past 8 years he has been involved in the fuel cell sector and participated at the first UL certification for a commercial fuel cell system.

Harry is a member of

- APEGBC
 - TC105 IEC WKG 8 - Micro Fuel Cell Safety
 - CNC/IEC on Fuel Cell Safety
 - USFCC
 - Safety Expert for USFCC on Micro fuel Cell Safety in negotiating with ICAO and IATA provisions for passenger carry-on and use of micro fuel cell products in airlines.
- Patent: "Fuel Cell Ambient Environment Monitoring and Control Apparatus and Method" US 6,815,101 B2, November 9, 2004*

For registration please contact Eugene Trandafir at Eugen.trandafir@ieee.org or Rasvan Mihai at rmihai@cellexpower.com

**Transition of IEEE
Engineering Management Society
to Technology Management Council**
Kouros Goodarzi

Tuesday 20 November 600 - 700pm
Building SE2, Town Square 'C' BCIT

As of January 1, 2008, the IEEE Engineering Management Society will become the IEEE Technology Management Council (TMC). This change affects current Engineering Management Society members and our local Society Chapter. This presentation summarizes the rationale behind the change and details of how the change is going to take place.



Member Societies of the new Council will be presented and differences between members and supporters of the council will be discussed. Questions regarding the transition will be addressed and open discussion on the effects will follow.

Speaker: Kouros Goodarzi has more than two decades of experience in the software industry with several years of hands-on experience in both software development and project engineering management. He has held engineering and management positions in small and large companies including iPackets, Nokia, Holley Communications (Philips Semiconductors Canada), and Avcan (now Optimal Geomatics). Throughout his career, Mr. Goodarzi has filled roles ranging from software manager to project manager and from developer to technical lead in several small and medium sized entrepreneurial companies.

With a B.Sc. in Electrical Engineering and a Masters degree in Computer Engineering, he has established a solid educational background that is complimented by courses and continuing trainings. Beside holding the chair position of the Engineering Management Society in the Vancouver Section for the past three years, he is an active member of the IEEE, IEEE Computer Society, IEEE Communication Society, and member of IEEE 1648 Working Group for Establishing and Managing Software Development Efforts Using Agile Methods. He is also involved with the BC Innovation Council as a reviewer.

Info: For more information please contact Kouros Goodarzi, Chair of Engineering Management Society at krs@ieee.org

**Web
Data Management**

Raghu Ramakrishnan, Yahoo! Research
Thursday 25 October 2007



The Web is no longer a static repository of documents; it is a dynamic repository of information that connects people with their passions, and on a more prosaic note, the applications they use in their personal and professional lives. How is the Web evolving as an information source, and how does this affect the future of information discovery? What are the implications of the rapid growth of social networks? How does the emergence of the Web as a delivery channel for services affect the future of software?

Technically, these trends have given rise to a new wave of challenges, and led to vigorous research on a number of fronts ranging from social network analysis, information extraction and community information management, massively distributed storage and computing platforms, as well as placing a premium on hosted service architectures. In this talk, I will discuss these issues and outline some of the solutions that are beginning to emerge.

Professor **Raghu Ramakrishnan** is Chief Scientist for Audience and Research Fellow at Yahoo!, and heads the Community Systems Group in Yahoo! Research. He is on leave from the Computer Sciences Department at the University of Wisconsin-Madison. He was founder and CTO of QUIQ, a company that pioneered question-answering communities, powering Ask Jeeves' AnswerPoint as well as customer-support for companies such as Compaq. His research has influenced query optimization in commercial database systems, and the design of window functions in SQL:1999. His paper on the Birch clustering algorithm received the SIGMOD 10-Year Test-of-Time award, and he co-wrote the widely-used text "Database Management Systems."

**Modeling and Learning in Multimedia
and Speech Processing: Industrial
and Academic Perspectives**

Li Deng, Microsoft Research
Thursday 22 November 2007



This lecture will present recent advances and central issues in multimedia signal processing, speech processing/recognition in particular, from the speaker's personal industrial and academic perspectives. Multimedia technologies represent rich applications and interactions among a variety of information sources including speech, music/audio, graphics, animation, image, video, and text/language. They also span over wide-ranging information processing tasks including coding/compression, transmission/networking, analysis, synthesis, perception, recognition, understanding, and retrieval. Future multimedia technology development will require an increasing level of intelligence, for which modeling and learning are two central issues. As a concrete example, this lecture will focus on the development of speech recognition and understanding technology over the past four decades and elaborate on the key roles that modeling and learning have been playing in the technology development.

Li Deng was Professor at the University of Waterloo, Ontario, 1989–1999, and is currently Principal Researcher at Microsoft Research, Redmond. He has published over 300 refereed papers in leading international conferences and journals, 15 book chapters, and two books. He has over 20 patents as inventor or co-inventor in acoustics, speech/language technology, multimedia/multi-sensor human-computer interaction, and signal processing. He currently serves on the IEEE Signal Processing Society's Multimedia Signal Processing Technical Committee and is Area Editor of IEEE Signal Processing Magazine. He was a Technical Chair of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP04), and the General Chair of the IEEE Workshop on Multimedia Signal Processing, 2006.

CALL FOR PAPERS

IEEE Canadian Conference on Electrical
and Computer Engineering (CCECE)
May 4 to 7, 2008
Niagara Falls, Ontario, Canada
www.ccece08.org

The 2008 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE'08) will be held in Sheraton Fallsview in Niagara Falls, Ontario, Canada from May 4 through May 7, 2008.

The conference with about 90 technical sessions will feature 8 technical symposia. The "Control and Robotics Symposium" will be a major forum for top international researchers interested in all areas of control and robotics and their applications. You are cordially invited to participate in the Control and Robotics Symposium of CCECE'08 by submitting full-length technical papers and/or organizing special sessions, workshops, tutorials and industrial exhibits.

Symposium important deadlines

- Full-length papers submission (December 7, 2007)
 - Special Sessions proposals submission (December 7, 2007)
 - Tutorials/Workshops proposals submission (December 7, 2007)
 - Notification of acceptance (January 18, 2008)
 - Final papers submission (March 7, 2008)
- For more information on the symposium scope and submission process, please consult the Control and Robotics Symposium Call For Papers (CFP) available at www.ewh.ieee.org/reg/7/ccece08/callfor.php

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*The ICICS DLS lectures are held in the Hugh Dempster Pavilion,
Room 310 (6245 Agronomy Road, UBC).*

All lectures are 3:30 to 4:30 PM, with a question and answer period from 4.30-4:50 PM

Appetizers

Assorted Cold Canapès Served on House Croutons
Seared Ahi Tuna with a sesame seed crust, lime wasabi aioli & tobiko
Smoked B.C. Salmon with chive & horseradish cream
Prosciutto & roasted roma tomato with shaved asiago

Buffet Menu

Freshly baked artisan breads
Seasonal green salad with shallot vinaigrette and vine ripened tomatoes
Classic Caesar salad with house croutons and fresh parmesan
Lemon grass infused basmati rice
Roasted baby white nugget potatoes
Medley of seasonal vegetables
Rigatoni with fresh tomato sauce, capers, parsley and fresh parmesan
Grilled chicken breast with a porcini mushroom sauce
Salmon Wellington with a white wine tarragon cream sauce
Roasted striploin, black peppercorn crust, caramelized onion balsamic demi

Dessert

Belgian Chocolate Espresso Mousse
Coffee & Tea

Steamworks
375 Water St
(Gastown)

IEEE Vancouver 2007
Social Event
Friday 02 November
630 pm

Steamworks Map

SkyTrain access - Waterfront station
Harbor view

Buffet menu with great choices
Good opportunity to do some networking
and have a little fun.

630pm for networking and drinks
then great food and atmosphere
followed by dancing with lots of fun
including raffles and prizes

Payment **PayPal**

or cash at the door:

\$25 students members and

IEEE Section Executives

\$30 student non members

\$40 members and companion

\$45 non members

Balance is IEEE sponsored

One free drink (domestic alcoholic or
non alcoholic) included

Registrations required

by e-mail: social2007@telus.net

or by phone: 604-942-5759

For more details contact Eugene Trandafir
etrandafir@tekion.com