WTS 2008

Wireless Telecommunications Symposium 2008

Global Wireless Communications

April 24 - 26, 2008

California State Polytechnic University, Pomona

Kellogg West Conference Center

WELCOME TO WTS 2008

Welcome to the seventh annual Wireless Telecommunications Symposium. We hope that WTS 2008: Global Wireless Communications will be a stimulating and enjoyable experience for you.

Wireless communications is truly a global subject and an excellent one for an interdisciplinary, international wireless communications conference like WTS to explore. During the next three days WTS 2008 will explore global wireless communications in depth - in the presentations and panel discussions of the invited speaker program, in the Wireless Network Security tutorial, and in the seven tracks of the accepted paper program: Wireless Security; Wireless Communications and Network technologies; Wireless Algorithms, Methods, Simulations, and Software; Wireless Communications: Military Aspects and Satellite Applications; Ad Hoc, Sensor, Mesh Networks, and RFID; Wireless Services and Telecommunications Business; and Wireless Standards and Platforms.

The WTS 2008 Program Committee received 145 paper submissions, a WTS record, from authors representing 34 different countries. We thank all the authors who submitted papers and proposals to WTS 2008, the many reviewers who reviewed them, and the co-chairs, track chairs, and session chairs for coordinating the paper and proposal evaluation and selection process. We also thank the WTS Administration and Operations Committees and support personnel for their tireless efforts behind the scene. Producing an event like WTS 2008 is not an easy task, and they did a masterful job.

WTS is fortunate once again to have the support of the IEEE Communications Society as its co-sponsor. We thank the IEEE Communications Society for its financial co-sponsorship of WTS 2008 and its Wireless Communications Technical Committee and the Institute for Computer Sciences, Social Informatics, and Telecommunications Engineering (ICST) for their technical support.

Finally, special thanks go to the 30 distinguished invited speakers representing the wireless telecommunications industry that are participating in WTS 2008 and to the many organizations that have contributed to the effort or lent it financial support. Notable among the contributors and donors are Cal Poly Pomona's College of Business Administration and College of Engineering, its Computer Information Systems Department, Electrical and Computer Engineering Department, and Computer Science Department, and its Division of Instructional and Information Technology; Cal Poly Pomona's IEEE Communications Society Student Chapter (SWIFT) and its IEEE Student Branch; QUALCOMM; the IEEE Foothill Section; MESAQIN; Microsoft; the IEEE Communications Society's Foothill and Los Angeles Chapters; and the IEEE Foothill AP/MTT Chapter.

On behalf of the WTS 2008 Committee -- Welcome to WTS 2008!

Dr. Steven Powell
WTS General Chair

Dr. Thomas Ketseoglou
WTS Assistant Chair

WTS 2008 Program

Thursday, April 24	
7:30 am - 8:30 am	Registration and Continental Breakfast
	Kellogg West Auditorium
8:30 am – 10:15 am	Mobile Services and Applications Panel Discussion
10:15 am – 10:30 am	Networking Break
10:30 am – 12:15 pm	Wireless Communications Investments and New Ventures Panel Discussion
12:15 pm - 1:30 pm	Buffet Lunch (Kellogg West Dining Room) Guest Speaker: **Professor William Webb** Head of Research and Development UK Office of Communications (Ofcom)
1:30 pm – 3:15 pm	Future Directions in Wireless Communications Panel Discussion I
3:15 pm – 3:30 pm	Networking Break
3:30 pm – 4:30 pm	Future Directions in Wireless Communications Panel Discussion II
4:40 pm – 5:30 pm	Panel Discussion: Career Opportunities in Wireless Communications
5:30 pm – 6:30 pm	WTS Organizers' Meeting
6:30 pm – 9:00 pm	Networking Session and Welcoming Dinner Co-Hosted by the IEEE Communications Society (Kellogg West Dining Room) Guest Speaker: **Dr. Leonard Kleinrock**, "a Father of the Internet" and Developer of the Mathematical Theory of Packet Networks Professor, Computer Science Department, UCLA
Friday, April 25	

8:00 am - 9:00 am	Registration and Breakfast
	Executive Session (Kellogg West Auditorium)
9:00 am – 9:15 am	Welcoming Remarks
9:15 am – 10:00 am	**John Kneuer**, Senior Vice President, Strategic Planning and External Affairs, Rivada Networks Former Assistant Secretary of Commerce for Communications and Information and Administrator of the National Telecommunications and Information Administration
10:00 am – 10:15 am	**Networking Break**
10:15 am - 11:00 am	**Professor Michael Walker** - Group Research and Development Director, Vodafone
11:00 am – 11:45 am	**Dr. Kevin Kahn** - Intel Senior Fellow, Corporate Technology Group; Director, Communications Technology Lab, Intel Corporation
12:00 pm - 1:45 pm	Buffet Lunch (Kellogg West Dining Room) Welcoming Remarks: **Dr. J. Michael Ortiz**, President, Cal Poly Pomona WTS 2008 Co-Sponsor Recognition Guest Speaker: **Dr. Heather Hudson** Professor and Director of the Telecommunications Management and Policy Program School of Business and Management University of San Francisco
1:45 pm – 2:45 pm	Wireless Network Security Tutorial I
2:45 pm – 3:00 pm	Networking Break

3:00 pm – 3:45 pm	Wireless Network Security Tutorial II
3:45 pm – 4:00 pm	Free Time
4:00 pm - 5:00 pm	Bus Travel to the Queen Mary
5:00 pm – 9:30 pm	Tour and reception aboard the Queen Mary docked in Long Beach Harbor
9:30 pm – 10:30 pm	Bus Travel to Kellogg West
Saturday, April 26	
7:30 am - 8:30 am	Registration and Breakfast
8:30 am – 10:15 am	Accepted Paper Sessions (I)
10:15 am - 10:30 am	Networking Break
10:30 am - 12:15 pm	Accepted Paper Sessions (II)
12:15 pm - 1:15 pm	Buffet Lunch (Kellogg West Dining Room) Guest Speaker: **Joe Jasin** Vice President of Corporate Investments SK Telecom
1:15 pm - 1:40 pm	Doctoral Students Session/Poster Paper Session
1:45 pm - 3:15 pm	Accepted Paper Sessions (II)
3:15 pm - 3:30 pm	Networking Break
3:30 pm - 5:00 pm	Accepted Paper Sessions (IV) Wireless Network Security Workshop (III)
5:00 pm – 5:15 pm	Awards Ceremony for the Outstanding Paper Submitted and Presented and the Best Graduate and Undergraduate Student Papers Submitted and Presented/ Closing Remarks

Panel Discussions, Tutorials, and Workshops

Panel Discussion: Mobile Wireless Services and Applications

Dr. J. P. Shim
Professor of MIS and Director of the International Business Strategy Program
Mississippi State University

Dr. Francois Cosquer
Chief Technology Strategist
Alcatel Lucent Enterprise

Brian McAuley
Chairman, Pacific DataVision
Co-Founder, Nextel Communications, Inc.

Demetrius Thompson
President and Founder
Global Mobile Alert Corporation

Eric Leven
President
Rip Road LLC

Panel Discussion: Wireless Communications Investments and New Ventures

Jonathan Atkin
Managing Director, Equity Research Division
RBC Capital Markets

Tom Roderick
Principal
Thomas Weisel Partners

Levi Shapiro
Digital Media Strategist

Panel Discussion: Future Directions in Wireless Communications

Professor William Webb
Head of Research and Development
UK Office of Communications (Ofcom)

Narasimha Chari
Founder and CTO
Tropos Networks

Morgan Gillis
Executive Director
LiMo Foundation

Dr. John Smee
Director of Engineering
Corporate Research and Development Group
Qualcomm

Dr. Hidetoshi Yokota
Senior Manager
KDDI R&D Laboratories

Dr. Chris Gu
Principal Architect, A&E Architecture
Level 3 Communications

Péter Pál Boda
Principal Scientist, Team Leader and Chief SensorPlanet Scientist
Nokia Research Center Palo Alto Laboratory
Nokia

Panel Discussion: Career Opportunities in Wireless Communications

Paul Farag
Manager
T-Mobile USA

Mychele Riddick
Senior University Relations Manager
AT&T

Jay Van Battum
Associate Director, MIS
Verizon Wireless

Tutorials: Wireless Network Security

A. Cryptographic Primitives for Secure Communication
Instructor: Dr. Craig A. Rich, Professor, Computer Science Department, Cal Poly Pomona

B. Wi-Fi Protected Access
Instructor: Dr. Tim H. Lin, Professor, Electrical and Computer Engineering Department, Cal Poly Pomona

C. Computer Forensics Methodology - Protection After Security Fails
Instructor: Dr. Gregory H. Carlton, Assistant Professor, Computer Information Systems Department, Cal Poly Pomona

WTS 2008 Accepted Paper Sessions and Wireless Network Security Tutorial
Saturday April 26, 2008

Track 1 - Wireless Security

Track Chairs: Wenjing Lou, Worcester Polytechnic Institute, USA
Kui Ren, Illinois Institute of Technology, USA

1:45 PM – 3:30 PM
Session E1 – Chair: TBA

Building Secure User-to-user Messaging Channels in Mobile Telecommunication Networks
Shushan Zhao, Shuping Liu (Univ. of Testing, CA)
A New Dynamic Cache Flushing (DCF) Algorithm for Preventing Cache Timing Attack
Jalpa Bani, Syed Rizvi (Univ. of Bridgeport, US)
Unidirectional Auxiliary Channel Challenge - Response Authentication
Dennis Nilsson, Ulf Larson, Erland Jonsson (Chalmers Univ. of Technology, SE)
Securing Media Hotspots
Aroua Biri (INT evry, FR)
Reverse Piloting Protocol for Securing Time Varying Wireless Channels
Gill Tsouri, Dov Wulich (Ben Gurion Univ., IL)

3:30 PM – 3:45 PM (**Networking Break**)

Track 2 - Wireless Communications and Network Technologies

Track Chairs: Kui Wu, University of Victoria, Canada

Chunsheng Xin, Norfolk State University, USA

8:30 AM – 10:15 AM
Session B1 – Chair: Dr. Jan Holub, Czech Technical Univ., CZ

Dynamic Resource Allocation for Uplink Contention Channels in WiMAX
Patrick Hosein (Huawei Technologies, US)
Collaborative Storage with Mobile Devices in Wireless Networks for P2P Media Sharing
Fulu Li (Massachusetts Institute of Technology, US)
The Quality of Spatial-temporal Information from Mobile Peer-to-Peer Interactions
Halikul Lenando, Roger Whitaker (Cardiff Univ., UK)
A Distributed Admission Control to Lower End-to-End Delay in P-Persistent 802.11 MAC Protocol
Kiran Anna, Mostafa Bassiouni (Univ. of Central Florida, US)
Reducing Signal Distortion Due to Transmission Errors via Multiresolution Digital Modulations
Jing Lu, Annamalai Annamalai, Dhadesugoor R. Vaman (Prairie View A&M Univ., US)

10:15 AM – 10:30 AM (**Networking Break**)

10:30 AM – 12:15 PM
Session B2 – Chair: TBA

A Reduced-Rank Eigenbasis MIMO Channel Model
Leslie Wood, William Hodgkiss (Univ. of California, San Diego, US)
Scheduling Algorithms for WiMAX/802.16 System
Aymen Belghith, Loutfi Nuaymi (Telecom Bretagne, FR)
Efficient Error Control Scheme for Video Streaming over Wireless Networks
Liang Hong (Tennessee State Univ., US); Zhenyu Wu (MY EZ Communications, LLC, US)
New Cross-Layer Channel Switching Policy for TCP Transmission on 3G UMTS Downlink
Dinesh Kumar (INRIA, FR); Dhiman Barman (UC, Riverside, US); Eitan Altman (INRIA, FR); Jean-Marc Kelif (France Telecom R&D, FR)
Cross-Layer Design for Wireless Networks with Cognitive Controllers
Michael Slavik, Imad Mahgoub, Ahmed Badi (Florida Atlantic Univ., US)

12:15 PM – 1:15 PM (**Buffet Lunch - Kellogg West**)

1:15 PM – 1:40 PM (**Doctoral Students Session/Poster paper Session**) – **Chair:** TBD
A Networking Perspective of Cooperative Spectrum Sharing in Wireless Networks: Analysis and Experiments
Fulu Li (Massachusetts Institute of Technology, US)

1:45 PM – 3:30 PM
Session B3 – Chair: TBA

The Performance of WiFi Network for Application in A Navigation System for Visually Impaired People
Khalid Alhajri (Brunel Univ., UK); Nawzad Al-Salihi (Brunel Univ., UK)
Mobile Multi-hop Relay System using AMC for Multicast Broadcast Service over Mobile WiMAX
Chi Hyun Cho, Kyung Tae Kim, Hee Yong Youn (SungKyunKwan Univ., KR)
Self-optimization of Coverage for Femtocell Deployments
Holger Claussen, Lester Ho, Louis Samuel (Bell Labs, Alcatel-Lucent, UK)
Performance Evaluation of a Two-Stage Detector for Asynchronous Frequency Hopping CDMA Systems
John Momoh (National Space Research and Development Agency, NG)

3:30 PM – 3:45 PM (**Networking Break**)

3:45 PM – 5:00 PM
Session B4 – Chair: Dr. J.P. Shim, Mississippi State Univ., US

Efficient Spectrum Matching Based on Spectrum Characteristics in Cognitive Radio Systems
Ohyun Jo (KAIST, KR)
Design of an Efficient and Robust Multimedia Gateway for Pervasive Communication
Fung Po TSO, Yufei Du, Weijia Jia (City Unicersity of Hong Kong, CN)
Low-Complexity Two-Stage Timing Acquisition Scheme for UWB Communications
Yanjie Peng, Lang Mai, Xiaoyang Zeng (Fudan Univ., CN)
Encryption vs. Performance of Infrastructure IEEE 802.11 WLAN
Siwaruk Siwamogsatham, Songrit Srilasak, Kitiwat Limmongkol, Kitti Wongthavarawat (National Electronics and Computer Technology Center, TH)

Track 3 - Wireless Algorithms, Methods, Simulations, and Software

Track Chair: Huan Li, Beihang University, China

8:30 AM – 10:15 AM
Session C1 – **Chair:** Dr. Izabella Lokshina, SUNY Oneonta, US

Effective Assessment of Mobile Communication Networks Performance
Izabella Lokshina (SUNY Oneonta, US); Michael Bartolacci (Penn State - Berks, US)
Soft Parallel Interference Cancellation for a Turbo Coded Uplink MC-CDMA System
Jun Luo (Florida International Univ., US)
A Low-Complexity Filter-Based Turbo Equalizer for Quasi-Static Channels
Shou-Sheu Lin (National Kaohsiung First Univ. of Science and Technology, TW); Wen-Rong Wu (National Chiao-Tung Univ., TW)
A New Freqeuncy Offset Estimation Algorithm for DBO-CSS in Multipath Channels
Seunghan Baik (Hanyang Univ., KR)

Transcoded Speech Contemporary Objective Quality Measurements Reliability
Jan Holub, Lubica Blaskova (FEE CTU Prague, CZ)

10:15 AM – 10:30 AM (**Networking Break**)

10:30 AM – 12:15 PM
Session C2 – Chair: Dr. Jan Holub, Czech Technical Univ., CZ

Cross Layer Optimization of Iterative OFDM Reception with Clipping
Thomas Ketseoglou (California State Polytechnic Univ., US)
A Power Efficient Continuous Phase Modulation - Single Carrier FDMA Transmission Scheme
Marilynn P. Wylie-Green (Nokia Siemens Networks, US)
Repair Costs of the IPDC/DVB-H File Repair Mechanism
Bernhard Hechenleitner (Salzburg Univ. of Applied Sciences, AT)
An Efficient Communication System for Disaster Detection and Coordinated Emergency Evacuation
Qing-An Zeng, Heng Wei, Vineet Joshi (Univ. of Cincinnati, US)
Analysis and Evaluation of Reed–Solomon Codes in Digital Video Broadcasting Systems
Izabella Lokshina (SUNY Oneonta, US); Teodor Iliev, Dimitar Radev, Georgi Hristov (Univ. of Rousse, BG)

12:15 PM – 1:15 PM (**Buffet Lunch - Kellogg West**)

1:15 PM – 1:40 PM (**Doctoral Students Session/Poster paper Session**) – **Chair:** TBA
A Networking Perspective of Cooperative Spectrum Sharing in Wireless Networks: Analysis and Experiments
Fulu Li (Massachusetts Institute of Technology, US)

1:45 PM – 3:30 PM
Session C3 – Chair: Dr. Salam Salloum, California State Polytechnic Univ., US

Efficient Coding of Side Information for Selected Mapping PAPR Reduction
Gill Tsouri, Dov Wulich (Ben Gurion Univ., IL)
Performance Analysis of Partial Equalization for Downlink MC-CDMA in Frequency Selective Rayleigh Fading Channels
Rui Liu, Xinheng Wang, Xiang Wu (Swansea Univ., UK)
Improving the Efficiency of Wireless Networks via a Passive Rate-Adaptation Strategy
Annamalai Annamalai, Jing Lu, Dhadesugoor R. Vaman (Prairie View A&M Univ., US)
Adaptive Pulse Shaping for CP-OFDM Synchronization
Haitham Akah (NARSS, EG); Aladin Kamel, Hadia El-Hennawy (Ain Shams Univ., EG)

3:30 PM – 3:45 PM (**Networking Break**)

Track 4 - Wireless Communications: Military Aspects and Satellite Applications

Track Chairs: Jan Holub, Czech Technical University, Czech Republic
Ehsan Sheybani, Virginia State University, USA

8:30 AM – 10:15 AM
Session D1 – Chair: TBA

Entropy Based Spectrum Sensing in Cognitive Radio
Xiaofei Chen, Santosh Nagaraj (San Diego State Univ., US)
A Closed-Form Expression for BER to Quantify MAI for Synchronous DS-CDMA Multi-user Detector
Syed Rizvi (Univ. of Bridgeport, US); Aasia Riasat (Institute of Business Management, PK); Khaled Elleithy (Univ. of Bridgeport, US)
A New Approach to Improve BER Performance of a High Peak-to-Average Ratio (PAR) OFDM Signal over FM based Land Mobile Radios (LMR)
Abhijit Navalekar, William Michalson (Worcester Polytechnic Institute, US)
OTR-UWB System
Hossein Gharaee (Tarbiat Modares Univ., IR); Jalil (Joe) Etminan (Rock Valley College, US)
Mid Millimeter Waves for Broadband Satellite Communication 72-100 GHz
Paul Christopher (PFC Associates, US)

10:15 AM – 10:30 AM (**Networking Break**)

10:30 AM – 12:15 PM
Session D2 – TBA

Simulation of spectrum sharing in WLAN and WMAN using frequency hopping and spectrum commons
Steve Hurley, Archie Wade, Roger Whitaker (Cardiff Univ., UK)
On the Implementation of a Space Time Block Coded Transmitter in an FPGA Platform
Citlalli Anguiano, Guillermo Galaviz, Angel Andrade (Univ. of Baja California, MX)
Input-to-Output Cross Polarization Discrimination (IOXPD) Dispersion Model for Mobile-to-Mobile LOS Wireless Communications MIMO Channels
Thomas Pratt, Ramya Srinivasan (Georgia Tech, US); Son Nguyen (US Army Research Laboratory, US)
Improvements in Fixed Point-to-Point Microwave Radio Path Design
George Kizer (TeleVision, Inc., US)
A Software Defined Channelized Receiver for Non Cooperative Detection of Frequency Hopped Signals
Furqan Ahmed, Shoab A. Khan, Alireza Nazemi, Raja Iqbal, Mofassir Ul Haque (National Univ. of Sciences and Technology, PK)

12:15 PM – 1:15 PM **(Buffet Lunch - Kellogg West)**

1:15 PM – 1:40 PM (**Doctoral Students Session/Poster paper Session**) – **Chair:** TBD

A Networking Perspective of Cooperative Spectrum Sharing in Wireless Networks: Analysis and Experiments
Fulu Li (Massachusetts Institute of Technology, US)

Track 5 - Ad Hoc Networks, Sensor Networks, Mesh Networks, and RFID

Track Chairs: Bin Wang, Wright State University, USA
Wei Ye, Bravotech Inc., USA

8:30 AM – 10:15 AM
Session A1 – Chair: TBA

Implementing flexibility in 802.11 MAC standard while developing an Adaptive TCP Fairness over Wireless Mesh Networks
Scott Fowler (Aston Univ., UK)

Service Organization and Discovery for Facilitating RFID Network Manageability and Usability via WinRFID Middleware
Xiaoyong Su, Chi-Cheng Chu, Shiv Prabhu, Rajit Gadh (Univ. of California - Los Angeles, US)

Capacity of Ad hoc Networks with Line Topology based on UWB and WLAN Technologies
Samer Bali (Leibniz Universtät Hannover, DE); Jan Steuer (DOK Systeme, DE); Klaus Jobmann (Leibniz Universität Hannover, DE)

EECCP: An Energy-Efficient Coverage- and Connectivity Preserving Algorithm under Border Effects in Wireless Sensor Networks
Yan Jin, Ju-Yeon Jo, Yoohwan Kim, Yingtao Jiang, Mei Yang (Univ. of Nevada, Las Vegas, US)

Maximum Capacity in Chain-Topology Wireless Mesh Networks
Fang-Yie Leu, Yu-Ting Huang (TungHai Univ., TW)

10:15 AM – 10:30 AM (**Networking Break**)

10:30 AM – 12:15 PM
Session A2 – TBA

A MAC Protocol for Directional Hidden Terminal and Minor Lobe Problems
Yuya Takatsuka, Masanori Takata, Masaki Bandai, Takashi Watanabe (Shizuoka Univ., Japan, JP)

Impact of Interference Aware Metrics over UWB based MANET
Floriano De Rango, Peppino Fazio, Fiore Veltri, Salvatore Marano (Univ. of Calabria, IT)

On the Effects of Multiple Beacons on Localization for Wireless Sensor Network
Rajaa Alquda, Stefano Basagni (Northeastern Univ., US)

Vertical Handover during a VoIP call in Hybrid Mobile ad hoc Networks
Juhani Latvakoski, Pekka Välitalo, Teemu Väisänen (VTT Technical Research Centre of Finland, FI),

Transmission Hold-off Time Mitigation for IEEE 802.16 Mesh Networks: A Dynamic Approach
Valeria Loscrì, Gianluca Aloi (Univ. of Calabria, IT)

12:15 PM – 1:15 PM (**Buffet Lunch - Kellogg West**)

1:15 PM – 1:40 PM (**Doctoral Students Session/Poster paper Session**) – **Chair:** TBD
A Networking Perspective of Cooperative Spectrum Sharing in Wireless Networks: Analysis and Experiments
Fulu Li (Massachusetts Institute of Technology, US)

3:45 PM – 5:00 PM
Session A3 – TBA

Improving QoS for Real-time Multimedia Traffic in Ad-hoc Networks with Delay Aware Multi-path Routing
Jacobus Boshoff (Telkom SA Ltd., ZA); A.S.J. Helberg (NWU, ZA)
Variant Rate Based Cross Layer Time Frame Scheduling in Wireless Sensor Networks
Wei Wei, Yong Qi (Xi'an Jiaotong Univ., CN); Wei Wang (Univ. of Nebraska - Lincoln, US); Ruidong Li (Univ. of Tsukuba, IP); Yu Gu (USTC, CN); Andrew Chen (Univ. of California – Riverside, US)
Route Dynamics for Shortest Path First Routing in Mobile Ad Hoc Networks
Yangcheng Huang (Univ. College London, UK); Kannan Govindan (IIT-Bombay, IN); Saleem Bhatti (Univ. of St Andrews, UK); S. n. Merchant, Uday Desai (IIT Bombay, IN)

Track 6 - Wireless Services and Business

Track Chairs: Michael Bartolacci, Penn State University - Berks, USA
Katia Passerini, NJIT, USA

1:45 PM – 3:30 PM
Session F1 – Chair: Dr. J.P. Shim, Mississippi State Univ., US

Cellular Mobile TV Phone: Current Status and Misconceptions
JP Shim (Mississippi State Univ., US); Sungmin Park (Brunel Univ., UK); Julie Shim (Soldier Design, US)
Broadband Access for All: The Economic and Political Implications of Municipal Wireless Networks
Geoffrey Okamoto (California State Polytechnic University, Pomona, US)
Dynamic XML Deployment of Geospatial Peer Nodes
Clayton Thomas (Morgan State Univ., US)
Invited Presentation:
International Expansion of Wireless Telecommunications Services Providers: An Update
Steven Powell (California State Polytechnic University, Pomona, US)

3:30 PM – 3:45 PM (**Networking Break**)

Track 7 - Wireless Standards and Platforms

Track Chair: Qing-An Zeng, University of Cincinnati, USA

3:45 PM – 5:00 PM
Session G1 – Chair: Dr. Qing-An Zeng, Univ. of Cincinnati, US

An Architecture for Mobility Management in Interworked 3G Cellular and WiMAX Networks
Kumudu Munasinghe, Abbas Jamalipour (Univ. of Sydney, AU)
In the Direction of a Sensor Mapping Platform Based on Cellular Phone Networks
Kirby Chiang, Chi-Cheng Chu, Shiv Prabhu, Rajit Gadh (Univ. of California - Los Angeles, US)

Wireless Network Security Tutorial III

3:45 PM – 5:00 PM **Wireless Network Security Tutorial III**

Wi-Fi Protected Access
Dr. Tim H. Lin, (California State Polytechnic Univ. of Pomona, US)

5:00 PM – 5:15 PM (**Best Papers Award Ceremony**)

5:15 PM (**Conference Ends**)

Speaker Biographies

Dr. Leonard Kleinrock created the basic principles of packet switching, the technology underpinning the Internet, while a graduate student at MIT. In this effort, he developed the mathematical theory of data networks. This was a decade before the birth of the Internet which occurred when his host computer at UCLA became the first node of the Internet in September 1969. He wrote the first paper and published the first book on the subject; he also directed the transmission of the first message to pass over the Internet. He was also responsible for setting up and running the Internet measurement facility that stressed the early Internet to establish its performance limits and to evaluate its performance and behavior. In these efforts, he laid the groundwork and established the discipline by which future generations of engineers would seek to model, measure and evaluate the computer and communication systems they were building. He was listed by the Los Angeles Times in 1999 as among the "50 People Who Most Influenced Business This Century".

Dr. Kleinrock received his Ph.D. from MIT in 1963 and has served as a professor

of computer science at the University of California, Los Angeles since then, serving as chairman of the department from 1991-1995. He received his BEE degree from CCNY in 1957. He has also received honorary degrees from CCNY (1997), the University of Massachusetts, Amherst (2000), the University of Bologna (2005), and Politecnico di Torino (2005). He has published more than 240 papers and authored six books on a wide array of subjects including queueing theory, packet switching networks, packet radio networks, local area networks, broadband networks, gigabit networks and nomadic computing.

Dr. Kleinrock is a member of the American Academy of Arts and Sciences, a member of the National Academy of Engineering, an IEEE fellow, an ACM fellow and a founding member of the Computer Science and Telecommunications Board of the National Research Council. Among his many honors, he is the recipient of the CCNY Townsend Harris Medal, the CCNY Electrical Engineering Award, the Marconi Award, the L.M. Ericsson Prize, the NAE Charles Stark Draper Prize, the Okawa Prize, the IEEE Internet Millennium Award, the UCLA Outstanding Teacher Award, the Lanchester Prize, the ACM SIGCOMM Award, the Sigma Xi Monie Ferst Award, the INFORMS Presidents Award, and the IEEE Harry Goode Award.

John Kneuer is the Senior Vice President, Strategic Planning and External Affairs at Rivada Networks. Rivada Networks is a leading designer, integrator and operator of public safety communications and information technology networks for homeland security forces and first responders.

Prior to joining Rivada, Mr. Kneuer served as the Assistant Secretary of Commerce for Communications and Information. In this capacity Mr. Kneuer was the principal advisor to the President of the United States on telecommunications policy and the Administrator of the National Telecommunications and Information Administration ("NTIA").

In addition to representing the Executive Branch in domestic and international telecommunications and information policy activities, NTIA also manages the federal use of spectrum; performs cutting edge telecommunications research and engineering, including resolving technical telecommunications issues for the federal government and private sector; and administers infrastructure and public telecommunications facilities grants.

Prior to his service at NTIA, Mr. Kneuer served as a Senior Associate at the law firm of Piper Rudnick in Washington, D.C., providing regulatory and legislative representation to corporate clients in the telecommunications, defense, and transportation industries. Earlier in his career, Mr. Kneuer served as the Executive Director for Government Relations at the Industrial Telecommunications Association, and prior to that served as an Attorney-Advisor in the Commercial Wireless Division of the Federal Communications Commission's Wireless Bureau. Mr. Kneuer received B.A. and J.D. degrees from the Catholic University of America.

Professor William Webb joined Ofcom as Head of Research and Development and Senior Technologist in 2003. Here he manages a team providing technical advice and performing research across all areas of Ofcom's regulatory remit. He also leads some of the major reviews conducted by Ofcom including the Spectrum Framework Review and development of Spectrum Usage Rights. Previously, William worked for a range of communications consultancies in the UK in the fields of hardware design, computer simulation, propagation modelling, spectrum management and strategy development. William also spent three years providing strategic management across Motorola's entire communications portfolio, based in Chicago. Some of his seminal work included the first papers and patents on variable multi-level modulation – now widely employed in most cellular and WiFi systems.

William has published ten books, sixty papers, and four patents ranging across the entire field of wireless communications including in 2007 "Wireless Communications: The Future". He is a Visiting Professor at Surrey University and DeMontfort University and a Fellow of the Royal Academy of Engineering – the UK's premier body representing engineering. He is a member of the Board of Trustees and Fellow of the IET (the UK equivalent of the IEEE) and has sat on the judging panel of the Wall Street Journal's "Annual Innovation Awards" since 2002. He was general chair of the IEEE DySpan conference in 2007. His biography is included in multiple "Who's Who" publications around the world and in Debrett's "People of Today". William has a first class honours degree in electronics, a PhD and an MBA. He can be contacted at william.webb@ofcom.org.uk.

Professor Michael Walker has responsibility for research and development conducted by Vodafone world wide. Since 1996 Michael has been a professor in the University of London, holding the part-time Vodafone Chair in Telecommunications at Royal Holloway. He is also a visiting Professor in the University of Surrey. Michael is vice-chairman and member of the Executive Committee of the Mobile VCE, a member of the London Council for the Advancement Science and Industry Panel, and a member of the Advisory Board of the School of Science and Engineering at the University of Surrey. Michael is a member of the UK Governments Science Forum, and until recently he was a member of the DTI's Technology Strategy Board.

Before joining Vodafone, Michael was Head of Mathematics at Racal Research, where his responsibilities included the design of error correcting coding schemes and cryptographic algorithms for a variety of communications systems. Prior to this he was an academic at the University of Tuebingen in Germany.

Dr. Kevin Kahn is an Intel Senior Fellow and Director of the Communications Technology Lab, a corporate advanced development and research lab in Intel's Corporate Technology Group responsible for all communications technologies including radio, optical, and copper physical layer technologies, CMOS communications circuits work, packet processing, and higher layer protocols. Additionally, he helps drive communications strategies and policy for the

corporation. Some of his primary current focus areas are broadband access to the home, wireless LANs and PANs, spectrum policy, and related Internet issues.

Dr. Kahn also coordinates Intel RF technical directions across divisions and chairs the Intel Communications Research Council, which oversees research activities between Intel and academic programs. He currently serves on the FCC Technological Advisory Council, the Computer Science and Telecommunications Board of the National Research Council, and on various academic advisory committees.

In prior lab assignments, Dr. Kahn has played a variety of roles in strategic and technical planning and research. These included managing large labs in operating systems and Internet communications.

Dr. Kahn represents Intel in various industry consortia and various government policy forums. He has lectured widely at universities in the U.S. and abroad about Intel and personal research activities. He previously served on the National Academy of Science Broadband Last Mile Study Panel, served as the co-chair of the Universal ADSL Working Group, an industry alliance dedicated to accelerating the deployment of consumer ADSL services for higher speed Internet access, and served as a Director of the DSL Forum.

Dr. Kahn joined Intel in 1976 after completing a Ph.D. in Computer Science at Purdue University. Prior to that, he had received an M.S. in Computer Science from Purdue and a B.S. in Mathematics from Manhattan College. Throughout his 27-year career with Intel, he has worked in system software development, operating systems, processor architecture, and various strategic planning roles. He has held both management and senior individual contributor roles. He holds multiple patents in processor architecture and communications technologies.

Dr. Kahn is based at Intel's facility in Hillsboro, Oregon.

Professor Heather E. Hudson is Director of the Telecommunications Management and Policy Program in the School of Business and Management at the University of San Francisco. Heather received an Honours B.A. in English from the University of British Columbia, M.A. and Ph.D. in Communication Research from Stanford University, and J.D. from the University of Texas at Austin. She is the author of several books on Telecommunications and published more than 100 articles and presented numerous conference papers and expert testimony on telecommunications applications and domestic and international policy issues.

Heather has planned and evaluated communication projects in northern Canada, Alaska, and more than 50 developing countries in Asia and the Pacific, Africa, the Middle East, and Latin America. She has also consulted for government agencies, consumer and native organizations, foreign governments, telecommunications companies, and international. Heather received several scholarships including a Fulbright Distinguished Lectureship for the Asia/Pacific in 1996 and 1997. Heather is a Governor of the International Council for Computer Communications (ICCC)

and has been a member of the board of the Pacific Telecommunications Council and the Telecommunications Policy Research Conference. She serves on the editorial boards of Telecommunications Policy, Space Communications, and the Pacific Telecommunications Review. She has been a member of Advisory Committees of the National Research Council, the Federal Communications Commission, the Department of Commerce and the Office of Technology Assessment, and was a special advisor to the International Commission on Worldwide Telecommunications Development (the Maitland Commission).

Joe Jasin, Vice President of Corporate Investments for SK Telecom, has built an international career within the wireless telecommunications industry, with depth of experience that spans more than 14 years. His background includes roles in technology, business operations, corporate strategic investments and the founder of two wireless businesses. Currently he serves as Vice President of Corporate Investments for SK Telecom, the largest mobile operator in Korea. SK Telecom's investments include the U.S.-based MVNO Helio, and, a $1 billion dollar investment in the Chinese mobile operator China Unicom.

Mr. Jasin's outside activities also focus in large part on Asia. He presently holds positions with numerous committee and industry groups. Mr. Jasin is the founder and chair of the Software Development Forum's Mobile Internet group; formal advisor to the U.S. State Department's Office of Commerce and Information Policy APEC Telecommunications Affairs; member of CTIA's Wireless Internet Caucus.

Dr. J. P. Shim, John Grisham Faculty Excellence recipient, is Professor of MIS and Director of the International Business Strategy Program at Mississippi State University. He received his Ph.D. from University of Nebraska, MBA from Seoul National University, and completed the Harvard Business School Executive Education Program. Professor Shim won MSU's prestigious 2006 Ralph E. Powe Research Excellence Award and received numerous grants and awards, including NSF, DOE, Microsoft, Booz-Allen & Hamilton, U.S. EPA, Mississippi Institution of Higher Learning, Korea Sanhak (school-industry) Foundation, and is a eight-time recipient of outstanding faculty awards. Professor Shim has authored and co-authored over 150 research articles, including Communications of the ACM, IEEE, Journal of AIS, Decision Support Systems, Interfaces, CAIS, Computers & Operations Research, Journal of the Operational Research, and other leading journals. He consulted with Booz-Allen & Hamilton, EPA, and several other ICT companies. He was a keynote speaker at International Conference on Ubiquitous Computing, a frequent speaker at companies and universities in 15 different countries. He currently serves as Senior Editor and Editorial Board Member for numerous journals. His current research interests are DMB, wireless telecommunications, DSS, podcasting, and blog.

Francois Cosquer is Chief Technology Strategist for the Enterprise Business Group CTO organization at Alcatel-Lucent. He previously served as Chief Security Architect for Alcatel North America where he coordinated the security effort for Alcatel Solutions in North America as well as lead the Security architecture on

ATT project LightSpeed. Acting chair of the ATIS TOPS Council Focus Group on Network Security and Technical Editor for the ATIS IIF DRM taskforce, he has been speaker and chair for security sessions at USTA Telecom, Supercomm, VON, CTIA, Global Mobile Enterprise, Wireless Industry Congress, Globecom and Broadband Services Forum. Francois came to Ottawa in 2001 to lead the Corporate Security Research Center.

Prior to joining Alcatel, he worked in Europe for a number of Research Institutions, Equipment Vendors and Telecom Operators. Francois' 16 years experience covers networking, operating systems, middleware and multimedia applications. He is author of several international publications and co-author of LNCS book on Advances in Distributed Systems. He is Advisory Board Member at the Concordia Institute of Information Systems Engineering and for the European Security & Dependability Task Force. Francois graduated in Electronics and Computing and holds an MSc in Computer Science and Ph.D. in Computer Engineering. Francois holds an Adjunct Professor position at the Faculty of Engineering and Computer Science, University of Concordia, Montreal.

Brian McAuley is a world-class entrepreneur with extensive experience in start-up businesses. Most recently he was President and CEO of NeoWorld Communications since he founded NeoWorld in 1999. NeoWorld was sold to Nextel Communications, Inc. during January 2003. Prior to NeoWorld, Mr. McAuley co-founded Nextel Communications, Inc. and was its' President from 1987 to 1995. For both NeoWorld and Nextel, Mr. McAuley was personally involved in: 1) developing the financing and business plans and strategies to be employed, 2) making acquisitions, 3) raising capital, and 4) in the day-to-day operations of these telecommunications start-up companies.

From 1982 to 1986, Mr. McAuley served as Senior Vice President and Director of Millicom Incorporated, a company formed to participate in cellular telephone licensing and operations. Other career experiences include being Vice President of Robert's Foods, Corporate Controller of Norton Simon, Inc. and a Manager at the accounting firm of Deloitte & Touche. Mr. McAuley has a Bachelor of Business Administration Degree from Adelphi University and is a Certified Public Accountant and a member of various finance and telecommunications industry organizations.

Demetrius Thompson is President and Founder of Global Mobile Alert Corporation, and Inventor of the first mobile alert software for cell phones and fleet solutions in the United States. Thompson has worked with a team of developers and marketing professionals to create a new software application for users operating motor vehicles. He came up with the idea while a Seattle resident after being struck twice by drivers talking on cell phones. Thompson worked extensively in developing and marketing recording artists, but now concentrates on marketing his patented technology. Two articles recently published are MyMobile Alert Now Available, and A Safe Cell Phone for Drivers. This type of applications software will make a difference.

Eric Leven is the President of Rip Road, LLC, a mobile interactive marketing company formed in 2005. Eric is responsible for the company's overall operation and strategic direction. Previously, Eric was the director of new business for Cingular Wireless, where he was responsible for launching hundreds of wireless products and programs with major media companies. Most recently, he led a Cingular Wireless team that focused on strategic mobile video relationships, and was instrumental in developing the exclusive HBO Mobile video deal. Prior to Cingular Wireless, Eric was a director in the data services group at AT&T Wireless, where he established the Hispanic mobile content portal, all news and information products, led business development for ringtones and graphics deals, and championed location services. He was responsible for setting up AT&T Wireless' premium SMS business, and he helped build the industry SMS Common Short Code (CSC) initiative in 2003. Prior to AT&T Wireless, Eric was VP of Business Development and Content at Europe Online Networks in Luxembourg. He led the content team and all content deals, and assisted in raising over $70 million of capital for the company.

Eric has spent the past ten years developing new content businesses for Internet, satellite broadband, and wireless communications firms. He has worked closely with a wide range of major companies, including: HBO, CNN, ABC, Disney, Univision, Knight Ridder, The Tribune Company, Sony, Proctor & Gamble, Kellogg, and Yahoo! Eric has a BA degree from Dartmouth College, an M.Sc. in Economics from the London School of Economics, and a MBA from Columbia University.

Jonathan Atkin , a Managing Director in the Equity Research Division, has been with RBC Capital Markets since 2000. Previously, he held equity research positions with Alex Brown, Toronto Dominion, and Ferris Baker Watts, covering wireless, wireline, and Internet service providers. Previously, Jonathan was a senior consultant at BIA Companies, worked in corporate strategy at Daimler-Benz AG, and was a policy analyst with the United States Congress. Jonathan has BS and MS degrees in mechanical engineering from Stanford University and an MBA from Columbia University.

Tom Roderick is a Principal at Thomas Weisel Partners, where he covers Communications & Applications Software. Mr. Roderick has been with Thomas Weisel Partners since 2002, previously covering the industry as an Associate. Prior to joining TWP, Mr. Roderick was a Director of Business Development with Critical Path, a publicly held messaging software company. Mr. Roderick graduated from the University of Notre Dame with a Bachelor of Business Administration degree and a major in finance.

For **Levi Shapiro**, being “new” never gets old. During a 15-year career in media and technology, he has launched new business units (IBM), new technologies (Toyota, ARA Consulting) and entirely new companies (Two Minute Television, Snack Mobile, Double Agent).

He is a wireless industry expert who founded two mobile companies and served as

an Analyst, covering the mobile media sector. As Director of Audience Metrics at Telephia, he developed partnerships with movie studios, TV networks, game and Internet publishers, record labels, brands and advertising agencies and was instrumental in the company's acquisition by Nielsen.

Previously, Mr. Shapiro founded two mobile start-ups, Two Minute Television and Snack Mobile. Two Minute Television created short-form, ad-supported TV series with episodes averaging 4 million broadcast and cable TV viewers, carriage on 110 major websites and distribution on carriers in North America, Asia and Europe. Snack Mobile developed proprietary software enabling a new category of mobile media— combining casual mobile gaming with live-action video.

Mr. Shapiro is fluent in Japanese, Mandarin Chinese and Italian. He spent the early part of his career in Tokyo and Beijing with Toyota Motor Corporation and with IBM in Milan. He is on the Executive Committee of two education-related charities, is a frequent speaker at industry conferences and is a regular Contributor to Video Age and RCR Wireless. He holds degrees from Tulane (BA), Cornell (Asian Studies) and MIT (MBA).

Morgan Gillis joined the LiMo Foundation in August 2007 as executive director. He has overall responsibility for leading the Foundation and all operational affairs including marketing, membership development, commercial and legal. The LiMo Foundation was launched in January 2007 by Motorola, NEC, NTT DoCoMo, Panasonic, Samsung and Vodafone to deliver a globally consistent Linux-based handset software platform using market proven technology. Prior to joining LiMo Foundation, Gillis served for six years as the operational board member for Symbian Limited, with global responsibility for sales and professional services. He established licensing agreements with all major handset makers, negotiated global agreements with several Tier One operators and oversaw the support of numerous customer implementation projects, which helped establish the smart phone as a new industry category. Before entering the mobile industry, Gillis held CEO and managing director positions with two leading European IT services businesses. He holds a Master's degree in mathematics and computer science.

Narasimha Chari is Tropos Networks' Founder and CTO. Mr. Chari played a key role in developing Tropos Networks' core intellectual property, including the design and development of the company's wireless networking and routing protocols. Currently, he focuses on system and product architecture, product planning and participates in the company's advanced development efforts.

Among other honors, Mr. Chari was recognized by MIT Technology Review magazine in 2005 as one of the Top 35 Innovators under the age of 35. Prior to founding Tropos, Mr. Chari was a research scientist at Harvard University where he was recognized as a top lecturer and received the White Prize for excellence in teaching. He has performed research, published papers and disclosed patents in a variety of areas of mathematics, physics and wireless networking.

Mr. Chari holds a BS in Mathematics and Economics from the California Institute of Technology and an AM in Physics from Harvard University.

Dr. Smee joined Qualcomm in January 2000 and has been involved in the systems design for a variety of projects focused on the innovation of wireless communications systems, making contributions to CDMA, 802.11, OFDM, and MIMO. He is currently leading the systems design for CDMA interference cancellation. He has been granted over 25 patents in the area of digital communications.

Dr. Smee received his B.Sc. and M.Sc. from Queen's University, Kingston, Canada, and his M.A. and Ph.D. from Princeton University, NJ, all in electrical engineering.

Dr. Hidetoshi Yokota is a Senior Manager at KDDI R&D Laboratories. KDDI is one of Japan's largest telecommunication companies, which provides both fixed and mobile services nationwide. He joined KDDI (formerly KDD) in 1992. Since then, he has been devoted to research on internetworking and network architecture. He is currently working on next generation mobile communication architectures and protocols as well as all-IP based next-generation networks. He is also involved with several standardization activities including IETF, 3GPP and 3GPP2. He has been contributing to conferences and symposiums in this area as a TPC member and chair. He received his B.E., M.E. and Ph.D. degrees from Waseda University, Japan, in 1990, 1992, and 2003, respectively.

Chris Gu is Principal Architect, A&E Architecture, at Level 3 Communications, where he is responsible for network architecture design, specifically focused on wireless business opportunities. In this role, Mr. Gu interfaces with Level 3's overall business strategy, working with offer management as well as sales and sales engineering groups. He is actively involved in the development of the company's business and technology strategy to serve wireless carrier customers.

Prior to joining Level 3, Mr. Gu was Director of Business Development for Andrew Corporation in Westchester, IL, where he focused on merger and acquisitions activities, potential business transactions proposals and construction of business/financial models for those transactions. Previously, Mr. Gu has worked at IPWireless Inc., AT&T Wireless and Nortel Networks.

Since joining Nokia in 1995, **Péter Pál Boda** has contributed to several key areas of innovation including spoken dialogue systems, language technology, multimodality, advanced man-machine interfaces and more recently, device-centric wireless sensor networks. He is presently Principal Scientist, Team Leader and Chief SensorPlanet Scientist at Nokia Research Center Palo Alto laboratory.

Péter received his M.Sc.E.E. degree in Telecommunications and Telematics from the Technical University of Budapest, Hungary and after post-graduate studies in Finland and the Netherlands, his Licentiate of Technology degree from Helsinki University of Technology, Finland. In his focus are advanced user interface

solutions where contextual and sensor information provide a better understanding of the user's intention. In the field of multimodality, he is working with statistical integration mechanisms with a wider scope than mere fusion of the actual user input modalities.

As Chief Scientist of Nokia's SensorPlanet initiative, Péter is working closely with top universities around the world focusing on establishing an open global research framework of mobile device-centric large-scale wireless sensor networks. As a Team Leader, he is heading a number of researchers working on Social Proximity Networks, efforts aiming to provide better interaction means for close proximity situations and seamless information flow between the physical and virtual/social worlds.

Péter has more than 20 publications at international conferences and workshops and is the owner and co-owner of four patents.

Paul Farag is currently a Manager at T-Mobile USA working on the detailed engineering surrounding the IP network. Paul Farag, has worked on such projects at T-Mobile like Hotspot @Home, UMTS, and content delivery projects. Currently, Paul's team is responsible for all the IP infrastructure for T-Mobile and ensures that new services are able to converge on to the new IP network.

Paul has 9 years in the wireless industry supporting the convergence of IP and wireless solutions. Before entering the wireless industry Paul also has worked for large and small enterprises as well as had a number of consulting roles.

Paul graduated Cal Poly in 1995 with CIS Major and emphasis in Telecommunications. Paul also completed his MBA in 2004.

Mychele Riddick, PHR is a Sr. University Relations Manager with AT&T based out of Sacramento, CA. She is a graduate of California State University, Sacramento with a B.S. degree in Business. She is also a Certified Professional Human Resources Manager.

Since 1998 Mychele has also worked for Foundation Heath and Sprint where her jobs have included Benefits Administration and Human Resources Generalist responsibilities, among others. In her current role, Mychele recruits for the Leadership Development Program at AT&T.

Mychele lives in Vacaville, CA where she lives with her husband and two children. Mychele can be reached at mr1584@att.com

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SWIFT (Students With an Interest in the Future of Telecommunications) is Cal Poly Pomona's student branch chapter of the IEEE Communications Society. SWIFT is chartered by the College of Business and open to all Cal Poly Pomona students interested in telecommunications and networking. SWIFT was created in 1990 with the objective of enhancing and enriching the students' learning experience and preparing students for careers in the telecommunications and networking industry. Some of the ways in which SWIFT attempts to achieve this objective include: inviting speakers to Cal Poly to discuss the latest technologies, industry practices, and career trends; co-hosting telecommunications and networking seminars and symposia; holding "hands-on" workshops; and hosting social events.

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