The contribution of electrical power systems to global climate change has become one of the more urgent problems facing the world; accordingly, a high amount of distributed generation capacity, including photovoltaic, wind power, biomass, and co-generated power, is being planned for installation into large-scale power network systems in order to reduce greenhouse gas emissions and fossil fuel reliance. However, it is well understood that many renewable resources pose risks to power system stability in terms of adverse effects on frequency and the creation of voltage fluctuations; hence, in embedding renewables into a grid, it is necessary to create an explicit plan for plant cooperation and generation optimization in order to ensure safety.

This talk deals with a game theoretic optimal real-time pricing method based on dual decomposition and its application to load frequency control of electrical power networks. The goal of this optimal real-time pricing methodology is to solve the constrained optimization problem consist of each players’ utility and social welfare under selfish players. We can show that selfish players’ decision can be expressed via a kind of a Nash equilibrium solution considering their own cost functions and it can lead selfish players’ decision to social welfare maximization via real-time pricing method. Finally the proposed method is applied to a load frequency control problem of power networks and the effectiveness can be shown via some numerical simulations.

Speaker: Toru Namerikawa received the B.E., M.E and Ph. D of Engineering degrees in Electrical and Computer Engineering from Kanazawa University, Japan, in 1991, 1993 and 1997, respectively. He is currently a Professor at Department of System Design Engineering, Keio University, Yokohama, Japan. He held visiting positions at Swiss Federal Institute of Technology in Zurich in 1998, University of California, Santa Barbara in 2001, University of Stuttgart in 2008 and Lund University in 2010. His main research interests are robust control, distributed and cooperative control and their application to power network systems.

Real-time pricing and stabilization in power grids

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IEEE Okanagan Subsection
Presents

Prof. Gaétan Hains
Laboratory for Complexity, Complexity and Logic.
University of Paris-Est Creteil, France.

Scalable parallel programming: hardware, algorithms and applications

Time & Date: (tentative) 5pm-6pm, Monday, August 25th, 2014
Location: EME 1202, UBCO, Kelowna Campus, Kelowna

Talk Abstract: We will present and explain the Bulk-Synchronous Parallel (BSP) model of parallel computation. BSP was invented in 2009 by Leslie Valiant and has been applied to almost every possible parallel algorithm, parallel hardware and parallel software application. BSP allows a clean and portable understanding of how parallel hardware can «couple» efficiently or not with big data and large-scale simulations. We outline categories of applications where infinite scalability is either, easy, conditional and complex or mostly impossible. Measured machine parameters allow performance prediction for computations of unlimited size in many application areas.


Refreshments will be provided. For further information please contact:
Youry Khmelevsky (email: youry@ieee.org)

IEEE Vancouver new Senior Members named at the recent meeting of the A&A committee:

Nimesh Shah
Herbert Tsang
Multiple-input multiple-output (MIMO) systems have received considerable attention over the last two decades owing to the improvements in link throughput and/or the reliability of signal reception. In order to achieve the full capacity gains, channel state information is required at the transmitter, thus necessitating feedback of this information from the receiver to the base station. Given the multi-carrier nature of 4G systems, this feedback overhead is restricted to a few bits per subcarrier. Consequently, the performance of limited feedback closed-loop MIMO systems is very sensitive to the codebooks used to achieve such channel quantization. Codebooks in current standards, such as LTE, were optimized for iid Rayleigh fading channels, whereas realistic propagation environments exhibit both temporal and spatial channel correlations.

In this talk we will demonstrate the inefficiency and performance loss of standard codebooks in realistic channel models (such as WINNER II), thus motivating adaptive codebook techniques. We will present methods for perturbing the standard codebooks, specifically focusing them around the channel and following the channel trajectory throughout transmission - thus significantly reducing the quantization errors. Blind adaptation methods, ie. without introducing additional feedback requirements, will be presented.

**Speaker:** Pawel A. Dmochowski (S'02, M'07, SM'11) was born in Gdansk, Poland. He received a BASc (Engineering Physics) from the University of British Columbia in 1998, and MSc and PhD degrees from Queen’s University at Kingston in 2001 and 2006, respectively. He is currently a Senior Lecturer in the School of Engineering and Computer Science at Victoria University of Wellington, New Zealand. Prior to joining Victoria University of Wellington, he was a Natural Sciences and Engineering Research Council (NSERC) Visiting Fellow at the Communications Research Centre Canada as well as a Sessional Instructor at Carleton University in Ottawa. He is a Senior Member of the IEEE and is actively involved in the IEEE New Zealand Central Section Committee. His research interests include Cognitive Radio, limited feedback and Massive MIMO systems. Homepage: http://homepages.ecs.vuw.ac.nz/~dmochopa/
Electromagnetic wireless power systems (WPS) have undergone significant technological innovations in the recent years. Inductive coupling has become a popular alternative to wired power, particularly for implantable medical devices and household appliances. The application of WPS to electric vehicles is the focus of recent research work. Traditional direct inductive coupling systems operate over distances within a few millimeters. A second type of WPS transfers power over several centimeters to meters using adaptive and tightly coupled resonant coils to achieve high efficiency. The strong reactive near-field of WPS induces electric fields in the body tissue of persons in their close vicinity. This may pose potential direct health hazards or indirect risks via interference with medical implants.

In this presentation, the safety guidelines and the fundamental coupling mechanisms of the human body with the electromagnetic near-fields of WPS are reviewed as well as the methodology and the instrumentation for the demonstration of the safety of such systems operating between 100 kHz and 50 MHz. Based on this review, the advantages and shortcomings of state-of-the-art numerical and experimental techniques are discussed and applied to a generic WPS operating at 8 MHz. Finally, current research needs are identified which include 1) the extension of safety guidelines for coverage of persons with implants, 2) more computationally-efficient full-wave solvers, 3) higher quality human models which cover different population groups and include improved models of nerve tissue, 4) experimental dosimetric methods for the WPS frequency range, and 5) product standards to demonstrate safety of specific WPS.

Speaker: Mark Douglas received the B.Eng degree from the University of Victoria, Victoria, British Columbia, Canada in 1990, the M.Sc. degree from the University of Calgary, Calgary, Alberta, Canada in 1993, and the Ph.D. degree from the University of Victoria in 1998, all in electrical engineering. His research work in electromagnetic dosimetry has resulted in 5 patents and over 80 papers for scientific conferences and peer-reviewed journals. He serves as the co-chair of IEEE International Committee for Electromagnetic Safety (ICES) Technical Committee 34 and the co-chair of ICES Technical Committee 95 Subcommittee 1.

Since 2009, Dr. Douglas has been a Project Leader at the Foundation for Research on Information Technology in Society in Zurich, Switzerland. His work includes the development of instrumentation and procedures to assess exposure from electromagnetic sources. These sources include mobile phones, wireless power transmitters, induction cooking stoves, electric motors and industrial induction heaters. From 2002 to 2009, Dr. Douglas was an engineering manager in the Corporate Electromagnetic Energy Research Laboratory at Motorola in Ft. Lauderdale, Florida, where he led advancements in radiofrequency dosimetry research and testing. Before joining Motorola, he was a Senior Technical Leader with the Antenna Development Group at Ericsson in Raleigh, North Carolina, and a member of the Ericsson EMF Research Group in Stockholm, Sweden.
Event Highlights

Industry Tracks

Major Industry & Technology Segments:
- 5G Technology Evolution
- Propagation & Channel Modeling
- Wireless Network Design
- Wireless Freight Security and Efficiency
- mmWave Access Networks
- Autonomous Vehicles
- Connected Vehicles
- Electric Vehicles and Vehicular Electronics
- Developments in EV Recharging Infrastructure
- Automotive EMC Workshop

Sessions:
There are hundreds of advanced wireless-technology presentations based on very recent research and development results by presenters representing organizations around the world.

An elite panel of speakers with expertise ranging from public policy, research and strategic development of products and services provide insight into this nexus of transportation's future. These leaders ask and answer the tough questions and invite you to open your mind and join the discussion and Q&A

IEEE VTC 2014 Fall features an Industry Program consisting of invited presentations by industry and university experts that will run in parallel to the regular Technical Program of peer reviewed papers. See highlights of the Industry Program at right!
IEEE WORKSHOP ON AUTOMOTIVE EMC

Wed, 17 Sep 2014  1:00 – 5:00 pm

in conjunction with

Electric Vehicles & Vehicular Electronics Day at
IEEE Vehicular Technology Conference - Vancouver, Canada
Sept. 14-17, 2014 at the Westin Bayshore Hotel

Chairs:
• Todd Hubing, Clemson University, USA
• David Michelson, University of British Columbia, Canada
• Janet O’Neil, ETS-Lindgren, USA

Feature Topics:
• Design for Automotive EMC
• Test for Automotive EMC

Invited Speakers:
• Garth D’Abreu, ETS-Lindgren, USA
• Joungho Kim, KAIST, South Korea
• Todd Hubing, Clemson University, USA

Engineers, engineering managers and strategic development and planning managers: Join professionals from a global pool of industry, government and academia to exchange “state of the art” results from new R&D in the fields of vehicular wireless and electronic technology. Attend all IEEE VTC 2014 Fall plenaries, panels, workshops and technical sessions over 14-17 Sep 2014 for a Special Delegate registration rate of $100 USD! For details, please click http://www.cvent.com/d/44qxz0/4W

New!
In addition to the regular technical program, we will host special industry sessions that will feature invited presentations by noted experts. The sessions will align along three major theme days: Mobile Radio, Autonomous and Connected Vehicles and Electric Vehicles and Vehicular Electronics.

New!
IEEE VTC 2014 Fall will feature a mobile app called CrowdCompass that will help you navigate the conference and find the papers, sessions and activities of greatest interest to you.

Mon, 15 Sep 2014 – Mobile Radio Day
Program Chairs: Peiying Zhu, Huawei
                      Ibrahim J. Gedeon, TELUS

AM: Keynote Session * Wireless System Planning Tools
PM: Millimetre Wave Access * 5G Wireless Technology

Tue, 16 Sep 2014 – Autonomous and Connected Vehicles Day
Program Chairs: Barrie Kirk, CAVCOE, and
                        David Atnikov, Novax Industries

AM: Keynote Session * Autonomous Vehicles
PM: Connected Vehicles * Panel Session on AV/CVs

Wed, 17 Sep 2014 – Electric Vehicles and Vehicular Electronics Day
Program Chairs: Lee Stogner, IEEE TEI, and
                        David G. Michelson, UBC

AM: Keynote Session * Electric Vehicle Charging Initiatives in BC
PM: Workshop on Automotive EMC: Design for EMC * Test for EMC
Wireless vehicular communications has been identified as a key technology for increasing road safety and transport efficiency, and providing Internet access on the move to ensure wireless ubiquitous connectivity. The potential of this technology has been acknowledged with the establishment of ambitious research programs worldwide in Europe, US and Asia.

The IEEE Vehicular Technology Society (VTS) currently covers through its areas of interest (mobile radio, transportation systems and automotive electronics) all technical aspects needed to make wireless vehicular communications a reality. As a result, IEEE VTS decided to co-locate a technical symposium on wireless vehicular communications with some of the flagship IEEE Vehicular Technology Conferences (VTC).

The IEEE International Symposium on Wireless Vehicular Communications (WiVeC) covers all aspects of vehicular wireless communications such as Vehicle-to-Vehicle (V2V), Vehicle-to-Infrastructure (V2I) and Vehicle-to-Person (V2P) communications, including implications on transport efficiency and safety, implications on automotive electronics, liability issues, standardizations efforts and spectrum assignment.

After the successful 2007 (Baltimore), 2008 (Calgary), 2010 (Taipei), 2011 (San Francisco) and 2013 (Dresden) editions, the sixth IEEE WiVEC symposium will be co-located with the 80th IEEE VTC 2014 Fall conference. Combined registration packages are available for WiVeC and VTC.

In addition to the regular technical paper presentations, WiVEC2014 will feature a Keynote Presentation, a Panel Session, and a Demonstrations session for researchers and practitioners to showcase their latest industrial applications, prototypes with media, models or live demonstrations.
PAL Robotics is a robotics R & D company with a multi-national team from across the world, working specially in the humanoid robotics field. PAL Robotics has developed several humanoid robots: the biped REEM-A, REEM-B and the last creation REEM-C, and other with a mobile base, REEM-H1 and REEM. Its diverse team consists of people from various countries, mostly mechanic, electronic and software engineers with many years of experience in the robotics industry. The presentation consists of three main topics that will be explained in the following lines. Firstly, the history of the company and the several robots already developed will be introduced. The goals of the company, the strong relationship with the investors and the different humanoid robotics platforms and their characteristics will be also presented. Secondly, a selection of research lines will be showed. Navigation, walking, grasping, human robot interaction as well as hardware features will be presented. Finally, the different ways of collaboration with the company will be dealt: internships, co-advising master/PhD thesis, PhD programs, FP7 projects, etc. At the end some performance about REEMs events will be shown.

Speaker: Francesco Ferro obtained a BSc degree in Telecommunications Engineering in 2002 at the Politecnico di Torino. He began a PhD in Computer Vision but left it in 2004 to attend a robotics humanoid project, where he still works on. He started the development of stereo vision algorithms and later he joined the autonomous robot navigation team to implement various SLAM algorithms. In 2008 he became the manager of the software department of PAL. He obtained an MBA at the UB University in Barcelona in the 2011. From the beginning of the 2011 he is the CEO of PAL Robotics, in charge of REEM’s humanoids robots development.