



Joint Communications and Computer

Integration of wireless technology in consumer electronic devices

Sean Mercer
Microsoft Corporation

Monday 10 December - 700-900pm
BCIT, Bldg SE2, Town Square D

The integration of radio/wireless technology into consumer electronics devices is of broad interest our days. There are many EMI issues and antenna issues that have to be overcome when integrating wireless devices into a consumer type product. I will discuss common EMI issues and antenna design and implementation concepts applicable to achieving a successful



outcome. The site below has some examples I have been directly been involved with recently: <http://www.msndirect.com/>

The presentation will include

- slides about Microsoft's very high level publicly available data about staff size, organization, finance etc.
- slides covering the MSN Direct FM broadcast service that we operate. We broadcast content and appropriately equipped devices, such as a watch, can receive and display the information.
- a discussion of noise and EMI emissions from various non wireless host products and the implications for radio receivers. Antenna implementation issues will be covered here.
- a description of the type of lab equipment and SW used in our lab for development and evaluation purposes
- a description of some higher frequency examples: 2.4GHz and 1.575GHz
- examples from past work and a discussion on host noise and cellular integration from the Palm device.

Speaker: Sean Mercer is a Wireless Technology Architect in the Smart Personal Objects Technology Group at Microsoft Corporation. He is responsible for researching and promoting wireless technologies within the group, in addition to working with partners to achieve successful wireless product implementations. Prior to joining Microsoft, Sean worked as an RF engineer at Palm Inc. Before relocating to the USA in 2000 he spent several years in Vancouver

Product Safety and Reliability

SEMINAR

Normal Temperature (Heating) Test

Alfred Fung
Underwriters' Laboratories of Canada

Tuesday 04 December - 630pm
BCIT, Bldg SE2, Town Square C

Normal Temperature Test is one of the most common tests that can be found in most product safety standards, such as UL 60950/CSA C22.2 No. 60950-1-03, UL 1598/CSA C22.2 250-24/NMX-J-ANCE, etc. Some standards may have a different name as 'Heating Test'. The test is performed at the intended operating conditions. The test results shall determine if the requirements in the standard(s) have been met.



**Underwriters
Laboratories**

Underwriters' Laboratories of Canada (ULC) is one of Canada's leading product safety Standards Development Organizations. It serves as a safety and technical resource to help manufacturers deliver safer products to markets worldwide. Only those products that endure ULC's precise and thorough testing to national product safety standards can bear a ULC Mark or a UL Mark for Canada. With UL and ULC Marks of Safety appearing on more than 21 billion products, retailers, specifiers and consumers can buy and use products with confidence.

Upon completion you should be able to understand why such a test is needed, what equipment is needed, how the test is conducted and concluded. The seminar will benefit Product Safety Engineers, Design Engineers, Quality Engineers, Engineering Managers.

Instructor: Alfred Fung is the Team Leader Engineer at Vancouver (Richmond), LES office who has experience in conducting product safety investigations.

Refreshments will be served.

Info: Please RSVP to StevenMcClain@ieee.org
Map: <http://www.bcit.ca/files/about/pdf/bcitmap.pdf>

working in an RF capacity for Philips Semiconductors, Motorola, Glenayre and Racal Canada. Sean holds a Ph.D in electrical engineering, maintains his CEng status in the UK and has been a MIEEE for over a decade.

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

Power System Reliability Assessment and its Applications

Dr. Wenyuan Li, FIEEE

British Columbia Transmission Corp

Thursday 13 December Noon-100pm
BC Hydro Dunsmuir Auditorium
2nd Floor 333 Dunsmuir St, Vancouver

The application of power system reliability assessment has drawn ever-increasing interest in the electric utility industry, particularly since massive power outage events happened across the world in recent years. Two important problems in applying reliability analysis to power systems are: (1) how to perform a quantified reliability assessment for a power system network or a substation configuration; (2)



how to link system reliability to costs so that a comprehensive economic analysis can be conducted. This presentation will provide some basic concepts in power system reliability assessment and its applications. The methods to quantify power system reliability and unreliability costs are presented. A few examples are provided, including simple examples which can be evaluated using manual calculations or spreadsheets and complex case studies which have to be assessed using a computer program.

Speaker: Dr. Wenyuan Li is currently a Principal Engineer at British Columbia Transmission Corporation, Vancouver, Canada. He is an IEEE Fellow. Dr. Li is the author of more than 80 papers in power system planning, operation, maintenance, optimization and reliability. He published four books in power system economic operation and power system risk assessment. He also completed more than sixty technical reports in industry applications. Dr. Li was the recipient of the "Outstanding Engineer Award" by the IEEE Canada in 1996, the "Significant Reviewer Award" by IEEE PES in 2006 and two "Technical Committee Working Group Recognition Awards" by IEEE PES in 2007.

Info: For more information on upcoming events for the Vancouver Chapter of the IEEE PES, please visit our web page <http://ewh.ieee.org/reg7/vancouver/powereng/> or contact the Chapter Chair, Meliha Selak, by e-mail at meliha.selak@bchydro.com



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

Programmable Micro-scale Self-assembly

Karl Böhringer
University of Washington

Thursday 10 January 2008 - 300pm
9896 Applied Science Building (ASB)
Simon Fraser University

[Abstract of speaker's topic will be available on or before publication of the January 2008 Contact]

Speaker: Dr. Karl Böhringer is Professor of Electrical Engineering with adjunct appointments in Computer Science & Engineering and in Mechanical Engineering at the University of Washington, Seattle. He received



both his M.S. and Ph.D. degrees in Computer Science from Cornell University and his Diploma-Information degree from the University of Karlsruhe, Germany. During his dissertation work on distributed micromanipulation he designed, built,

and tested multiple micro actuator arrays at the Cornell Nanofabrication Facility. He also spent a year as a visiting scholar at the Stanford Robotics Lab and Transducer Lab, where he collaborated on research in MEMS cilia arrays. From 1996 to 1998 he investigated techniques for parallel micro selfassembly as a postdoctoral researcher at the University of California, Berkeley.

His current interests include micromanipulation and microassembly, as well as biomedical implants and bioMEMS for single-cell genomics and proteomics. At the University of Washington, he is a member of the Center for Nanotechnology and the NIH Microscale Life Sciences Center. His Ph.D. thesis was nominated for the ACM doctoral dissertation award. He received an NSF postdoctoral associateship in 1997, an NSF CAREER award in 1999, and was an NSF New Century Scholar in 2000. His work was featured among the Top 100 Science Stories in Discover Magazine's "Year in Science" in January 2003. He received the 2004 Academic Early Career Award from the IEEE Robotics and Automation Society.

Info: EDS Chair, Bonnie Gray bgray@sfu.ca

IT AGE

Professor Eduard Babulak
Fairleigh Dickinson University

Tuesday 22 January - 600 pm
Fairleigh Dickinson University
842 Cambie Street, Vancouver

Current advancements in internet and telecommunications technologies facilitate easy access to information resources by anyone, at any time, anywhere on the planet. Internet access has become essential in business, academia, manufacturing, law, medicine, and government worldwide. A new generation of internet applications will facilitate the creation of global work-places and learning environments utilizing fully-automated information cyberspace systems. Professor Babulak will discuss his own vision and concepts of ultimate automated information cyberspace and how this technology might apply in the world of work, education and at home. He will also discuss the current state of the art in the world of telecommunications and internet technologies, new trends and directions in internet and automation industries, ubiquity, convergence, as well as the concept of the fully-automated home, and Microsoft's project on Easy Living.

Professor Babulak believes the time when ubiquitous fully-automated cyberspace technologies will be commonplace equipment in workplaces and homes worldwide is not too far off. For example, consider a person working from home in Vancouver engaged in an augmented video-teleconference with a colleague at the London office. Both the Vancouver home and the London office will be equipped with task specific computers, special computational sensors embedded with intelligent software agents, and multiple cameras and displays. Switch plates mounted near the door of each room monitor the privacy-state of each room providing simple touch-screen interfaces to common room controls. Both the office and home are aware of where people are. Automatic switches would allocate the best video feed for the particular video session. The computational devices in the London office and Vancouver home will be interconnected creating both a typical office and a home environment at the same time.

In light of current innovative communication technologies by IBM, HP, Microsoft, Philips, and Sony, Professor Babulak's work promotes the formation of inter-disciplinary international teams of experts, scientists, researchers and engineers.

Speaker: Prof. Eduard Babulak is an international scholar, researcher, consultant, educator, professional engineer and polyglot with more than twenty five years of teaching experience and industrial experience as a professional engineer and consultant.

Professor Babulak published and presented numerous International Journal and Conference papers, Invited Keynote, Plenary, Panel, Conference, and Colloquial Talks worldwide. He worked as a University Professor, Associate Professor, Senior Lecturer, Lecturer, College Lecturer and Researcher of Mathematics, Electrical, Computer Engineering and Computing Science in USA, Canada, UK, Spain, Germany, Austria, Cyprus, Turkey, Czech Republic and Slovakia.



His academic and engineering work was recognized internationally by the Canadian Association of Professional Engineers, Engineering Council in UK and European Federation of Engineers. His research interests are in MIS, IT, Ubiquitous Computing, Educational Technologies, E-Manufacturing, Quality of Service provision, Computer Networks, Telematics and Telecommunications Infrastructures, Electronic Health Record and Automation.

Professor Babulak speaks 14 languages, is a Senior Member of IEEE, a Corporate Member of IEE, a Professional Member of British Computer Society (BCS), a Professional Member of ACM, a Member of American Society for Engineering Education (ASEE), and Member of the Mathematical Society of America (AMS).

Professor Babulak's biography was selected for citation in the Cambridge Blue Book 2005, the Cambridge Index of Biographies 2004-2005, the Dictionary of International Biography 2004, published by the Cambridge Centre of International Biographies, Who's Who in the Science and Engineering 2003, 2005-2006, 2007-2008, Who's Who in the Industry and Finance 2004-2005, 2006-2007 and in Who's, Who in the World 2003, 2004, 2006, 2007, 2008.

Prof. Dr., Eur.Ing., Eduard Babulak MSc, PhD, PEng, CEng, SMIEEE Visiting Professor of Information Technology Fairleigh Dickinson University 842, Cambie Street, Vancouver, BC, V6B 2P6, Canada e-mail: babulak@ieee.org Copernicus : <http://my.indexcopernicus.com/babulak>.

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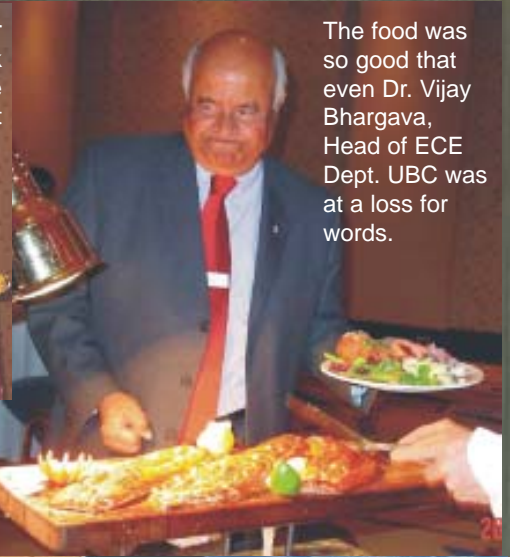
IEEE Vancouver PES 2007 Banquet - a memorable evening!!



Jim Gurney receiving a gift of appreciation for promoting the Electrical Power Engineering Profession (Meliha, John MacDonald, Jim)



PES Chair Meliha Selak opening the banquet



The food was so good that even Dr. Vijay Bhargava, Head of ECE Dept. UBC was at a loss for words.



Meliha and Dr. Mousa with plaque commemorating his PES Outstanding Engineer Award



PES Region 7 Representative Roger Nelson receiving plaque from PES President John MacDonald for the successful nomination of Vancouver PES as 2006 PES Outstanding Chapter Award



PES Chapter Vice-Chair Glen Tang opening the awards ceremony

Attendees enjoying the banquet along with supporters of PES events: Jim Thomson, Director of BC Hydro Transmission Engineering, with wife Margaret, Ming Zou from BCTC, Mukesh Nagpal and Frank Plumptre from BC Hydro, John Silsbe from BC Hydro - Terrace



Plus many recognitions...

- Dr. Abdul M. Mousa (BC Hydro) received IEEE PES "Chapter Outstanding Engineer Award" for publishing about 145 papers while carrying out the electrical design work of BC Hydro's 18,000 km transmission network, and for co-moderating a Lightning Protection web forum
- Dr. Hermann Dommel (Professor Emeritus, ECE dept, UBC), Recipient of 2007 IEEE Canada "Power Medal" for Outstanding contribution to optimal power flow, transient stability and electromagnetic transient analysis in electrical power systems
- Dr. Vijay Bhargava (Head of ECE Dept, UBC)_PES Vancouver Chapter Recognition for promoting Electrical Power Engineering Courses at UBC
- Dr. Jose R Marti (Professor, ECE Dept, UBC)_PES Vancouver Chapter Recognition for

promoting Electrical Power Engineering at UBC

- Jim Gurney (Business Planning Manager BCTC) _PES Vancouver Chapter Recognition for promoting Electrical Power Engineering Profession
- Brian Lee (BCTC)_IEEE PES Recognition for many years of outstanding service to the IEEE PES Board of Directors
- Meliha B. Selak (BC Hydro)_IEEE PES Outstanding Large Chapter Award and IEEE Vancouver Section Outstanding Chapter Chair Award
- Dr. Mukesh Nagpal and Frank Plumptre (BC Hydro) _Working Group Recognition Award for Outstanding Standard and Guide "IEEE STD.C37.119"-Guide for Breaker Failure Protection of Power Circuit Breakers
- Dr. Wenyuan Li (BCTC) _IEEE PES Technical Committee Working Group Recognition Award

for Electric Delivery System Reliability Tutorials

- Dr. Wenyuan Li, Paul Choudhury and Dr. Ebrahim Vaahedi (BCTC)_IEEE PES Technical Committee Working Group Recognition Award for the paper on Power System Equipment Aging: Assessment, Maintenance and Retirement.
- Dr. Ebrahim Vaahedi (BCTC) _PES Distinguished Lecturer on-line dynamic security assessment" and "Decision support tools in deregulated energy systems"
- Charlie Henville (President, Henville Consulting Inc) _ Appointed Chair, Power System Relaying Committee of the IEEE Power Engineering Society

The event was sponsored by local companies including BChydro, BC Transmission Corporation, ABB, AREVA, Powerex and Tavrada Electric so that all attendees enjoyed this great memorable evening at a reasonable price.

Institute for Computing, Information & Cognitive Systems
Distinguished Lecture Series

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.

*The ICICS DLS lectures are held in the Hugh Dempster Pavilion, Room 310
6245 Agronomy Road, UBC
330 - 430pm & questions/answers to 450 pm*

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.

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Extending SIP for Distributed Control Purposes in a Distributed Intelligent System

Kevin Thomas, SFU

Thursday 29 November - 600-700pm
Simon Fraser University, Rm ASB 10908

Control systems for the large part of their history have been based upon a master/slave methodology in terms of philosophy, design and implementation. As systems become larger and more complicated, this methodology succumbs to many problems, like complexity, cost of construction and security. In this presentation we look at what is required to develop control systems in a distributed context. We will look at specifically what would be required at the communication protocol level to have devices communicate with each so as to facilitate a cooperating environment. We look at how a protocol like SIP can be utilized and what we be needed to change it to facilitate this kind of distributed control.

Some consideration of the currently-existing scenario of control systems gives rise to the following question: what is required in order to deal with the various shortcomings of current systems implementation? A cursory examination of the current state of affairs and intuition indicates that one of the requirements of a viable solution must be a move towards greater distribution of intelligence, not just physical or functional distribution. The ideal to be aimed for is a fully distributed, peer-to-peer methodology of system design and implementation, where there is no instance of centralization present anywhere in the system. In order to enable devices and elements in a fully distributed intelligence system to communicate in a true peer-to-peer fashion, a suitable communications protocol is needed that can function in such a manner, without dependence upon a server/proxy. That is, the protocol must function without reliance upon any hierarchical entity for location of services, system entities and information or directions on how to move the same around to needed destinations within the system infrastructure.

One protocol that is moving in its future development to a form to fit this profile is SIP. Although SIP currently functions within a client/server system implementation, discussion is currently underway within the IETF (Internet Engineering Task Force) on specifications for a version that will function in peer-to-peer environments. This version

of the protocol, expected in the next few years, is appropriately titled P2P SIP. In addition, while SIP is currently used with a heavy focus on multimedia communication applications over the Internet, there have been a number of proposed extensions that will enable it to be used for device messaging and control.

This presentation will first cover the general architecture and operation of the SIP protocol, followed by an overview of how the future P2P SIP protocol is anticipated to operate. Next, there will be a detailed analysis of current how P2P SIP will help in realization of fully distributed, peer-to-peer systems for control with 'holonic' (or distributed intelligence systems) capability. This is followed by an examination of the structure of the current SIP request and response message, and design of the proposed P2P SIP message payload that will carry information related to distributed device control. After that, there is a detailed description of how models of client/server SIP, P2P SIP and an extended P2P SIP for a Distributed Control/Holonic system were designed, built and executed. Finally, the conclusion examines lessons learned during building and execution of the simulation and a comparison of conventional SIP, P2P SIP and Distributed Control/Holonic SIP.

Speaker: Kevin Thomas is working under the supervision of Dr. William A. Gruver at the Intelligent Distributed Enterprise Automation (iDEA) Laboratory at Simon Fraser University. His research interests are in the areas of Peer-to-Peer systems, Distributed Control and Network-Centric Warfare. He is currently doing research into developing a holonic, peer-to-peer distributed intelligence system for control. He received his Bachelor's in Engineering from Anna University in Madras, India and worked as an intern on the Design Team at Honeywell Middle East's Security Systems Division.

Info: SMC Chair, Ozge Uncu uncu@sfu.ca