



SmartGrids

Europe's electricity network of the future

Demand Response

SmartGrids for customers in N. America

Dr. Christian Sasse - Tavrida Electric N.A.

Peter A. Landauer - Capgemini N.A.

Tuesday 08 July Noon - 130pm

Skytrain Room BC Hydro Edmonds Aud'm
6911 Southpoint Drive, Burnaby

SmartGrids is a European Technology Platform which aims at increasing the efficiency, safety and reliability of European electricity transmission and distribution systems and removing obstacles to the large-scale integration of distributed and renewable energy sources. An overview of SmartGrids is given, including its infrastructure, strategic planning, optimal supporting communications choices and other technological challenges, which are vital for a way forward in achieving its ambitious goals.

Dr. Christian Sasse was born in London, England, on March 29, 1959. He obtained his MSc in Physics at the University of Karlsruhe in 1986. He completed a Ph.D. in optical light scattering in solar heated fluidized beds in 1992 while working at the German Aerospace Center in Stuttgart, Germany in the area of Solar Thermal Engineering. He moved to Sweden in 1996 where he joined ABB Corporate Research in Västerås. During this innovative period he designed new power and traction transformers.

More than 100 patents have been filed in his name related to new transformers and generators. He joined Areva T&D (former ALSTOM T&D) in 2000 where he was appointed as Program Manager for solid oxide fuel cells. Within this program, he formulated a fuel cell strategy and initiated a European partnership with several companies with the objective of designing low cost planar solid oxide fuel cell systems.

In 2005 he became General Manager for the Areva T&D Technology Centre in Stafford, UK. He has also been responsible for the R&D program of distributed power initiated, coordinating and managing research activities in wind energy, fuel cells, biomass, energy storage and solar energy in the UK and in Europe. In May 2005 he was invited to join the EC Technology Platform SmartGrids for Electricity Networks for the Future and was elected as Chairman. He then moved to Vancouver in April 2007 where he joined Tavrida Electric with focus on medium voltage vacuum circuit breakers and reclosers to spearhead the North American operations as its Man-

A Few Tricks for Anti-Piracy of Digital and Physical Goods

Dr. Darko Kirovski

Microsoft Research

Friday 18 July 300 - 4:00pm
Room KAISER 2020, 2332 Main Mall, UBC

Piracy of digital and physical goods nowadays is as rampant as it has ever been. The speaker will review the problem space, and present two widely different technologies for anti-counterfeiting: one, RF-DNA, based upon the difficulty of near-exact replication of simple random 3D physical objects, and another, a transaction protocol for incentive-based off-line viral marketing and sales of digital media.

Speaker: Darko Kirovski received a Ph.D. in computer science from the University of California, Los Angeles, in 2001. Since April 2000, he has been a researcher at Microsoft Research. His research interests include: Web services, reliable computing, system security, multimedia processing, and embedded system design. He has received the 1999 Microsoft Graduate Research Fellowship, the 2000 ACM/IEEE Design Automation Conference Graduate Scholarship, the 2001 ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation, and best paper awards at the ACM Multimedia 2002 and the IEEE MMSP 2006. He has authored more than 100 journal and conference papers and filed more than 50 patents.

Info: SP Chair, Jane Wang zjanew@ece.ubc.ca
<http://www.ece.ubc.ca/~zjanew/IEEESPvc.html>

aging Director. He is an IEEE Senior Member.

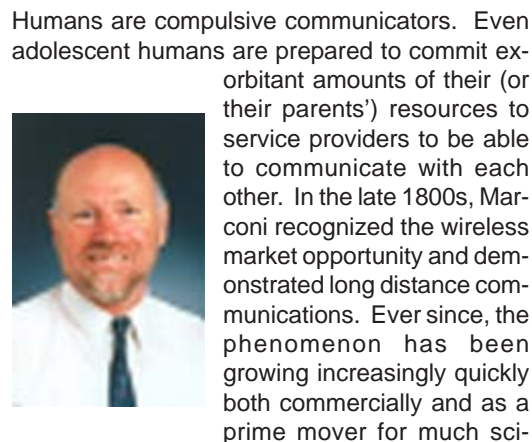
Peter A. Landauer: A senior member of Capgemini's North American Utility Industry Specialist Team, Peter Landauer leads our work in Demand Response (DR) as well as contributing to Smart Grid, Smart Home and Advanced Metering efforts. Peter has led a number of initiatives in the utilities and communications sectors for more than 10 years. He has recently specialized in DR and advanced premise equipment for utilities and the specific communications systems that support those technologies. His client engagements primarily include demand response trial deployments of thousands of points for major utilities including Centrica/Direct Energy, Bluewater Power, Bonneville Power Authority (BPA), Exelon, Hydro One and Nevada Power/Sierra Pacific. Recently, Peter led the utility industry market entrance for GridPoint a Washington DC based energy management start-up backed by Goldman Sachs. With GridPoint, he deployed the first battery based distributed demand response trial with the Tennessee Valley Authority (TVA) in 2007, enabling the firm's highly successful mezzanine funding round, led again by Goldman. A frequent speaker at industry forums, his current presentations include ALCA 07 with Hydro One; ALCA 08 with Trilliant Networks; AMI Canada 07, Oracle Utilities Forum 08; Smart Metering Canada 08 and Utilimetrics (formerly AMRA) Autovation 08 together with Hydro One. A graduate of the US Naval Academy, Peter served five years active duty. His primary sea assignment was Combat Ordnance Officer and Anti-Air Warfare Expert aboard USS SAN JACINTO, a Norfolk based AEGIS Cruiser. His shore tours included special assignments in Munich, Germany and Washington, DC.

Info: PES Chair Glen Tang glen.tang@ieee.org, or Mahta Boozari at mahta.boozari@bchydro.com
<http://ewh.ieee.org/reg7/vancouver/powereng/>

The Joy of Propagation

Rodney Vaughan
Simon Fraser University

Monday 07 July 700 - 9:00pm
BCIT SW3-1750



Humans are compulsive communicators. Even adolescent humans are prepared to commit exorbitant amounts of their (or their parents') resources to service providers to be able to communicate with each other. In the late 1800s, Marconi recognized the wireless market opportunity and demonstrated long distance communications. Ever since, the phenomenon has been growing increasingly quickly both commercially and as a prime mover for much science and technology. The ongoing prices seen in spectral markets are economic proof of the huge future value of our communicating wirelessly. We have become used to many terms and acronyms, usually named after the communications signal processing, for example, CDMA, OFDM, etc. However, the radiowave propagation remains as the key enabler in the physics of wireless communications. Here we take a light review at communications from a viewpoint of the propagation, and the interfaces to the signal processing world - the antennas, and even the signal processing itself.

Speaker: Rodney Vaughan is a Fellow of the IEEE and is the Sierra Wireless Chair in Communications at the School of Engineering Science at Simon Fraser University.

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

DISTINGUISHED LECTURER PROGRAM

Multiview Video Coding

Dr. Huifang Sun
Mitsubishi Electric Research Laboratories

Tuesday 15 July 15 300 - 400 pm
Room: IRMACS ASB 10900
Simon Fraser University

Webcast information:

http://www.ensc.sfu.ca/~jiel/ieee/2008_Sun.html

Conventional video coding systems are designed to encode the video from a single video source. With the emergence of new interactive applications and display technology that require multiple views of video, there is a need to extend the conventional coding schemes to exploit the redundancy between camera views and provide higher coding efficiency than independent coding of each view. Disparity compensated prediction is one of the more common techniques to exploit inter-view correlations. In this scheme, certain views are encoded independently using a standard video encoder; these independently encoded views are then encoded using temporal prediction and inter-view spatial predictions based on reconstructed reference views. The prediction can be determined adaptively on a per block basis.



In this lecture, we describe the prediction of select views based on view synthesis methods. The potential advantage of this form of prediction over traditional spatial prediction is that the synthesized view attempts to reconstruct the view from neighboring views using camera parameters and depth information. Such an approximation of the view to be coded could have significant advantages in fast moving areas of a scene and for objects that undergo non-translational motion by providing a better predictor of the frame

Speaker: Huifang Sun graduated from Harbin Engineering Institute, China, and received the Ph.D. from University of Ottawa, Canada. He joined Electrical Engineering Department of Fairleigh Dickinson University in 1986 and was promoted to an Associate Professor before moved to Sarnoff Corporation in 1990. He

Building High Performance Neuromorphic and Bioinspired Systems: Spike-based Digital Vision

Dr. Tobi Delbrück
Institute of Neuroinformatics

Monday 28 July 28 1100am -1200pm
IRMACS ASB 10900
Simon Fraser University

Webcast information:

http://www.ensc.sfu.ca/~jiel/ieee/2008_Delbruck.html

Conventional machine vision for the past 40 years has been based on sequences of image frames that are pulled from the camera and then processed on computers. Frame based image sensors are highly evolved but have fundamental drawbacks, including limited dynamic range, limited sampling rate, and the necessity for expensive post-processing. Biology teaches us that the outputs of the eye are asynchronously pushed to the brain in the form of digital spikes based on local decisions involving spatio temporal context. Recent developments in building asynchronous vision sensors that offer this same form of spike output have shown that they offer unique advantages in terms of latency, dynamic range, temporal resolution, and especially post processing cost. This lecture will discuss these developments and show a live demonstration of the unique capabilities of a silicon retina for machine vision.

Speaker: Tobi Delbruck is a group leader at the Inst. of Neuroinformatics (INI), part of ETH Zurich and the University of Zurich, Switzerland and visiting scientist at Caltech. His group develops neuromorphic electron-

ics, particularly vision sensor chips. He studied physics and applied mathematics as an undergraduate and received his PhD from Caltech in 1993 in Computation and Neural Systems with Carver Mead. He co-invented the standard neuromorphic adaptive photoreceptor circuit and bump circuit. Subsequently he worked for several years for Arithmos, Synaptics, and National Semiconductor, was one of the founding employees of Foveon. In 1998 he moved to Switzerland to join INI.



In 2002 he was lead developer of the tactile luminous floor used in INI's exhibit "Ada: Playful Intelligent Space". He has been awarded 8 patents, and has over 30 refereed papers in journals and conferences, 4 book chapters, and 1 book. He has been awarded 7 IEEE awards, including the 2006 ISSCC Jan Van Vessel Outstanding European Paper Award. He co-organized the demonstration sessions at the Neural Information Processing Systems (NIPS) meeting in 2004-2005 and the ISCAS demonstration session in 2007-2008, is an organizer of the Telluride Neuromorphic Engineering Workshop, is an officer of the CAS Sensory Systems Technical Committee and associate editor of the IEEE Transactions of Biomedical Circuits and Systems.

Info: C&S Vancouver Chair, Ljiljana Trajkovic
ljilja@cs.sfu.ca

*These Distinguished Lecturer events organized by
IEEE Circuits and Systems Society
Joint Chapter of the Vancouver/Victoria Sections
IEEE Circuits and Systems Society*

joined Sarnoff Lab as a member of technical staff and was promoted to Technology Leader of Digital Video Communication later. In 1995, he joined Mitsubishi Electric Research Laboratories (MERL) as Senior Principal Technical Staff and was promoted as Vice President and Fellow of MERL in 2003. His research interests include digital video/image compression and digital communication. He has coauthored two books and more than 150 Journal/and conference papers. He holds 48 US patents. He received Technical Achievement Award in 1994 at Sarnoff Lab. He

received the best paper award of 1992 IEEE Transaction on Consumer Electronics, the best paper award of 1996 ICCE and the best paper award of 2003 IEEE Transaction on CSVT. He is now an Associate Editor for IEEE Transaction on Circuits and Systems for Video Technology and was the Chair of Visual Processing Technical Committee of IEEE Circuits and System Society. He is an IEEE Fellow.

Info: C&S Vancouver Chair, Ljiljana Trajkovic
ljilja@cs.sfu.ca