

7th Annual IEEE Consumer Communications & Networking Conference

January 9 - 12, 2010 • Las Vegas, Nevada USA



FINAL PROGRAM



www.ieee-ccnc.org/2010

PROGRAM AT A GLANCE

Saturday, January 9, 2010

8:00 – 19:00	REGISTRATION
8:30 – 16:30	Workshops
17:00 – 18:30	Industry Technology Panels
18:30 – 20:00	Opening Reception

Sunday, January 10, 2010

8:00 – 19:00	REGISTRATION
9:00 – 10:00	General Session – Plenary Address
10:00 – 10:30	Networking Coffee Break
10:30 – 12:00	Technical Sessions
12:00 – 13:00	Luncheon
13:00 – 14:00	Demonstration Presentations
14:00 – 15:30	Technical Sessions
15:30 – 16:00	Networking Coffee Break
16:00 – 17:30	Technical Sessions
17:00 – 18:30	Industry Technology Panels
18:00 – 19:00	Happy Hour Demonstrations

Monday, January 11, 2010

8:00 – 19:00	REGISTRATION
8:30 – 10:00	Technical Sessions
9:00 – 10:00	General Session: Keynote Address
10:00 – 10:30	Networking Coffee Break
10:30 – 12:00	Technical Sessions
12:00 – 13:00	Luncheon
13:00 – 14:00	Demonstration Presentations
14:00 – 15:30	Technical Sessions
15:30 – 16:00	Networking Coffee Break
16:00 – 17:30	Technology Application Panels
18:30 – 20:30	Banquet and Keynote Address

Tuesday, January 12, 2010

8:00 – 14:00	REGISTRATION
8:30 – 16:30	Tutorials

NETWORKING OPPORTUNITIES

Saturday, January 9, 2010

18:30 – 20:00	Opening Reception • Location: Lake Tahoe Room
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Sunday, January 10, 2010

10:00 – 10:30	Networking Coffee Break • Location: Foyer
12:00 – 13:00	Luncheon • Location: Reno Room
15:30 – 16:00	Networking Coffee Break • Location: Foyer
18:00 – 19:00	Happy Hour Demonstrations • Location: Lake Tahoe Room

Monday, January 11, 2010

10:00 – 10:30	Networking Coffee Break • Location: Foyer
12:00 – 13:00	Luncheon • Location: Reno Room
15:30 – 16:00	Networking Coffee Break • Location: Foyer
18:30 – 20:30	Banquet and Keynote Address • Location: Reno Room

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GENERAL INFORMATION FOR CONFERENCE • FLOOR PLAN

IEEE CCNC 2010 Badges and Tickets

IEEE CCNC 2010 Badges must be worn at all times and are necessary for entrance into all IEEE CCNC events. Tickets are required for the Sunday and Monday Luncheons and the Conference Banquet.

Registration

The Registration Desk will be located on the second level of the Mardi Gras Tower. All attendees must register and receive a conference badge in order to participate in conference activities.

Hours for the Registration Desk will be:

Saturday, January 9, 2010	8:00 – 19:00
Sunday, January 10, 2010	8:00 – 19:00
Monday, January 11, 2010	8:00 – 19:00
Tuesday, January 12, 2010	8:00 – 14:00

Conference Meals

Included in the price of the full registration are the Opening Reception, Happy Demo Hour, Two Luncheons and Conference Banquet.

Business Service

Harrah's has a full service Business Center that will help you with all of your meeting needs.

Internet Access

IEEE CCNC will offer free wireless access in all of the conference meeting rooms on all four days of the conference.

Guest rooms have high speed internet so that you can check emails and work on your laptop from the comfort of your guest room.

A Friendly Reminder

Please turn off anything that chirps, beeps, buzzes or rings which includes but not limited to pagers, beepers, cell phones, PDA and laptops during the conference. The speakers and audience thank you for your consideration and cooperation.

Dress Attire

Business casual is recommended for all daytime and evening IEEE CCNC 2010 events.

Conference Location

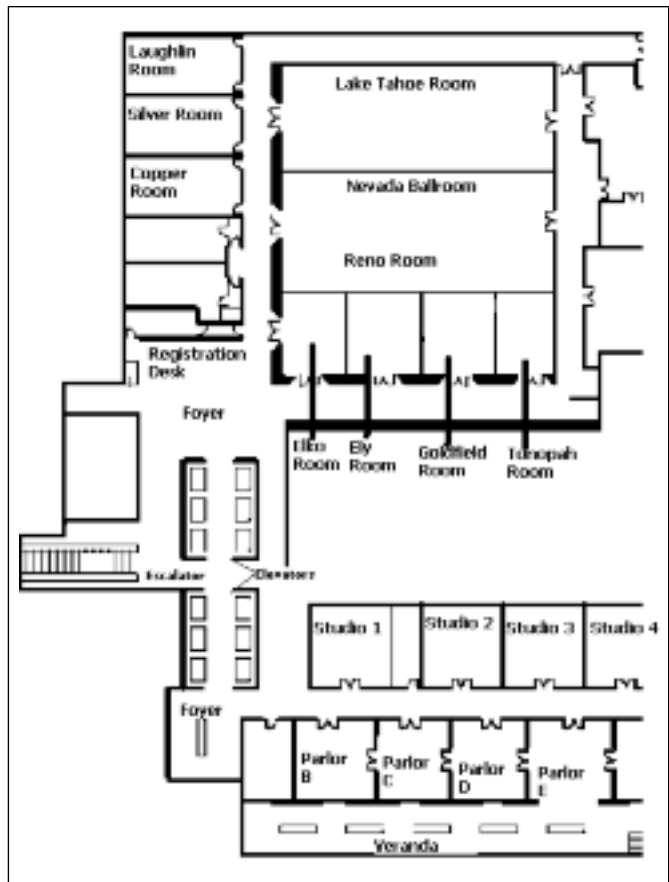
All conference events except where noted on the schedule at a glance will be held on the second level of the Mardi Gras Tower.

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GREETINGS FROM THE GENERAL CO-CHAIRS



Sergey Balandin



Marcin Matuszewski



Jörg Ott

On behalf of the IEEE CCNC 2010 Organizing Committee, it is our pleasure to welcome you to the Seventh Annual IEEE Consumer Communications and Networking Conference.

This year's edition of IEEE CCNC continues to follow its well-recognized tradition of combining theory and practice and bringing together academia and industry in one of the key future growth areas of consumer communications as all of us easily witness every day. In spite of the tough economic times in 2008 and 2009, IEEE CCNC has received a great number of submissions, allowing us to compile a comprehensive program with excellent contributions. Numerous distinguished industry

experts offer keynotes and tutorials to our participants. We are also continuing our integration with CES: to simplify participation of CES attendees in our series of workshops, this year, we start IEEE CCNC with our workshops on Saturday.

IEEE CCNC 2010 further emphasizes consumer communications as its core theme. Not only by developing an even stronger focus reflecting in the reshaping of some of our six tracks to what really matters to consumers. But also by choosing targeted topics for our six workshops that explore novel directions and offer fora for recent research results from personal and mobile (multimedia) entertainment and communications. And, with eight tutorials, by capturing the key topics of today's and tomorrow's consumer services. These are complemented by nine special sessions dedicated to topics from wireless communications to location awareness to ecological home networks to multimedia entertainment and completed by a set of industry panels to look at market opportunities and directions. IEEE CCNC thus continues recognizing the need for an exchange platform across layers, businesses, and academia/industry and provides a premier venue meeting this demand!

We are proud to be able to welcome three high-caliber distinguished speakers from industry sharing their perspectives with us. On Sunday, we are pleased to announce an invited plenary presentation by Dr. Henry Sinnreich, Adobe Systems, also known as the Godfather of SIP. On Monday morning, our keynote speaker will be Dr. John Paul Shen, the head of Nokia Research Center, Palo Alto. For the evening banquet on Monday, the closing keynote speech will be delivered by Dr. I.P. Park, Vice President, Director of Computer Science Laboratory at the Samsung Advanced Institute of Technology.

We are confident that you will find a multitude of stimulating presentations and interesting in the technical sessions and want to thank Gary Chan for putting together an extremely strong set of papers across all topics relevant to consumer communications. Gary's introduction on the following pages will provide you with further guidance where to set your sights on. The regular and special sessions are augmented by work-in-progress-style short papers and a PhD forum. This year's IEEE CCNC will continue the past success of live demonstrations, emphasizing its practical side. We are happy to have over 30 demonstrations to be presented in three demonstration sessions.

Following the popularity of the previous years, we again offer complimentary tutorials to all attendees. IEEE CCNC 2010 features eight tutorials on a broad set of topics, from broadband to 4G to various multimedia services to delay-tolerant networking. Please check out the variety of offerings. All tutorials will be taking place on Tuesday.

Finally, we want to extend our thanks to the people who are truly responsible for making this conference a success through their generous contributions of time and energy. Our thanks to: Gary Chan, Technical Program Chair; Xiaoxin Wu, Wireless Home Communication and Networking Vice-Chair; Behrooz Shirazi, Smart Spaces and Personal Area Networks for Consumer Electronics Vice-Chair; Mario Kolberg, Multimedia Communication and Services Vice-Chair; Ali Begen, Content Distribution and Peer-to-Peer Networks Vice-Chair; Christian Becker, Pervasive and Ambient Applications Vice-Chair; Chi-Sung Laih, Security for CE Communications Vice-Chair; Kurt Tutschku, Workshop Chair; Zhu Li, Special Sessions Chair; Yi Cui and Xiaowen Chu, Short Papers Chairs; Cheng Huang, Tutorial Chair; Igor Curcio, Industry Panels Chair; Gene Cheung and Xing Jin, Demonstration Co-Chairs; Rangarao Venkatesha Prasad, On-Site Demonstration Chair; Mei Yang, Local Arrangements Chair; Rajarathnam Chandramouli, Best Paper Award Committee Chair; Alan Kaplan, Publication Chair; Alex Gelman, Publicity Chair; Rob Fish, Patron Chair; Stan Moyer, Finance Chair; Bruce Worthman, Treasurer; Heather Ann Sweeney, Marketing; and finally special thanks to Diane Williams, who as ComSoc Project Manager did – once more – a tremendous job of pulling everything together.

We are looking forward to exciting event and hope that you will find IEEE CCNC 2010 enjoyable and a great place to discuss and network.

Sergey Balandin
IEEE CCNC 2010 General Co-Chair
Nokia Research Center

Marcin Matuszewski
IEEE CCNC 2010 General Co-Chair
FutureInvest

Jörg Ott
IEEE CCNC 2010 General Co-Chair
Helsinki University of Technology

GREETINGS FROM THE TECHNICAL PROGRAM CHAIR



Gary Chan

On behalf of the technical committee of the IEEE Consumer Communications and Networking Conference (CCNC) 2010, I would like to warmly welcome you to the conference in Las Vegas.

This is our seventh annual IEEE CCNC. The conference has continued to be a leading and unique venue on consumer communications and networking. We have put together a successful conference program this year. It has enjoyed strong participation in the CE industry, well attended by leading researchers and practitioners in the area. We have had good mix of both industrial and academia people, and it is a good venue for you to explore and discuss emerging technologies on consumer communications and networking from both commercial and academic perspectives.

IEEE CCNC has become a truly international conference. This year our papers represent many countries around the world. We have an outstanding keynote lineup. It is my great pleasure to introduce you the following leaders as our keynote speakers this year: Dr. Henry Sinnreich from Abode Systems, California; Dr. John Paul Shen, Head of Nokia Research Center Palo Alto; and

Dr. I.P. Park, the Vice President and Director of Computer Science Laboratory of Samsung Advanced Institute of Technology, Samsung Electronics.

IEEE CCNC has continued to gain visibility and popularity in the community. This year, it attracted more than 300 submissions in the technical tracks. Only less than a competitive rate of one-third was accepted into the final program. Besides technical tracks, we also have a very strong tutorial program this year, with well-known practitioners and educators in the CE areas giving us tutorials on cutting-edge topics, which you do not want to miss. Besides these, we have workshops, special sessions, and short papers covering various emerging and special topics of interest to the communities. There are also demonstration sessions where various projects related to CE are demonstrated. We will also have the best paper award and best student paper award, which will be announced at the conference.

The conference cannot be successful without the efforts and dedications of many volunteers in the steering committee, organizing committee, and TPC teams. Over the past months, they have put in much effort and time to review papers, make acceptance decisions, and organize the technical sessions. Their names are too numerous to be listed here. I would like to specially thank Rob Fish, Alex Gelman, and Stan Moyer; who have dedicated much of their time, thoughts and energy to the conference over the past year. I also would like to thank Diane Williams and Diana Romeo for their continuous and tremendous help with conference logistics and registration matters. Finally, I also would like to thank our patrons Samsung and Nokia.

I am sure that you will enjoy our high-quality technical program, which covers topics on wireless communications and networks, smart space and personal area networks, content distribution, digital rights management and protection, location-based services, etc. Please take advantage of the conference to discuss emerging technical issues, to network and to re-connect with your friends. In the evening, remember not to miss the good food and shows in this vibrant and dynamic city of Las Vegas.

Gary Chan

IEEE CCNC 2010 TPC Chair

Hong Kong University of Science and Technology

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Behrooz Shirazi, Washington State University, USA

Multimedia Communication and Services

Mario Kolberg, University of Stirling, UK

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Security and Content Protection for CE

Chi-Sung Laih, National Cheng Kung University, Taiwan

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 Chuan Wu, University of Hong Kong, Hong Kong
 Xiaotao Wu, Avaya Labs Research, USA
 Haiyong Xie, Akamai Technologies, USA

Special Session on Social Networking

Zhuhua Cai, Rice University, USA
 Ruichuan Chen, Max Planck Institute for Software Systems, Germany
 Eng-Keong Lua, Carnegie Mellon University, USA
 Cong Tang, Brooklyn Polytech, USA
 Ennan Zhai, Peking University, China

Special Session on Advanced Technologies for Care at Home

Ana Bernardos, Universidad Politecnica de Madrid, Spain
 Yunan Chen, University of California, Irvine, USA
 Aravind Kailas, Georgia Institute of Technology, USA
 Mario Kolberg, University of Stirling, Scotland
 Evan Magill, University of Stirling, Scotland
 Marilyn McGee-Lennon, University of Glasgow, United Kingdom
 Maria Martini, Kingston University, United Kingdom
 Ken Turner, University of Stirling, Scotland
 Eric Wade, University of Southern California, USA

Special Session on the Integrated and Intelligent Management and Platform for Ecological Home Network

Norihiro Ishikawa, NTT DoCoMo R&D Center, Japan
 Masao Isshiki, Keio University, Japan
 Kazuhiro Kitagawa, Keio University, Japan
 Kaz Kubota, Arc, Inc., Japan
 Hiroshi Mineno, Shizuoka University, Japan
 Nobuo Saito, Keio University, Japan

Special Session on IPTV Towards Seamless Infotainment

Yu Huang, Huawei Technology Inc., USA
 Zhu Liu, AT & T Laboratories, USA
 Heather Yu, Huawei Tech, USA
 Bin Wei, AT&T Labs, USA

Special Session on Milli-Meter Wave Wireless Technology

Huai-rong Shao, Samsung Electronics, USA

Special Session on Network Coding for Wireless Networks

Zhenguo Gao, Harbin Engineering University, China
 Yingtao Jiang, University of Nevada, Las Vegas, USA
 Mei Yang, University of Nevada, Las Vegas, USA

Special Session on Scalable Adaptive Multicast in P2P Overlays

John Buford, Avaya Labs Research, USA
 Thomas Schmidt, HAW Hamburg (DE), Germany
 Matthias Waehlich, FU, Berlin

Short Work-in-Progress and Positioning Papers

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 David Grace, University of York, UK
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 Klaus Marius Hansen, University of Iceland, Iceland
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 Mudasser Iqbal, Nanyang Technological University, Singapore
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 Shi Jin, Southeast University, China
 Ayman Khalil, Institute of Electronics and Telecommunications of Rennes - IETR, France

Zeashan Khan, GIPSA lab, INPG/UJF, France
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 Polychronis Koutsakis, Technical University of Crete, Greece
 Anugeetha Kunjithapatham, Samsung Electronics, USA
 Minseok Kwon, Rochester Institute of Technology, USA
 Soonmok Kwon, Postech, Korea
 Xuguang Lan, Xi'an Jiaotong University, China
 Byung-Rae Lee, Samsung Electronics, Korea
 Yun-Ho Lee, Samsung Electro-Mechanics Co., USA
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 Keith Nolan, Trinity College Dublin, Ireland
 Dany Obeid, IETR-INSA de Rennes, France
 Oudomsack Pasquero, Institute of Electronics and Telecommunications of
 Rennes, France
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 Mohammed Qadeer, Aligarh Muslim University, India
 Eric Renault, TELECOM & Management SudParis (ex GET-INT), France
 Tobias Renk, Karlsruhe Institute of Technology (KIT), Germany
 June-Koo (Kevin) Rhee, KAIST, Korea
 Une Rosi, Bangladesh University of Engineering & Technology, Bangladesh
 Bjoern Saballus, University of Karlsruhe, Germany
 Loren Schwiebert, Wayne State University, USA
 Kashif Sharif, University of North Carolina, Charlotte, USA
 Fangyang Shen, Northern New Mexico College, USA
 Liqi Shi, University of Calgary, Canada
 Jongmin Shin, POSTECH, Korea
 Yoan Shin, Soongsil University, Korea
 Joseph So, Chinese University of Hong Kong, Hong Kong
 Bruno Sousa, University of Coimbra, Portugal
 Kuo-Feng Ssu, National Cheng Kung University, Taiwan
 Ming-Kung Sun, National Cheng Kung University, Taiwan
 Robert Szweczyk, University of California, Berkeley, USA
 Andrew Tokmakoff, Philips Research, Netherlands
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 Wataru Uemura, Ryukoku University, Japan
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 Lusheng Wang, ENST, France
 Xiao Yu Wang, University of Waterloo, Canada
 Houssein Wehbe, France Telecom, France
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 Seong-eun Yoo, Korea Advanced Institute of Science and Technology, Korea
 Jiayi You, University of Rostock, Germany
 Jen-Chieh Yu, Chunghwa Telecom Co., Ltd., Taiwan
 YinYan Yu, Institute of Computer Science and Technology, Peking University, China
 Mohammad Haseeb Zafar, N-W.F.P. University of Engineering & Technology,
 Peshawar, Pakistan
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2nd IEEE International Intelligent Vehicular Communications System Workshop

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 Weidong Xiang, University of Michigan, Dearborn, USA
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2nd IEEE International Workshop on Mobile IPv6 and Network-based Localized Mobility Management

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 IlSun You, Korean Bible University, South Korea

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 Pedro M. Ruiz, University of Murcia, Spain

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 Rafa Marin Lopez, University of Murcia, Spain

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 Eun Kyoung Paik, KT Research Center, Korea
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 Seungjin Park, University of Southern Indiana, USA
 Venkatesh Sarangan, Oklahoma State University, USA
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 S. Felix Wu, University of California, Davis, USA
 Junmo Yang, Samsung Electronics Co., LTD., Korea
 Kun Yang, University of Essex, UK
 Shun-Ren Yang, NTHU, Taiwan
 Siu Ming Yiu, University of Hong Kong, Hong Kong
 Hidetoshi Yokota, KDDI Labs, Japan
 Jong-Hoon Youn, University of Nebraska, Omaha, USA
 Huachun Zhou, Beijing Jiaotong University, China

6th IEEE International Workshop on Digital Rights Management

Workshop Co-Organizers

Xin Wang, ContentGuard, Inc., USA
 Jean-Henry Morin, University of Geneva, Switzerland
 David Llewellyn-Jones, Liverpool John Moores University, UK

Program Committee

Hyecheon Ahn, Fasoo, Korea
 Patricia Akester, University of Cambridge, UK
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 Eric Diehl, Thomson, France
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 Rajit Gadh, University of California, Los Angeles, USA
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 Mario Kolberg, University of Stirling, UK
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 Dave Maher, InterTrust, USA
 Athanassios Manikas, Imperial College London, UK
 Desmond McLernon, University of Leeds, UK
 Madjid Merabti, Liverpool John Moores University, UK
 Milan Petkovic, Philips Research, Netherlands
 Adrian Waller, Thales Research and Technology, UK
 Marc Waldman, Manhattan College, USA
 Heather Yu, Huawei Technologies, USA
 Anat Zeelim-Hovav, Korea University, Korea
 Ning Zhang, University of Manchester, UK
 Bo Zhou, China National Software and Service, China
 Bin Zhu, Microsoft Research Asia, China

1st IEEE International Workshop on Emerging Internet Video Technologies

Workshop Co-Chairs

Yu Yuan, IBM Research, China
 Li Zhao, Tsinghua University, China

Program Committee

Ernest Ma, Philips, China
 Yongliang Liu, Philips, China
 Kai Chen, Intel, China
 Jilong Wang, Tsinghua University, China
 Rui Hou, IBM Research, China

4th IEEE International Workshop on Personalized Networks

Chair

Ignas Niemegeers, Delft University of Technology, Netherlands

Program Co-Chairs

Sonia Heemstra de Groot, University of Twente, Netherlands
 Magda El Zarki, University of California, Irvine, USA

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 Vasilis Friderikos, King's College London, UK
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 Ramakant Komali, Virginia Tech, USA
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 Giovanni Pau, University of California, Los Angeles, USA
 Jorge Pereira, European Commission, Brussels, Belgium
 T. V. Prabhakar, Indian Institute of Science, India
 Ramjee Prasad, University of Aalborg, Denmark
 Neeli Prasad, University of Aalborg, Denmark
 Petri Liuha, Nokia, Finland
 Heung-Gyoon Ryu, Chungbuk National University, Korea
 Paolo Santi, Istituto di Informatica e Telematica, Italy
 Amardeo Sarma, NEC Laboratories Europe, Germany
 Koduvayur Subbalakshmi, Stevens Institute, USA
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 Sirin Tekinay, New Jersey Institute of Technology, USA
 John Thompson, University of Edinburgh, UK
 Stephen B. Weinstein, CTTC, USA
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 Honggang Zhang, Zhejiang University, China
 Djamel Zeghlache, INT, Paris, France

Organizing Committee

Martin Jacobsson, Delft University of Technology, Netherlands
 R. V. Prasad, Delft University of Technology, Netherlands

CCNC Research Student Workshop

Workshop Co-Organizers

Mikko Pitkänen, Teknillinen Korkeakoulu, Finland
 Joe Wenjie, Princeton University, USA

Program Committee

Xueli An, Technologic University of Delft, Netherlands
 Cheng Guo, Technologic University of Delft, Netherlands
 Teemu Kärkkäinen, Helsinki University of Technology, Finland
 Mikko Pervilä, University of Helsinki, Finland
 Dongni Ren, HKUST, Hong Kong
 John Solis, University of California, Irvine, USA

2nd IEEE International Workshop on "Social TV: the Next Wave"

Workshop Co-Organizers

Henry Holtzman, MIT Media Lab, USA
 Marie-Jose Montpetit, MIT RLE, USA

KEYNOTE SPEAKERS



Sunday, January 10, 2010 • 9:00 – 10:00
Location: Reno Room

Plenary Technical Presentation

Dr. Henry Sinnreich
Abode Systems, California

“Applications on the Web vs. Network Application Protocols: RIA and SIP”

Henry Sinnreich has worked most of his career in the telecom industry, including 24 years at MCI where he was an MCI Fellow. He has contributed to the development of the first commercial SIP service by a major Carrier, MCI and is also an active contributor to IETF SIP standards work. He is an author of several books on SIP. Dr. Sinnreich is a guest lecturer at Southern Methodist University in Dallas and works at Adobe Systems.



Monday, January 11, 2010 • 9:00 – 10:00
Location: Reno Room

John Paul Shen
Head of Nokia Research Center Palo Alto

“The Great Convergence”

John P. Shen is the head of Nokia Research Center Palo Alto. NRC Palo Alto research lab was established in November 2006 and currently houses over 60 researchers and 20 interns working on a wide range of projects on mobile internet applications, services and solutions. Prior to joining Nokia in 2006, John was the Director of the Microarchitecture Research Lab at Intel, which was responsible for developing processor and system architecture innovations that can be incorporated in Intel products and platforms.

Prior to joining Intel in 2000, John was a Professor in the Electrical and Computer Engineering Department of Carnegie Mellon University, where he supervised a total of 17 PhD students and numerous MS students and received multiple teaching awards. He is the author or co-author of over 120 published articles and two books, including Modern Processor Design: Fundamentals of Superscalar Processors, McGraw-Hill 2005.

John is an IEEE Fellow and received his BS degree from the University of Michigan and his M.S. and Ph.D. degrees from the University of Southern California, all in Electrical Engineering. He is currently an Adjunct Professor at Carnegie Mellon Silicon Valley.



Monday, 11 January 2010 • 19:30 – 20:30
Location: Reno Room

Dr. I.P. Park
Vice President, Director of Computer Science Laboratory
Samsung Advanced Institute of Technology
Samsung Electronics

“Future Web and Consumer Electronics”

Dr. I.P. Park is Vice President and Director of Computer Science Laboratory in Advanced Software Research Center of SAIT, Samsung Electronics. He leads advanced research in various areas including, but not limited to, digital contents technology, artificial intelligence, future web technology, augmented reality and user experience (UX).

Prior to joining Samsung in 2006, I.P. was Department Head of Security and Platform Technologies at Panasonic Princeton Laboratory. He worked in areas of operating system security, embedded Linux systems, and secure download for software-defined radio. I.P. was one of the key members responsible for establishing CE Linux Forum, and served as the founding chair of the Architecture Group.

From 1999 to 2001, I.P. was Senior Director of Software Development at Timecruiser Computing Corporation, an Internet software company specializing in building Java-based enterprise systems.

From 1993 to 1999, I.P. was a faculty member at New York Institute of Technology (NYIT) in the computer science department. During this period, he was also a visiting researcher at Bellcore.

I.P. received B.S. in Computer Science from Seoul National University, M.S. and Ph.D. in Computer Science from Columbia University.

Saturday, January 9, 2010 • 8:30 – 16:00 • Location: Silver

1st IEEE International Workshop on Emerging Internet Video Technologies (EIVT 2010)

Message from the Workshop Chairs

Welcome to the 1st IEEE International Workshop on Emerging Internet Video Technologies (EIVT 2010) that takes place in conjunction with the 7th IEEE Consumer Communications & Networking Conference (CCNC 2010).

Video has become part of human life for many years. Thanks to the rapid popularization of the Internet, many emerging Internet video services such as IPTV, Internet TV, Video Sharing, and Video Podcast are being more and more widely accepted by the market. The successful growth of Internet video benefits from the advances of many technologies including networking, media processing, computer-human interaction, knowledge discovery, etc. Along with the exploration on new services and new business models of Internet video, many technical challenges arise, such as high definition video transmission, content and right management, system scalability and reliability, service delivery architecture, operation cost reduction, value-added services over video, etc.

The workshop series on Emerging Internet Video Technologies (EIVT) serves as a continuing forum for researchers and practitioners in academia and industry to exchange and discuss their experiences, innovations, research and development results about all aspects of internet video technologies.

We would like to express our appreciation to all the contributors and authors for the 16 submissions to EIVT 2010. The contributions are from 10 countries on four continents. All papers were assessed in a blind review. We finally accepted 10 papers for presentation.

Special thanks are due to the members of the Technical Program Committee and all the external reviewers for their invaluable help with evaluating the papers. Finally, we would like to acknowledge the great support by the IEEE CCNC 2010 team; in particular, the workshop chair Kurt Tutschku (University of Vienna, Austria) and the technical program chair Gary Chan (HKUST, Hong Kong) for easing organization of this year's workshop.

Workshop Co-Organizers:

Yu Yuan
IBM Research, China

Li Zhao
Tsinghua University, China

Paper Presentations • 8:30 – 12:00

Geelix InGame: Searching for Serious Games
Ole-Ivar Holthe (Geelix Corporation, USA)

Multiple TFRC Streaming in a WiMAX Environment
Martin Fleury and Salah Saleh (University of Essex, UK)

Packet Loss Characteristics of IPTV-like Traffic on Residential Links
Martin Ellis and Colin Perkins (University of Glasgow, UK)

A Trees - Mesh Based Application Layer Multicast Using Collaborative Sub-streams
Jun Yue (Wuhan University, China)

Buffer Management Mechanism Suitable TCP Streaming in QoS-aware IP Router
Naotoshi Yoshihara, Koso Murakami (Osaka University, Japan)
Hideki Tode (Osaka Prefecture University, Japan)

DRM Licensing Design for Interactive Rebuilding of DTV in China
Yuxuan Zhai and Li Zhao (Tsinghua University, China)

Paper Presentations • 13:30 – 16:00

Flexible User Profile Management for Context-Aware Ubiquitous Environments
Soraya Ait Chellouche, Julien Arnaud, Daniel Négru
(CNRS LaBRI Lab. – University of Bordeaux 1, France)

PartnerVoD: Improving P2P-VoD With Partnership Overlay
Ke Wen, Li Zhao (Tsinghua University, China)

Trends on Building Interactive Applications in the Brazilian Digital Television System
Joao Benedito dos Santos Junior, Paulo Muniz de Avila, Rogerio Baldini,
Lucila Ishitani, Rinaldi Nascimento, Mateus dos Santos
(Pontifical Catholic University of Minas Gerais, Brazil)

Uniform User Interface Design for PC and TV Convergence Environment in GridMedia+ IPTV Platform
Jiashun Liu, Li Zhao (Tsinghua University, China)

Saturday, January 9, 2010 • 8:30 – 15:00 • Location: Goldfield

**2nd IEEE International Intelligent Vehicular Communications System
(IVCS 2010)**

Message from the Workshop Chairs

Welcome to the 2nd IEEE International Vehicular Communications System Workshop (IVCS'10) that takes place in conjunction with IEEE CCNC 2010.

Vehicular communication systems have gained in popularity and importance over the past few years. New research challenges have evolved. Around the world, automobiles and other road vehicles are indispensable for connecting people, delivering goods and services and commuting from one place to another. Much research remain to be done to bring alive the vision of future intelligent vehicular communications applications, which will be supported by vehicular networks. Consumer telematics technologies will be needed to enable drivers to exploit the advantages of next-generation intelligent transport systems. Even as the networks and applications are still in the R&D phase, the consumer communications aspects of vehicular communications are growing in importance too. It is ultimately the consumers (like the car drivers and passengers) that will determine the success and acceptance of vehicular communications systems.

This workshop serves as a leading forum to bring together the researchers and engineers in both academia and industry to exchange ideas, share experiences, and report original work about all aspects of car consumer telematics, communications, networking, security and services. The main purpose is to promote discussions of research and relevant activities in the design of architectures, algorithms, and applications for intelligent vehicular communication environments.

We would like to express our appreciation to all the contributors and authors for the 23 submissions to IVCS'10. The contributions are from 15 countries on 4 continents. All papers were assessed in a blind review, and each received at least three reviews. We finally accepted eight papers for presentation.

Special thanks are due to the members of the Technical Program Committee and all the external reviewers for their invaluable help with evaluating the papers. Finally, we would like to acknowledge the great support by the IEEE CCNC 2010 team; in particular, the workshop chair Kurt Tutschku (University of Vienna) and the TPC chair Gary Chan (HKUST) for easing organization of this year's workshop.

General Chair

T. Russell Hsing
Telcordia Technologies, USA

General Vice Chairs

C.K. Toh
University of Hong Kong, China
Daniel Wong
Daniel Wireless LLC, USA

TPC Chair

Pietro Manzoni
Universidad Politécnic De Valencia, Spain

Paper Presentations • 8:30 – 12:00

Filter Multicast: A Dynamic Platooning Management Method

Ami Uchikawa, Ryohei Hatori, Tomoya Kuroki, Hiroshi Shigeno (Keio University, Japan)

Modeling and Evaluation of a Streaming Traffic Controller for Vehicular Ad Hoc Networks

Brijesh Kadri Mohandas, Oliver Yang, Ramiro Liscano (University of Ottawa, Canada)

A Universal Geocast Scheme for Vehicular Ad Hoc Networks

Mohammad Nekoui, Hossein Pishro-Nik (University of Massachusetts, Amherst, USA)

A Novel Estimation-Based Backoff Algorithm in the IEEE 802.11 Based Wireless Network

Seok-Won Kang, Jae-Ryong Cha, Jae-Hyun Kim (Ajou University, Korea)

A Fixed Complexity Velocity Estimation Method for Mobile MIMO Users

Salman A. Khan (McGill University, Canada)

A Method for Improving Data Delivery Efficiency in Delay Tolerant VANET with Scheduled Routes of Cars

Masato Nakamura, Weihua Sun, Keiichi Yasumoto, Minoru Ito (Nara Institute of Science and Technology, Japan)
Tomoya Kitani (Shizuoka University, Japan)
Naoki Shibata (Shiga University, Japan)

Paper Presentations • 13:30 – 15:00

Inter-Vehicle Communication Protocol for Cooperatively Capturing and Sharing Intersection Video

Kazuya Kotani, Weihua Sun, Keiichi Yasumoto, Minoru Ito (Nara Institute of Science Technology, Japan)
Tomoya Kitani (Shizuoka University, Japan)
Naoki Shibata (Shiga University, Japan)

Multi-Hop Broadcasting in Vehicular Ad Hoc Networks with Shockwave Traffic

Rex Chen, Wenlong Jin, Amelia Regan (University of California, Irvine, USA)

A Cooperative Scanning Mechanism for the Mobile Relay in the Moving Network Environment

Hyun-Jin Lee, Sin-Hun Kang, Jae-Hyun Kim (Ajou University, South Korea)

Saturday, January 9, 2010 • 8:30 – 14:30 • Location: Elko

6th IEEE International Workshop on Digital Rights Management (DRM 2010)

Message from the Workshop Organizers

Welcome to the Sixth IEEE International Workshop on Digital Rights Management that takes place in conjunction with the Seventh IEEE CCNC 2010 in Las Vegas, Nevada, USA, in January 2010.

Consumers and consumer electronics are increasingly using the Internet for distribution of digital goods, including digital versions of books, articles, music, video, games, software and images. Organizations are also increasingly concerned with information protection and control within and beyond the corporate perimeter for reasons including traceability, compliance, accountability and persistent management of intangible assets. The ease with which digital goods can be copied and redistributed makes the Internet well suited for unauthorized copying, modification and redistribution. The rapid adoption of new technologies such as high-bandwidth connections, wireless networks, and peer-to-peer networks is accelerating this process.

Digital Rights Management (DRM) systems are intended to protect the rights of content owners in scenarios in which the participants often have conflicting goals and interests. This adversarial situation introduces interesting new twists on classical problems studied in cryptology and security research, such as key management and access control. Furthermore, novel security mechanisms and innovative designs can enable new business models and applications.

Now in its sixth year, this one-day workshop on Digital Rights addresses problems faced by all stakeholders in this ecosystem including rights owners – who seek to protect their intellectual property rights, develop innovative business models and end consumers / users – who seek to protect their privacy, enjoy a good user experience and preserve access they benefit from using traditional media. This year's proceedings include topics from watermarking and steganography through to the protection of 3D multimedia and rights expression.

The workshop format will be highly interactive, based on a series of presentations held in a panel/forum type of environment to encourage discussion of topics and issues. The workshop welcomes researchers, engineers and academia to exchange the latest technical information and research findings in the field.

This workshop would not have been possible without the support of many people. We would like to express our appreciation to all of the contributors and authors for their submissions to the workshop. We received many high quality submissions allowing us to maintain the high standard of presented work at the workshop. We are especially grateful to the IEEE CCNC 2010 Workshop Chair, Kurt Tutschku (University of Vienna, Austria), for his wonderful support in organizing this workshop. Our special thanks are due to the Program Committee members, many of which have been serving this workshop for a number of years, for their excellent job in reviewing the submissions and thus guaranteeing the quality of the workshop under a very tight schedule. We are indebted to the IEEE CCNC Workshop Committee and the IEEE CCNC Organizing Committee for giving us a chance to continue this workshop for its sixth time.

Workshop Co-Organizers

Xin Wang

ContentGuard, Inc., USA

Jean-Henry Morin

University of Geneva, Switzerland

David Llewellyn-Jones

Liverpool John Moores University, UK

Paper Presentations • 8:30 – 12:00

Towards Genetic Feature Selection in Image Steganalysis

Mahdi Ramezani, Shahrokh Ghaemmaghami
(Sharif University of Technology, Iran)

3D Multimedia Protection Using Artificial Neural Network

Mukesh Motwani, Bobby Bryant, Sergiu Dascalu, Frederick C. Harris, Jr.
(University of Nevada, Reno, USA)

A New Fragile Watermarking Scheme and Its Security Evaluation

Hajime Kubota, Keiichi Iwamura (Tokyo University of Science, Japan)

A Proposed Digital Rights Management System for 3D Graphics using Biometric Watermarks

Rakhi Motwani, Frederick Harris, Kostas Bekris
(University of Nevada, Reno, USA)

Analysis of Digital Image Watermark Attacks

Chunlin Song, Sud Sudirman, Madjid Merabti, David Llewellyn-Jones
(Liverpool John Moores University, UK)

Adaptive image Steganography with Mod-4 Embedding using Image Contrast

Mahdi Ramezani, Shahrokh Ghaemmaghami
(Sharif University of Technology, Iran)

Paper Presentations • 13:30 – 14:30

Threshold Based Group-Oriented Nominative Proxy Signature Scheme for Digital Rights Management

Chun-Chieh Huang, Chi-Chun Lo (National Chiao Tung University, Taiwan)

Managing Digital Rights Using JSON

Stephen Downes, Luc Belliveau, Rodrigue Savoie
(National Research Council Canada, Canada)
Saeed Samet, Md. Abdur Rahman (University of Ottawa, Canada)

Saturday, January 9, 2010 • 8:30 – 16:30 • Location: Copper

2nd IEEE International Workshop on Mobile IPv6 and Network-based Localized Mobility Management (MobiWorld 2010)

Message from the Workshop Co-Organizers

Welcome to the 2nd IEEE International Workshop on Mobile IPv6 and Network-based Localized Mobility Management (MobiWorld 2010), which is held in conjunction with the 7th IEEE Consumer Communications & Networking Conference (CCNC).

As mobile computing is more and more widespread, mobility support for Internet devices becomes very important. Mobile IPv6 (MIPv6) is a promising technology that handles the mobility management and provides the seamless mobile communications. It is expected that MIPv6, as a standard for mobile communication, will open the Mobile Internet Age. In MIPv6, it has been observed that mobility for mobile devices can be more efficiently handled if mobility management is broken down into localized mobility management and global mobility management. Therefore, host-based approaches such as Fast-Handovers for MIPv6 (FMIPv6) and Hierarchical MIPv6 (HMIPv6) have been proposed for localized mobility management. In addition, Proxy MIPv6 (PMIPv6) has been presented for the network-based localized mobility management (NETLMM), which does not require mobile devices to be involved in the signalling for mobility management.

MobiWorld 2010 focuses on the challenges and solutions for MIPv6 with an emphasis on PMIPv6 and NETLMM, which have recently gained considerable attention. It provides an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of MIPv6 and NETLMM.

MobiWorld 2010 had received high quality submissions from all over the world. After a rigorous peer-review process where each submission is reviewed by at least three TPC members, we finally accepted nine papers for presentation. In addition, three other papers were invited from leading researchers in this field. We believe that these papers can serve as a trigger for further related research and technology improvements in this important subject

Finally, we would like to give our special thanks to all authors for their valuable contributions as well as to the technical program committee members led by Drs. Phone Lin and Pedro M. Ruiz for their hard and excellent work. At the same time, we would like to acknowledge the great support by the IEEE CCNC 2010 team; in particular, the workshop chair Kurt Tutschku (University of Vienna, Austria) for the timely help and organization.

Workshop Co-Organizers

Ilsun You
Korean Bible University, Korea

Victor C.M. Leung
University of British Columbia, Canada

Paper Presentations • 8:30 – 12:00

An Approach for Scalable Proxy Mobile IPv6

Hongbin Luo, Hongke Zhang (Beijing Jiaotong University, China)
Victor C. M. Leung (University of British Columbia, Canada)

Multicast Extension Support for Proxy MIPv6

Jianfeng Guan, Huachun Zhou, Hongke Zhang, Hongbin Luo
(Beijing Jiaotong University, China)

A Pointer Forwarding Scheme for Minimizing Signaling Costs in Proxy Mobile IPv6 Networks

Myung-Kyu Yi, Jae-Young Choi, Jin-Woo Choi, Seok-Cheon Park,
Young-Kyu Yang (Kyungwon University, Korea)

On Session Handoff Probability in NEMO-based Vehicular Environments

Sangheon Park, Younghyun Kim, Kihun Kim, Wonjun Lee
(Korea University, Korea)

Mobility Management in HIMALIS Architecture

Ved P. Kafle, Masugi Inoue (NICT, Japan)

Mobility Prediction in Cellular Network Using Hidden Markov Model

Hongbo Si, Yue Wang, Jian Yuan, Xiuming Shan (Tsinghua University, China)

Paper Presentations • 13:30 – 16:30

Secure Integration between Mobile Ad Hoc Networks and Mobile IPv6

Ali Al Shidhani, Victor Leung (University of British Columbia, Canada)

Service Differentiation Using Mobile Femtocell Virtualization

Eun Kyoung Paik, Sang-Hong Lee (KT, Korea)
Choongho Lee, Jinyoung Han, Chulhyun Park, Taekyoung Kwon,
Yanghee Choi (Seoul National University, Korea)

Bandwidth Efficient Mobility Management for Heterogeneous Wireless Networks

Karl Andersson, Daniel Granlund, Muslim Elkotob, Christer Åhlund
(Luleå University of Technology, Sweden)

Adaptive Channel Width Routeless Routing Protocol for MASNET

Mohammad Al Otaibi, Hamdy Soliman (New Mexico Tech, USA)

Survey of Authentication in Mobile IPv6 Network

Huiping Sun, Junde Song
(Beijing University of Posts and Telecommunications, China)
Zhong Chen (Peking University, China)

Virtual ID: A Technique for Mobility, Multi-Homing, and Location Privacy in Next Generation Wireless Networks

Chakchai So-In, Raj Jain, Subharthi Paul, Jianli Pan
(Washington University in St. Louis, USA)

Saturday, January 9, 2010 • 8:30 – 16:00 • Location: Laughlin

**4th IEEE International Workshop on Personalized Networks
(PerNets 2010)**

Message from the Workshop Organizers

A warm welcome to the third International Workshop on Personalized Networks (PerNets-2010) collocated with IEEE CCNC 2010, a premier conference that is held every year in Las Vegas, USA. PerNets was held with Mobiquitous in the first two editions. The nature of IEEE CCNC conference as well as the venue which hosts Consumer Electronic Show (CES) every year is another important aspect which made us to shift PerNets to IEEE CCNC. We are thankful to the IEEE CCNC committee for encouraging us to conduct this workshop with IEEE CCNC.

The ubiquitous nature of wireless networks has spawned many interesting applications that were unimagined hitherto. It has also brought many challenges for the communication and networking community to address. We see present day mobile devices that are capable of providing many services that required several devices before. For example, most cell phones nowadays provide high speed data access, still and video cameras, PDA functionality, etc. These advances in device sophistication and service offerings, including wireless hotspots, have made a difference in the way we communicate. With increased user mobility and user's desire to always be connected, we have seen a growing interest in Personal Area Networks (PANs) and Body Area Networks (BANs). These networks can be tuned and applied meaningfully for individual users and their requirements. On the other hand the Internet has changed our way of interacting dramatically. These two major communication areas PANs and BANs and the Internet are having an in-depth influence on the way we communicate; it is worth considering them 'together' as the future communication vehicle. Since the communication requirements of persons are having a global scope these days, PerNets has been designed to enhance interactions between these two fields. Since PANs and BANs are the two most basic person centric networks, PerNets has been designed to discuss issues and the latest results that are offshoots of PAN and BAN solutions including the sensor networks that are person centric with global scope together with the Internet.

PerNets has been an important venue for hosting discussions on personalization of devices and networks with user centric applications. The EU funded project Magnet on Personal Networks, Mobile VCE-Personal Distributed Environment, MOPED, MyNet, etc., are all examples of investigations by the research community that contributed towards personalization of the devices and the networks alike.

The main idea of this edition of PerNets is to bring the latest research and allow discussions on them. The idea is also to allow participants to attend IEEE CCNC technical sessions, tutorials and demonstrations. We will be discussing the nuances of all the issues that are relevant in the context of wireless communication networks used to enable applications that are person centric.

We have accepted 10 papers out of 26 submissions which we received from around the globe. All the papers were selected on their relevance and applicability to the theme of PerNets-2010. The papers will be presented at the Workshop. We will also have a keynote speech as we had in the earlier editions by Prof. Gene Tsudik of UCI, USA.

We would like to thank all the authors who submitted their work to our workshop. We owe them our sincere regards for their support. Our special thanks are due to the members of the Technical Program Committee and all the external reviewers. In fact, many of our TPC members have been helping PerNets since its inception. We are indebted to the IEEE CCNC Workshop Committee and the IEEE CCNC Organizing Committee for giving us a chance to conduct this workshop. The workshop chair Kurt Tutschku has encouraged us throughout. We thank him for his cooperation.

Workshop Co-Organizers

Ignas Niemegeers
Chair, WMC, TU Delft, Netherlands

Magda El Zarki
UC Irvine, USA
Sonia Heemstra de Groot
CWPC, TU Delft, Netherlands

R Venkatesha Prasad
WMC, TU Delft, Netherlands
Martin Jacobsson
WMC, TU Delft, Netherlands

Paper Presentations • 8:30 – 12:00

Experimental Evaluation of a Novel Transmission Rate Assignment Scheme in Wireless Mesh Networks

Hiroataka Kitahara, Kenichi Mase (Niigata University, Japan)
Hiraku Okada (Saitama University, Japan)

Cross-Layer Design of DiffServ Architecture for End-to-End QoS in IEEE 802.16 Multi-hop Mesh/Relay Networks with IEEE 802.11e WLANs

Myounghwan Lee, Bongkyung Kwon, John A. Copeland
(Georgia Institute of Technology, USA)

A Consumer-Device-Supported Operator Network

Tommo Reti (KTH Royal Institute of Technology, Sweden)

Comparative study of adaptive frequency hopping with power control to avoid WLAN interference in WPAN systems like Bluetooth

Minakshmi Roy, Jamadagni H. S. (Indian Institute of Science, India)

Addressing Context Dependency using Profile Context in Overlay Networks

Raheel Baloch, Noel Crespi (Institut TELECOM, TELECOM SudParis, France)

ConBrowse – Contextual Content Browsing

Carsten Jacob, Stephan Steglich
(Fraunhofer Institute for Open Communication Systems, Germany)

Paper Presentations • 13:30 – 16:00

Reduction of Message Misdirection in Description Based Clustered Ad Hoc Networks

Tharinda Nishantha Vidanagama, Hidenori Nakazato
(Waseda University, Japan)

Mobile Devices as an Extension to the Wireless Infrastructure

Karim Seada (Nokia Research Center, USA)

Packet Forwarding with Minimum Energy Consumption in Body Area Sensor Networks

Cheng Guo, Venkatesha Prasad, Martin Jacobsson
(Delft University of Technology, Netherlands)

Testbed Experiments on the Location to Service Translation (LoST) Protocol for Mobile Users

Bharath Chintapatla, Ana Goulart (Texas A&M University, USA)

Saturday, January 9, 2010 • 13:30 – 16:30 • Location: Tonopah

2nd IEEE International Workshop on "Social TV: the Next Wave" (STV 2010)

Message from the Workshop Organizers

In the past year Social TV went mainstream with a number of highly publicized startups, hits (and misses), and a realization at every level in the industry that changes are here. What's next? Our workshop looks beyond IM to the TV; video embedded in Facebook and Hulu recommendations; and, chat rooms tied to elections and sporting events. What else will influence TV viewership and the viewing experience?

There is a growing recognition that social video consumption in the converged world is an end-to-end organic system combining user, devices and networks. The papers accepted in the workshop cover many community-based approaches intent on harnessing the power of individuals, from their technologies to their behaviors. Social TV can become the killer application for many wireless technologies and there is a need to define new mechanisms to allow Social to thrive by combination, not competition.

Systems that orchestrate different devices for TV delivery on a personalized and community canvas are needed. We are moving away from the "TV as one box" approach, where a single device is overloaded with features, into a peer network of collaborating devices that share capabilities based on traditional TV but add the power of the web and of social networks. The next wave will further empower users and provide new opportunities for social programming, user generated content, and personalized television experiences.

The workshop intends to be interactive, going beyond paper presentations to solicit the collaboration of authors and the audience in panel discussions and open question periods.

So be part of next wave of social TV and join us in January.

Workshop Co-Organizers

Henry Holtzman
MIT Media Lab, USA

Marie-Jose Montpetit
MIT RLE, USA

Paper Presentations • 13:30 – 16:30

Social Media Television in Today's Cable Systems

John B. Carlucci (FreedTV Systems, USA)

A Consumer-Device-Supported IPTV Network

Tommo Reti (KTH Royal Institute of Technology, Sweden)

My Second Bike: A TV-enabled Social and Interactive Riding Experience

Jaewoo Chung, Kuang Xu, Andrea Colaco, Chris Schmandt (MIT, USA)
Victor O.K. Li (University of Hong Kong, Hong Kong)

Building Social Services

Natalie Klym, Marie Jose Montpetit, Emmanuel Blain (MIT, USA)

Networked Digital Video Recorders and Social Networks

Herkko Hietanen (Helsinki Institute for Information Technology, Finland)

CCNC RESEARCH STUDENT WORKSHOP

Saturday, January 9, 2010 • 13:30 – 16:30 • Location: Ely

CCNC Research Student Workshop

Message from the Workshop Organizers

Welcome to the IEEE CCNC Research Student Workshop that takes place in conjunction with the 7th Annual IEEE Consumer Communications & Networking Conference organized in Las Vegas, Nevada USA.

The CCNC Research Student Workshop is organized by the students for the students. The venue offers a possibility for research students to present and discuss their research topic in an inspiring atmosphere with their peers and experts from industry and academia. The principal theme is to offer a constructive atmosphere to exercise the young practitioners for their future research work. The selected papers give insight into research topics in the field of consumer communications and networking.

We would like to express our appreciation to all the contributors and authors for their submissions to CCNC Researcher Student Workshop. This year we accepted 5 papers for presentation. All papers were assessed in a blind review, and each received at least two reviews. Special thanks are due to the members of the Technical Program Committee for their invaluable help with evaluating the papers. Finally, we would like to acknowledge the great support by the IEEE CCNC 2010 team; in particular, IEEE CCNC TPC Chair Gary Chan, and the IEEE CCNC workshop chair Kurt Tutschku for kindly supporting organization of this year's workshop.

Workshop Co-Organizers

Mikko Pitkänen
Teknillinen Korkeakoulu, Finland

Joe Wenjie
Princeton University, USA

Paper Presentations • 13:30 – 16:30

Partnership-based Cooperative MAC Protocol

Verotiana Rabarijaona, Shigeru Shimamoto (Waseda University, Japan)

Performance Evaluation of Multi-rate Communication in Wireless LANs

Fumie Miki, Daiki Nobayashi, Yutaka Fukuda, Takeshi Ikenaga (Kyushu Institute of Technology, Japan)

A Threshold Configuration for Flow-admission Control based on the Equality (Two-type Flow Model)

Sumiko Miyata, Katsunori Yamaoka (Tokyo Institute of Technology, Japan)

A Basic Study of Heterogeneous Flow Admission Control Based Equality of Flow Classes

Masahiro Kawano, Sumiko Miyata, Katsunori Yamaoka (Tokyo Institute of Technology, Japan)

Performance Evaluation of Quick-Start in Low Latency Networks

Ismail Butun, Sumit Birla, Xuan Hung Le, Ravi Sankar (University of South Florida, USA)
Sungyoung Lee (Kyung Hee University, Korea)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Elko

S1-1: Peer-to-Peer Networks & Protocols

Session: Networks and Protocols

Chair: Haiyong Xie

(Akamai Technologies & The P4P Working Group, USA)

Query Based Clustering Method in Structured P2P Overlay Networks

Qing Ma, China, Kun Zhao, Xiaoxiang Wang

(Beijing University of Posts Telecommunications, China)

DHT Performance for Peer-to-Peer SIP – A Mobile Phone Perspective

Imre Kelényi (Budapest University of Technology Economics, Hungary)

Jukka K. Nurminen (Nokia Research Center, Finland)

Marcin Matuszewski (Future Invest, Poland)

Analysis of Delays in a Peer-to-Peer Session Initiation Protocol Overlay Network

Jouni Mäenpää, Gonzalo Camarillo (Ericsson, Finland)

Leveraging Social Networks for increased BitTorrent Robustness

Wojciech Galuba, Karl Aberer

(Ecole Polytechnique Federale de Lausanne, Switzerland)

Zoran Despotovic, Wolfgang Kellerer

(DOCOMO Euro-Labs, Munich, Germany)

Modeling QoS in P2P File-sharing with Benign and Malicious Peers by Stochastic Activity Networks

Peiqing Zhang, Bjarne Helvik

(Norwegian University of Science and Technology, Norway)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Ely

S1-2: Security and Content Protection for CE Track

Session: Network Security

Chair: Gerard Burnside (Alcatel-Lucent Bell Labs, France)

A Behavioral Analysis Engine for Network Traffic

Miad Faezipour, Mehrdad Nourani (University of Texas, Dallas, USA)

Sateesh Addepalli (Cisco Systems Inc., USA)

Minimum-TCAM-Entry-Tree Based Algorithms for Packet Classification

Yan Sun, Min Sik Kim (Washington State University, USA)

A Novel Architecture of Intrusion Detection System

Da Zhang, Chai Kiat Yeo (Nanyang Technological University, Singapore)

A Novel DDoS Attack Defending Framework with Minimized Bilateral Damages

Yu Chen, Christopher DeCruze (SUNY, Binghamton, USA)

Wei-Shinn Ku, Kazuya Sakai (Auburn University, USA)

Demonstration Experiments Towards Practical IP Traceback on the Internet

Ken Wakasa (Japan Data Communications Association, Japan)

Keisuke Takemori (KDDI R&D Laboratories, Japan)

Toshifumi Kai (Panasonic Electric Works Co., Japan)

Hiroaki Hazeyama (Nara Institute of Science and Technology, Japan)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Goldfield

S1-3: Short Papers

Session: Applications

Chair: Adrian J Hornsby (Tampere University of Technology, Finland)

Design Issues of the prTorrent File Sharing Protocol

Suman Deb Roy, Wenjun Zeng (University of Missouri, USA)

Tyler Knierim (Truman State University, USA)

Shanieka Churchman (Lincoln University, USA)

Digital Health Care (DHC) Network and IT Infrastructure Solutions

Wei Liu (GGC, USA)

Mobile Application Framework for Health Care Education

Toshiyuki Maeda (Hannan University, Japan)

Tadayuki Okamoto (Ehime University, Japan)

Yae Fukushige, Takayuki Asada (Osaka University, Japan)

Content Transmission Topology Construction Algorithm

Jaehoon Kim, Jihoon Lee, Myeon-gwuk Jang, Byoung-Joon (BJ) Lee

(Samsung Electronics, South Korea)

STAMP: SMTP Server Topological Analysis by Message Headers Parsing

Emmanuel Lochin (ISAE, France)

Attaching the Value of Sensorial Experience to Pervasive Multimedia Applications

Adrian Hornsby (Tampere University of Technology, Finland)

Rod Walsh (Nokia Research Center, Finland)

Improving the Value of Archived Personal Content with Aesthetic and Reflexive Qualities

Rod Walsh (Nokia Research Center, Finland)

Adrian Hornsby (Tampere University of Technology, Finland)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Tonopah

S1-4: Short Papers

Session: Enterprise and Cloud Systems

Chair: Kirusnapillai Selvarajah (Newcastle University, UK)

Cloud Based Content Adaptation System for Mobile Learners

Wei Hao (Northern Kentucky University, USA)

Jicheng Fu (University of Central Oklahoma, USA)

Secured WSN-integrated Cloud Computing for u-Life Care

Xuan Hung Le (University of South Florida, USA)

Sungyoung Lee, Truc Phan, Vinh La, Asad Khattak, Hung Dang,

Mohammad Hassan, Miso Kim, Kyo-Ho Koo, Young-Koo Lee,

Eui-Nam Huh (Kyung Hee University, Korea)

Manhyung Han (Kyung Hee University, USA)

Integrating Enterprise Communications into Google Wave

Xiaotao Wu, Venkatesh Krishnaswamy (Avaya Inc., USA)

C. Mohit (Avaya Inc., India)

Web Contents Collaborative Method in Call-to-Web Session Linkage System

Haruno Kataoka, Masashi Toyama, Yoshiko Sueda, Kenji Takahashi

(NTT Corporation, Japan)

Osamu Mizuno (Kogakuin University, Japan)

CloudTorrent – Energy-Efficient BitTorrent Content Sharing for Mobile Devices via Cloud Services

Imre Kelényi (Budapest University of Technology Economics, Hungary)

Jukka K. Nurminen (Nokia Research Center, Finland)

A Customized Linux Kernel for Providing Notification of Pending Financial Transaction Information

Jami Montgomery, Wai Gen Yee (Illinois Institute of Technology, USA)
Gregory Brewster (DePaul University, USA)

Bridging the Missing Link of Cloud Data Storage Security in AWS

Jun Feng, Yu Chen (State University of New York, Binghamton, USA)
Pu Liu (IBM, USA)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Copper

S1-5: Wireless Home Communication and Networking

Session: Cognitive Radio

Chair: R Venkatesha Prasad

(Delft University of Technology, Netherlands)

Physical Layer Bootstrapping Protocol for Cognitive Radio Networks

Rahman Dooost-Mohammady, Gerard J. M. Janssen
(Delft University of Technology, Netherlands)
Przemyslaw Pawelczak (University of California, Los Angeles, USA)
Hans Segers (TNO, Netherlands)

A Two-Tiered Cognitive Radio System for Interference Identification in 2.4 GHz ISM Band

Kunal Rele, Dennis Roberson, Kenneth Zdunek, Bingjian Zhang, Ying Yap, Tanim Taher, Donald Ucci, Li Li (Illinois Institute of Technology, USA)

ANPCP: Adaptive Neighbor Coordinated Interference Avoidance Power Control for Cognitive Radio Ad Hoc Networks

Nan Hao and Sang-Jo Yoo (Inha University, Korea)

Distributed Spectrum Sharing in Cognitive Radio Networks- Game Theoretical View

Yu-Yu Lin, Kwang-Cheng Chen (National Taiwan University, Taiwan)

Energy-Efficient Transmission in Cognitive Radio Networks

Liyang Li, Hongbing Xu
(University of Electronic Science and Technology of China, China)
Xiangwei Zhou, Geoffrey Ye Li (Georgia Institute of Technology, USA)
Dandan Wang, Anthony Soong (Huawei Technologies, USA)

Allocation of Opportunistic Spectrum in Cognitive Radio Ad Hoc Networks

Vijay S Rao, R Venkatesha Prasad, Chetan Yadati, Ignas Niemegeers
(Delft University of Technology, Netherlands)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Silver

S1-6: Wireless Home Communication and Networking

Session: Cellular Technology

Chair: Annamalai Annamalai (Prairie View A&M University, USA)

Self-Configuration of Neighbor Cell List Utilizing E-UTRAN NodeB Scanning in LTE Systems

Dooyoung Kim, Bongjhin Shin, Daehyoung Hong, Jaechan Lim
(Sogang University, South Korea)

Cell-Cluster Based Traffic Load Balancing in Cooperative Cellular Networks

Xijun Wang, Hui Tian, Fan Jiang (Key Laboratory of Universal Wireless Communications, Ministry of Education; Wireless Technology Innovation (WTI) Institute, Beijing University of Posts and Telecommunications, China)
Xiangyan Li, Xuanji Hong, Tairi Li (SK Telecom (China) Co., Ltd, Korea)

A Throughput Performance for a Point-to-Multipoint Gigabit WLAN System on 60 GHz Millimeter Wave

Yukimasa Nagai, Mari Ochiai, Naoki Shimizu, Akihiro Shibuya
(Mitsubishi Electric Corporation, Japan)

Advanced Aggregation Techniques for Integrated Next-Generation WLAN and EPON Networks

Navid Ghazisaidi, Martin Maier (INRS, Canada)

Traffic Pattern based Resource Hopping Schemes of Femto Base Stations

Jaeki Lee, Jangho Yoon, Minh-Viet Nguyen, Hwang Soo Lee
(KAIST, Korea)

Sunday, January 10, 2010 • 10:30 – 12:00

Location: Laughlin

S1-7: SS ATCH

Session: Special Session on Advanced Technologies for Care at Home

Chair: Mario Kolberg (University of Stirling, UK)

A Service-Oriented Framework for distributed heterogeneous Data and System Integration for Continuous Care Networks

Federica Paganelli, David Parlanti
(National Interuniversity Consortium for Telecommunications, Italy)
Dino Giuli (University of Florence, Italy)

Monitoring and Modeling Simple Everyday Activities of the Elderly at Home

George Papamatthaiakis, George Polyzos, George Xylomenos
(Athens University of Economics and Business, Greece)

An architecture based on Internet of Things to support mobility and security in medical environments

Antonio J. Jara Valera, Miguel A. Zamora Izquierdo, Antonio F. G. Skarmeta
(University of Murcia, Spain)

A Component Framework for Telecare and Home Automation

Claire Maternaghan, Kenneth Turner (University of Stirling, UK)

The Design and Evaluation of Personalised Ambient Mental Health Monitors

Jesse Blum, Evan Magill (University of Stirling, UK)

On-node Processing of ECG Signals

Diana Albu, Johan Lukkien, Richard Verhoeven
(Eindhoven University of Technology, Netherlands)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Elko

S2-1: Content Distribution and Peer-to-Peer Networks

Session: Network and Protocol Design Issues

Chair: Kurt Tutschku (University of Vienna, Austria)

Scheduling Algorithm for Multi-Massive-Online Applications in Multicast Mobile Networks

Atsunori Minamikawa, Shigeki Muramatsu, Hiroyuki Yokoyama
(KDDI R&D Laboratories, Inc., Japan)

Maximum-bandwidth ALM Tree on Tree Network

Takamichi Kikkawa, Takamichi Miyata, Katsunori Yamaoka
(Tokyo Institute of Technology, Japan)

Hybrid Application Layer Multicast with Hierarchically Distributed Nodes

Zhou Su, Suphakit Awiphan, Kazumine Ogura, Jiro Katto, Yasuhiko Yasuda
(Waseda University, Japan)

FNT-based Reed-Solomon Erasure Codes

Alexandre Soro and Jérôme Lacan (ISAE, France)

Improving Robustness in an Autonomous Local Sensor Network

Hui-Ching Hsieh, Jenq-Shiou Leu, Wei-Kuan Shih
(National Tsing Hua University, Taiwan)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Ely

S2-2: Pervasive and Ambient Applications

Session: Context Management and Applications

Chair: Juong-Sik Lee (Nokia Research Center, USA)

Relation-Based File Management for Portable Device

Junghwan Kim, Hyunju Ahn, Chanho Park (Samsung Electronics, Korea)

Photo-Trail: Building Eye-Level-View Enhanced Navigation Technology

Roy Ragsdale, Grant Jacoby
(United States Military Academy, West Point, USA)

Simulation-based Analysis for a Heterogeneous Localization Scheme

Apostolia Papapostolou, Hakima Chaouchi (Telecom Sudparis, France)

An Efficient Context Model for Fast Responsiveness of Context-aware Services in Mobile Networks

Yoo-mi Park, Aekyung Moon, Young-il Choi, Sang-ki Kim, Sangha Kim
(ETRI, Korea)

Personal Relationship Management via Mobile Phone

Juong-Sik Lee, Deepti Chafekar, Umesh Chandra
(Nokia Research Center, USA)
Martin Griss (Carnegie Mellon Silicon Valley, USA)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Goldfield

S2-3: Short Papers

Session: QoS and Resource Allocation

Chair: Mohamed Hassan (American University of Sharjah, UAE)

End-to-End Rate Control in Communication Networks Considering User-Level Satisfactions

Hee-Tae Roh, Jang-Won Lee (Yonsei University, Korea)

IP Prefix Matching with Binary and Ternary CAMs

Yan Sun, Min Sik Kim (Washington State University, USA)

Using Pareto Principle to Improve Efficiency for Selection of QoS Web Services

Lican Huang, Jianfeng Nie (Zhejiang Sci-Tech University, China)

The Active Buffer Management Scheme using Virtual Transmission Delay in the IEEE 802.11e Network

Kyu Hwan Lee, Hyun Jin Lee, Jae Hyun Kim (Ajou University, Korea)

MPGE-4 Codec based Uplink Resource Allocation Scheme for the Video Telephony Service in IEEE 802.16e/m System

Ji-Su Kim, Jae-Hyun Kim (Ajou University, Korea)

Bandwidth Guarantee per Session for Video Transmission over IEEE 802.11e HCCA

Young-Hwan Kim, Hae-Ryeon Park, Jung-Bong Suk
(Yonsei University, Korea)

A Multi-Level Adaptive Scheme for Multimedia Transmission over Wireless Channels

Husameldin Mukhtar, Mohamed Hassan, Taha Landolsi
(American University of Sharjah, UAE)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Tonopah

S2-4: Short Papers

Session: Wireless Networks I

Chair: Kashif Sharif (University of North Carolina, Charlotte, USA)

Proactive Route Optimization in SIP Mobility Support Protocol

Sangheon Park, Pilkyoo Jeong, Younghyun Kim (Korea University, Korea)

Optimal balancing between Efficiency and Fairness for Resource Management in Cognitive Radio Networks: A Dynamic Game-theoretic Approach

YANG Chun-gang, LI Jian-dong, Chen Dan (Xidian University, China)

Controlling Route Discovery for Efficient Routing in Resource-constrained Sensor Networks

Abhik Banerjee, Juki Wirawan Tantra, Chuan Heng Foh, Chai Kiat Yeo, Bu Sung Lee (Nanyang Technological University, Singapore)

Performance Evaluation of AODV and DYMO Routing Protocols in MANET

Dong-Won Kum, Jin-Su Park, You-Ze Cho
(Kyungpook National University, Korea)
Byoung-Yoon Cheon (LIG Nex1, Korea)

QoS-aware Path Selection for Multi-homed Mobile terminals in Heterogeneous Wireless Networks

Shin-Hun Kang, Jae-Hyun Kim (Ajou University, Korea)

Fast and Energy-Efficient Link Recovery in Visible Light Communications

Ying Li, Sridhar Rajagopal (Samsung Telecommunications America, USA)

Anycast Based Lightweight Routing Protocol for Mobile Sink Discovery in Sensor Networks

Kashif Sharif, Teresa Dahlberg (University of North Carolina, Charlotte, USA)
Lijuan Cao (Johnson C. Smith University, USA)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Copper

S2-5: Wireless Home Communication and Networking

Session: Wireless Relay Networks

Chairs: Przemysław Pawełczak (UCLA, USA)

Gary Chan (Hong Kong University of Science and Technology, China)

Planning Base Station and Relay Station Locations for IEEE 802.16j Network with Capacity Constraints

Yang Yu, Seán Murphy, Liam Murphy (University College Dublin, Ireland)

Distributed Turbo Product Codes Over Multiple Relays

Esam Obiedat and Lei Cao (University of Mississippi, USA)
Wei Xiang, John Leis (University of Southern Queensland, Australia)

A Distributed Channel Assignment Algorithm for Uncoordinated WLANs

Xiaonan Yue, S.-H. Gary Chan, Chi-Fai Wong
(Hong Kong University of Science Technology, Hong Kong)

Optimal Placement of A Relay Node with Controllable Mobility in Wireless Networks Considering Fairness

Hee-Tae Roh, Jang-Won Lee (Yonsei University, Korea)

Mobility Impact on Centralized Selection of Mobile Relays

Jimmy Jessen Nielsen, Tatiana Madsen (Aalborg University, Denmark)
Hans-Peter Schwefel (Forschungszentrum Telekommunikation Wien, Austria)

An Inter-Cell Interference Mitigation Scheme Based on MIMO-Relay Technique

Wang Xijun, Tian Hui, Jiang Fan (University of BUPT, China)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Silver

S2-6: Wireless Home Communication and Networking

Session: Network and Applications

Chair: Navid Ghazisaidi

(Institut National de la Recherche Scientifique (INRS), Canada)

The HomePort System

Jeppe Brønsted, Per Printz Madsen, Arne Skou, Rune Torbensen
(Aarhus University, Denmark)

Distributed Reservation Algorithms for Video Streaming over UWB-Based Home Networks

Maryam Daneshi, Jianping Pan, Sudhakar Ganti
(University of Victoria, Canada)

IEEE 802.11 Wireless LAN Control Frame Protection

Sushma Myneni, Dijiang Huang (Arizona State University, USA)

Intra-cell Channel Allocation Scheme in IEEE 802.22 Networks

Saptarshi Debroy, Mainak Chatterjee (University of Central Florida, USA)

Designing a Header Compression Mechanism for Efficient Use of IP Tunneling in Wireless Networks

Priyanka Rawat, Jean-Marie Bonnin
(Telecom Bretagne, Université Européenne de Bretagne, France)

Sunday, January 10, 2010 • 14:00 – 15:30

Location: Laughlin

S2-7: SS IIMPE

Session: Integrated and Intelligent Management and Platform for Ecological Home Network

Chair: Nobuo Saito (Keio University & Komazawa University, Japan)

Recent Activities in PUCG and Its Application to Integrated Home Network Control and Management

Norihiro Ishikawa, Takeshi Kato, Hiromitsu Sumino
(NTT DoCoMo, Inc., Japan)
Kazuhiro Kitagawa (Keio University, Japan)
Nobuo Saito (Komazawa University, Japan)

Adaptive Home/Building Energy Management System Using Heterogeneous Sensor/Actuator Networks

Hiroshi Mineno, Yuichiro Kato, Kenji Obata, Hiroshi Kuriyama, Keiichi Abe, Tadanori Mizuno (Shizuoka University, Japan)
Norihiro Ishikawa (NTT DOCOMO, Japan)

EcoSense: A Context and Semantics Driven Framework for Eco-Aware Ambient Environments

Mudasser Iqbal, Hock Beng Lim, Teng Jie Ng
(Nanyang Technological University, Singapore)

Home Network System for Gas Appliances

Keisuke Fukushima (Toho Gas Co., Ltd, Japan)

The Development of a System for Sleep Care and its Applications

Ken-ichi Kameyama, Takuji Suzuki (Toshiba, Japan)

Sunday, January 10, 2010 • 16:00 – 17:30

Location: Elko

S3-1: Short Papers

Session: Consumer Networks and Applications

Chair: Kuai Xu (Arizona State University, USA)

Integrating Smart Spaces into the Pervasive Computing in Embedded Systems (PECES) Project

Kirusnapillai Selvarajah, Neil Speirs (Newcastle University, UK)

A Consumer-Device-Supported Operator Network

Tommo Reti (KTH Royal Institute of Technology, Sweden)

Behavior Profiling and Analysis in Wireless Home Networks

Kuai Xu, Feng Wang (Arizona State University, USA)
Bin Wang (Shandong Agricultural University, China)

Automatic Discovery and Execution of Personal Applications from Shared IO Devices

Bradley Rhodes, Sergey Chemishkian, Edward Schwartz, Stephen Savitzky, Haixia Yu (Ricoh Innovations, Inc., USA)

Real-Time Speaker Adaptation for Speech Recognition on Mobile Devices

Gil Ho Lee (Samsung Electronics, Korea)

Proxy-based Energy Efficient Peer-to-Peer Push-to-Talk Service Mechanism for Ad-hoc Networks

Seil Jeon, Shin Kwon, Younghan Kim (Soongsil University, Korea)

CMOS Image Sensor Device for Objective Evaluation of Video Quality in Mass Distribution Networks

Marcio Graciano, Alexandre Romariz, Jose Costa
(University of Brasilia, Brazil)

Sunday, January 10, 2010 • 16:00 – 17:30

Location: Ely

S3-2: Short Papers

Session: Wireless Networks II

Chair: Toshiyuki Maeda (Hannan University, Japan)

CogSeNet: A Concept of Cognitive Wireless Sensor Network

Hock Guan Goh, Kae Hsiang Kwong, Chong Shen, Craig Michie, Ivan Andonovic (University of Strathclyde, UK)

The Impact of Physical Conditions on Network Connectivity in Wireless Sensor Network

Tsung-ta Wu, Kae-Hsiang Kwong, Chong Shen, Craig Michie, Ivan Andonovic (Centre for Intelligent Dynamic Communications, UK)

Benefits of Dual-radio Wireless Sensor Networks

Soo-Hoon Moon, Seung-Jae Han (Yonsei University, Korea)

Experimental Analysis of Interference in Dual-Radio Wireless Sensor Networks

Jongwon Kim, Seung-jae Han (Yonsei University, Korea)
Yeonsik Jeong (SungKongHoe University, Korea)

Vector based Adaptive Sampling in Wireless Sensor Networks

Aravind Mohanoor, Sridhar Radhakrishnan, Thomas Hughes
(University of Oklahoma, USA)

Hierarchical Network Protocol for Large Scale Wireless Sensor Networks

Taehong Kim, Yohhan Lee, Jongwoo Sung, Daeyoung Kim
(Korea Advanced Institute of Science and Technology, Korea)

UPnP and IEEE1451 make Sensor Networks Plug and Playable

Jongwoo Sung, Taehong Kim, Daeyoung Kim
(Korea Advanced Institute of Science and Technology, Korea)

Sunday, January 10, 2010 • 16:00 – 17:30
Location: Goldfield

S3-3: Multimedia Communication and Services
Session: MM Streaming and IPTV
Chair: Marie-Jose Montpetit (MIT RLE, USA)

Improving Internet Video Streaming Performance by Parallel TCP-based Request-Response Streams
Robert Kuschnig, Ingo Kofler, Hermann Hellwagner
(Klagenfurt University, Austria)

A Session Model for Cross-domain Interactive Multi-user IPTV
Daniel Goergen (Philips Research, Netherlands)
Josip Zoric (Telenor, Norway)
John O'Connell (HP, France)
Benjamin Zachey, Oliver Friedrich (Fraunhofer FOKUS, Germany)

neXtream: A Multi-Device, Social Approach to Video Content Consumption
ReeD Martin, Ana Luisa Santos, Mike Shafran, Henry Holtzman,
Marie-Jose Montpetit (MIT, USA)

Enabling Temporal Bit Rate Adaptation in Encrypted Video Streams
Matthias Krause, Marek Burza (Philips Research, Netherlands)

Performance Analysis of Inflight Video Streaming over IEEE 802.11n
Thanikesavan Sivanthi, Ulrich Killat
(Hamburg University of Technology, Germany)

Sunday, January 10, 2010 • 16:00 – 17:30
Location: Tonopah

S3-4: Smart Spaces and Personal Area Networks for CE
Session: Smart Spaces
Chair: Nirmalya Roy (University of Texas, Austin, USA)

Usability of Semantic Web for Enhancing Digital Living Experience
Nirmalya Roy, Christine Julien (University of Texas, Austin, USA)
Kevin Brooks (Motorola Labs, USA)

A Multi-channel Approach for Video Forwarding in Wireless Sensor Networks
Sergio Gonzalez, Huasong Cao, Victor Leung
(University of British Columbia, Canada)

Decentralized Q-learning for Aggregated Interference Control in Completely and Partially Observable Cognitive Radio Networks
Ana Galindo-Serrano, Lorenza Giupponi
(Centre Tecnologic de Telecomunicacions de Catalunya, Spain)

Towards a Dynamic and Extensible Middleware for Enhancing Exhibits
Walter Rudametkin, Kiev Gama, Lionel Touseau, Didier Donsez
(Université Joseph Fourier, France)

AGEM: Adaptive Greedy-compass Energy-aware Multipath Routing Protocol for WMSNs
Samir Medjah, Toufik Ahmed, Francine Krief
(CNRS LaBRI Lab. - University of Bordeaux, France)

Sunday, January 10, 2010 • 16:00 – 17:30
Location: Copper

S3-5: Wireless Home Communication and Networking
Session: Coding Technologies
Chair: Li Chen (Newcastle University, UK)

Soft Incremental Redundancy for Distributed Turbo Product Codes
Esam Obiedat, Lei Cao (University of Mississippi, USA)
Wei Xiang, John Leis (University of Southern Queensland, Australia)

Further Results on Optimum Selection Diversity for BPSK Signals over Nakagami-m Fading Channels
Annamalai Annamalai (Prairie View A&M University, USA)
Qiang Zhao (LitePoint Corporation, USA)

Two-Dimensional Differential Demodulation for 64-DAPSK Modulated OFDM Signals
Min Gong, Han Han, Xiaokang Lin (Tsinghua University, China)
Yusheng Ji (National Institute of Informatics (NII), Japan)

Distributed Amplify-and-Forward with Ring-TCM Codes
Li Chen, Rolando Carrasco (Newcastle University, UK)
Ian Wassell (University of Cambridge, UK)

An Adaptive Reduced Complexity K-Best Decoding Algorithm with Early Termination
Chung-An Shen, Ahmed Eltawil (University of California, Irvine, USA)

Collision Codes: Decoding Superimposed BPSK Modulated Wireless Transmissions
Jalaluddin Qureshi, Chuan Heng Foh, Jianfei Cai
(Nanyang Technological University, Singapore)

Sunday, January 10, 2010 • 16:00 – 17:30
Location: Silver

S3-6: Wireless Home Communication and Networking
Session: Communication Technologies
Chair: Annamalai Annamalai (Prairie View A&M University, USA)

The Impact of MS Velocity on the Performance of Frequency Selective Scheduling in IEEE 802.16e Mobile WiMAX
Ashley Mills, David Lister (Vodafone Group Services Limited, UK)
Marina De Vos (University of Bath, UK)
Yusheng Ji (National Institute of Informatics (NII), Japan)

Computing Radio Paths in an Urban Environment
Boaz Ben-Moshe, Nir Shvalb, Moti Shani, Elhanan Shifman
(Ariel University Center, Israel)
Paz Carmi (Ben-Gurion University, Israel)

Adaptive Two Thresholds Based Signal Detection for Cooperative Spectrum Sensing
Chunyi Song, Yohannes D. Alemseged, Ha Nguyen Tran, Chen Sun, Gabriel Villardi, Stanislav Filin, Hiroshi Harada (National Institute of Information Communications Technology (NICT), Japan)

JSCC Based on OPTA for Wireless Communication Over Flat Fading Channel
Hatem Elmeddeb, Nouredine Hamdi, Ammar Bouallegue (ENIT, Tunisia)

User Restriction Scheme for Feedback Reduction of Unitary Matrix Based SDMA
Sungsoo Park, Dongyoung Kwon, Daesik Hong (Yonsei University, Korea)

Sunday, January 10, 2010 • 16:00 – 17:30

Location: Laughlin

S3-7: SS IPTV

Session: IPTV Towards Seamless Infotainment

Chair: Ali C. Begen (Cisco, USA)

Inter-Terminal Multimedia Session Mobility in Next Generation Networks to Enhance IPTV

Dominique Pichon, Pierrick Seite (Orange Labs, France)

Jean-Marie Bonnin, Guillaume Rieublandou (Télécom Bretagne, France)

On the Scalability of RTCP-Based Network Tomography for IPTV Services

Ali C. Begen (Cisco, USA)

Colin Perkins (University of Glasgow, UK)

Joerg Ott (Helsinki University of Technology, Finland)

Enabling Cooperation between ISPs and P2P Systems toward IPTV Service Delivery

Mubashar Mushtaq, Toufik Ahmed

(CNRS LaBRI Lab. - University of Bordeaux, France)

A Novel Architecture for Content and Delivery Validation for IPTV Systems

Andrea Basso, David Gibbon, Zhu Liu, Bernard Renger, Behzad Shahraray (AT&T Labs - Research, USA)

Urs Muller (Net-Scale Technologies, USA)

"TV Answers" Using the Wisdom of Crowds to Facilitate Searches with Rich Media Context

Nitya Narasimhan, Joseph Wodka, Venugopal Vasudevan (Motorola, USA)

Patrick Wong (Northwestern University, USA)

Overview and Traffic Characterization of Coarse-Grain Quality Scalable (CGS) H.264 SVC Encoded Video

Akshay Pulipaka, Martin Reisslein, Lina Karam

(Arizona State University, USA)

Patrick Seeling (University of Wisconsin, Stevens Point, USA)

An Effective Mobile IPTV Channel Control Algorithm over WiMAX Network

Wan Kim, Hwangjun Song (POSTECH, Korea)

Dai-Boong Lee (Samsung, Korea)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Elko

M1-1: Multimedia Communication and Services

Session: MM Phone Applications and Services

Chair: Mario Kolberg (University of Stirling, UK)

Parallel Connections and Their Effect to Battery Consumption of a Mobile Phone

Jukka K. Nurminen (Nokia Research Center, Finland)

Mesh Geometry Compression for Mobile Graphics

Jongseok Lee, Seungyong Lee, Sungyul Choe (POSTECH, Korea)

Fast and High-Quality Image Blending on Mobile Phones

Yingen Xiong, Kari Pulbli (Nokia Research Center, USA)

Experiences with Phonebook-centric Social Networks

Peter Ekler (Budapest University of Technology Economics, Hungary)

Tamás Lukovszki (Eötvös Loránd University, Hungary)

Signal-Based Overload Control for SIP Servers

Ahmed Abdelal, Wassim Matragi (Sonus Networks, USA)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Ely

M1-2: Short Papers

Session: Wireless Networks III

Chair: Yang Yang

(Graduate University of Chinese Academy of Sciences, China)

On Blocking Probability of Multicast and Broadcast Services in Mobile WiMAX Systems

Sangheon Pack, Seongyeol Yang (Korea University, Korea)

Research on Stable-aware Routing Protocol Based on Min Cost Max Flow Algorithm for MANETs

Xinyu Shen (Zhejiang University of Technology, China)

4K Digital Cinema Transmission Over 1.2Gbps Wireless LAN System

Masayuki Kurosaki, Masateru Matsuo, Yuya Hirata, Hiroshi Ochi,

Wahyul Amien Syafei, Yuhei Nagao, Baiko Sai, Akio Miyazaki

(Kyushu Institute of Technology, Japan)

Yoshimitsu Kuroki (Kurume National College of Technology, Japan)

Cooperative Wireless Data Access Algorithms in Multi-Radio Wireless Networks

Sangheon Pack, Kiwon Lee, Jaeduck Ko, Wonjun Lee

(Korea University, Korea)

Cross-Layer Forward Error Control for Reliable Transfer In Multimedia Wireless Sensor Networks

Yang Yang, Yongrui Chen, Weidong Yi

(Graduate University of Chinese Academy of Sciences, China)

Static Channel Width Routeless Routing with Obstacle Avoidance (SCWRRDA) Protocol

Mohammad Al Otaibi, Hamdy Soliman (New Mexico Tech, USA)

Static Channel Width Routeless Routing with Network Holes Avoidance (SCWRRHA) Protocol

Mohammad Al Otaibi, Hamdy Soliman (New Mexico Tech, USA)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Goldfield

M1-3: Short Papers

Session: Security and Reliability

Chair: Wei Liu (Georgia Gwinnett College, USA)

Security Issues in Integrated EPON and Next-Generation WLAN Networks

Sarwarul Chowdhury, Martin Maier (INRS-EMT, Canada)

Player GX: Safer Content Only Techniques

Ole-Ivar Holthe (Geelix Corporation, USA)

A Pipelined CRC Calculation Using Lookup Tables

Yan Sun, Min Sik Kim (Washington State University, USA)

Anonymous Group Implicit Certificate Scheme

Nader Rabadi (IEEE, USA)

Mutual Identification and Key Exchange Scheme in Secure VANETs based on Group Signature

Daihoon Kim, Jaeduck Choi, Souhwan Jung (Soongsil University, Korea)

Security and Packets Delivery Trade-off for WSN

Antonio Vincenzo Taddeo, Alberto Ferrante

(Università della Svizzera italiana, Switzerland)

Known User Continuous Authentication System for Consumer Application Software

Ines Brosso (Mackenzie University, Brazil)

Graca Bressan, Wilson Ruggiero (USP, Brazil)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Tonopah

M1-4: Wireless Home Communication and Networking

Session: MAC and Access Control

Chair: Olabisi Emmanuel Falowo

(University of Cape Town, South Africa)

Multi-Channel MAC Protocols with Two Transceivers Pursuing Effective Use of Vacant Resources

Yosuke Tanigawa, Hideki Tode (Osaka Prefecture University, Japan)

Koso Murakami (Osaka University, Japan)

A Dynamic Spectrum Access Scheme for Unlicensed Systems Coexisting with Primary OFDMA Systems

Hai Ngoc Pham (University of Oslo, Norway)

Pål Grønsund, Paal E. Engelstad (Simula Research Laboratory, Norway)

Ole Grøndalen (Telenor R&I, Norway)

Joint Call Admission Control Algorithm for Fair Radio Resource Allocation in Heterogeneous Wireless Networks Supporting Heterogeneous Mobile Terminals

Olabisi Emmanuel Falowo, H. Anthony Chan

(University of Cape Town, South Africa)

Using Power Hopping to Counter MAC Spoof Attacks in WLAN

Vijaykrishnan Nagarajan, Vetri Arasan, Dijiang Huang

(Arizona State University, USA)

A Network Lifetime Aware Cooperative MAC Scheme for 802.11b Wireless Networks

Abhik Banerjee, Chuan Heng Foh, Chai Kiat Yeo, Bu Sung Lee

(Nanyang Technological University, Singapore)

An Admission Control Strategy for Soft Frequency Reuse Deployment of LTE Systems

Lu Zhaoxin, Tian Hui, Huang Bo, Zheng Shuqin (Key Laboratory of Universal Wireless Communications, Ministry of Education; Wireless Technology Innovation (WTI) Institute, Beijing University of Posts and Telecommunications, China)

Sun Qiaoyun (Beijing City University, China)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Copper

M1-5: Content Distribution and Peer-to-Peer Networks

Session: P2P Content Distribution

Chair: Mubashar Mushtaq (Quaid-i-Azam University, Pakistan)

SWOR: an Architecture for P2P Scalable Video Streaming using Small World Overlay

Ubaid Abbasi, Toufik Ahmed (CNRS-LaBRI, University of Bordeaux, France)

Optimizing Substream Push for Peer-to-Peer Live Streaming

Kam-Hung Kelvin Chan, Shueng-Han Gary Chan

(Hong Kong University of Science and Technology, Hong Kong)

Ali C. Begen (Cisco, USA)

P2P-based VOD Content Distribution Platform with Guaranteed Video Quality

Zhu Peng, Yoshiuchi Hideya, Yoshizawa Satoshi

(Hitachi China Research & Development Corp., China)

P2P Live-Streaming System Suitable for Private Contents Distribution

Takayuki Hisada, Shusuke Yamazaki, Yusuke Hirota, Hideki Tode,

Koso Murakami (Osaka University, Japan)

Aggregation Network Design Methodologies for Triple Play Services

Ioannis Papanagioutou, Michael Devtsikiotis

(North Carolina State University, USA)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Silver

M1-6: SS SAM

Session: Multicast Tools, Testbeds & Applications in P2P

Chair: John Buford (Avaya Labs Research, USA)

Scalable Application-Layer Multicast Simulations with OverSim

Stephan Krause, Christian Hübsc (Universität Karlsruhe (TH), Germany)

An XCAST Multicast Implementation for the Oversim Simulator

Mario Kolberg (University of Stirling, UK)

John Buford (Avaya Labs Research, USA)

Functional and Performance Verification of Overlay Multicast Applications - A Product Level Approach

Thilmea Baduge, Eiichi Muramoto (Panasonic Corporation, Japan)

Lim Boon Ping, Jason Soong, Ettikan K.K.

(Panasonic R&D Center Malaysia, Malaysia)

Kunio Akashi, Ken-ichi Chinen

(Japan Advanced Institute of Science Technology, Japan)

ToMo: A Two-layer Mesh/Tree Structure for Live Streaming in P2P Overlay Network

Suphakit Awiphan, Su Zhou, Jiro Katto (Waseda University, Japan)

Improved Multicast Algorithm for Overlay Multicast in P2P based Video Streaming

Lorenzo Favalli, Marco Folli (Università di Pavia, Italy)

Matteo Lanati (Eucentre, Italy)

Monday, January 11, 2010 • 10:30 – 12:00

Location: Laughlin

M1-7: SS MMW

Session: Milli-Meter Wave Wireless Technology I

Chair: Huai-rong Shao (Samsung Electronics, USA)

Comparison of Power Amplifier Non-linearity Impact on 60 GHz Single Carrier and OFDM Systems

Alexander Maltsev, Artyom Lomayev, Alexey Khoryaev, Alexey Sevastyanov (Intel Corporation, Russian Federation)

Roman Maslennikov

(N.I. Lobachevsky University of Nizhny Novgorod, Russian Federation)

Joint Frame/Frequency Synchronization and Channel Estimation for Single-Carrier FDE 60 GHz WPAN System

Chanho Yoon, Woo Yong Lee (ETRI, Korea)

Hoojin Lee (Hansung University, Korea)

Joonhyuk Kang (KAIST, Korea)

60-GHz OFDM Systems for Multi-gigabit Wireless LAN Applications

Chang-Soon Choi, Eckhard Grass, Maxim Piz, Marcus Ehrig, Miroslav Marinkovic, Rolf Kraemer, Christoph Scheytt (IHP, Germany)

mmWave SVD-based Beamformed MIMO Communication Systems

Sergey Tiraspol'sky

(Analytical Centre of Electronic Trade Platforms, Russian Federation)

BeomJin Jeon (LG Electronics, Korea)

Joongheon Kim (USC, USA)

Alexey Rubtsov, Alexer Flaksman, Victor Ermolayev

(LANTAN, Russian Federation)

A WirelessHD Baseband Development under RF and Implementation Constraints

Luc Maret, Cedric Dehos, Frédéric Heitzmann, Nicolas Cassiau, Claire

Guyon-Gardeux, Mathieu Huchard, Jérôme Martin, Romain Lemaire

(Minatec CEA-LETI, France)

Thierry Michel, Pierre Busson

(TR&D-CCDS Division STMicroelectronics France)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Elko

M2-1: Wireless Home Communication and Networking

Session: Mobility and Interference Cancellation

Chair: Pratap S Prasad (Auburn University, USA)

Interference-Aware Robust Topology Design in Multi-Channel Wireless Mesh Networks

Weiyi Zhang, Farah Kandah, Kendall Nygard

(North Dakota State University, USA)

Jian Tang (Montana State University, USA)

A Disruption Tolerant Mobility Architecture towards Convergent Terminal Mobility

Yang Xia, Chai Kiat Yeo, Bu Sung Lee

(Nanyang Technological University, Singapore)

Enabling Inter-PMIPv6-domain Handover with Traffic Distributors

Feng Zhong, Shengbo Yang, Chai Kiat Yeo, Bu Sung Lee (NTU, Singapore)

A Distributed Inter-cell Interference Coordination Scheme in Downlink Multicell OFDMA Systems

Kun Dong, Hui Tian, Xingmin Li (Key Laboratory of Universal Wireless Communications, Ministry of Education, Wireless Technology Innovation (WTI) Institute, Beijing University of Posts and Telecommunications, China) Qiaoyun Sun (Beijing City University, China)

Total Inter-carrier Interference Cancellation for OFDM Mobile Communication Systems

Xue Li, Ruolin Zhou, Zhiqiang Wu (Wright State University, USA)

Vasu Chakravarthy (Air Force Research Laboratory, USA)

Steven Hong (Stanford University, USA)

Movement Prediction in Wireless Networks Using Mobility Traces

Pratap Prasad, Prathima Agrawal (Auburn University, USA)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Ely

M2-2: Multimedia Communication and Services

Session: MM Applications and Networks

Chair: Jukka K. Nurminen

(Nokia Research Center & Helsinki University of Technology, Finland)

Highly Reliable Inter/Intra-Stream FEC Method for Multi-Server Content Distribution

Akihiro Fujimoto, Koso Murakami (Osaka University, Japan)

Hideki Tode (Osaka Prefecture University, Japan)

Visualisation of Ubiquitous Home Devices and Services

Amjad Shaheed, Paul Fergus, O.E Abuelma'atti

(Liverpool John Moores University, UK)

A Wireless Home and Body Sensor Network Platform for the Early Detection of Arthritis

Arshad Haroon, Paul Fergus, Amjad Shaheed, Madjid Merabti

(Liverpool John Moores University, UK)

Evaluating and Enhancing Xen-based Virtual Routers to Support Real-time Applications

Manel Bourguiba, Kamel Haddadou, Guy Pujolle (UPMC-LIP6, France)

Placing the Participants of a Spatial Audio Conference Call

Mansoor Hyder, Michael Haun, Christian Hoene

(Universität Tübingen, Germany)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Goldfield

M2-3: Security and Content Protection for CE Session: Wireless Security and Access Management

Chair: Yu Chen (State University of New York, Binghamton, USA)

R2M: A Reputation Model for Mashups

Vincent Toubiana, Vincent Verdot, Gerard Burnside, Eric Joubert

(Alcatel-Lucent Bell Labs, France)

Trusted Access to Sensitive Information in a Diverse Services Environment

Stan Moyer, Shoshana Loeb, Euthimios Panagos

(Telcordia Technologies, USA)

An Efficient Design of Security Accelerator for IEEE 802.15.4 Wireless Sensor Networks

Ohyoung Song, Jiho Kim (Chung-Ang University, Korea)

High Capacity Image Steganography in Wavelet Domain

Saeed Sarreshtedari, Shahrokh Ghaemmaghami

(Sharif University of Technology, Iran)

Security Policy Management Framework for Evaluation and Validation of Network Access Control Policies

Manpreet Singh (UCOE Punjabi University India)

Manjeet Singh Patterh

(Electronics and Communication Engineering SLIET, India)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Tonopah

M2-4: Short Papers

Session: Wireless Networks IV

Chair: Mohammad Al Otaibi

(New Mexico Institute of Mining and Technology, USA)

A Mobility-based Prediction Algorithm with Dynamic LGD Triggering for Vertical Handover

Inwhee Joe, MinChul Shin (Hanyang University, Korea)

Sequential Monte Carlo Filtering for Location Estimation in Indoor Wireless Environments

Jihoon Ryou (Microsoft Research Asia, China)

Hyunjun Choi and Hwangnam Kim (Korea University, Korea)

Network-Assisted Femto Base Station Management Scheme in IEEE 802.16e System

Jin Kyu Nam, Won Kyeong Seo, Dong Won Kum, Jae In Choi, You Ze Cho

(Kyungpook National University, Korea)

Fast Handoff Scheme using Multicast Group for Intra-domain in PMIPv6 Networks

Hyunwoo Hwang, Ju-Hyun Kim, Kyung-Geun Lee (Sejong University, Korea)

June Sup Lee (SK Telecom, Korea)

Inter-cell Handover Support Scheme Using an Intelligent Multicast Configuration in PMIPv6

Ju-hyun Kim, Hyunwoo Hwang, Kyung-Geun Lee (Sejong University, Korea)

June Sup Lee (SK Telecom, Korea)

A Harmonization Among Power Saving Class in the IEEE 802.16e Systems

Sang-Wook Kwon, Dong-Ho Cho (KAIST, Korea)

Mobile IP Handoff using Link Layer Information

Mohamed Alnas (University of Bradford, UK)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Cooper

M2-5: Short Papers

Session: Channel Capacity

Chair: Seokjoo Shin (Chosun University, Korea)

A Multi-coded bi-orthogonal PPM with Level Cutting for UWB High Data Rate Communications

Sung-Yoon Jung (Yeungnam University, Korea)

An Intelligent Contention Window Control Scheme for Distributed Medium Access

Subodh Pudasaini, Anup Thapa, Moonsoo Kang, Seokjoo Shin (Chosun University, Korea)

Impact of Direct Sequence Spreading on the Channel Capacity of Binary Non-Gaussian CDMA

Salman A. Khan, Jan Bajcsy (McGill University, Canada)

The Improvement in Trade-off Relation between throughput and SNR using the Adaptive MCM System for 4G Systems

Insik Cho, Changwoo Seo, Gilsang Yoon, JeongHwan Lee, Sherlie Eileen Portugal Atencio, Intae Hwang (University of Chonnam, Korea)

MCCA: Multi-hop Clear Channel Assessment In 802.11 DCF

Garrey Learmonth, JoAnne Holliday (Santa Clara University, USA)

Joint Design of Channel-Source Coding for Compressive Sampling Systems

Olusegun Odejide, Cajetan Akujuobi, Annamalai Annamalai (Prairie View A&M University, USA)
Gerald Fudge (L-3 Communications, USA)

Joint Path and Capacity Design of Multi-hop Relaying-based Wireless Mesh Network in Cellular TDD-OFDMA System

Hye J. Kang and Chung G. Kang (Korea University, Korea)
Chang W. Ahn (Sungkyunkwan University, Korea)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Silver

M2-6: SS: MMW

Session: Milli-Meter Wave Wireless Technology II

Chair: Chang-Soon Choi (IHP, Germany)

IEEE 802.11ad: Defining the Next Generation Multi-Gbps Wi-Fi

Eldad Perahia, Carlos Cordeiro, Minyoung Park, Lily Yang (Intel Corporation, USA)

Achievable Rates of Cooperative Relaying Schemes applied in Beamforming Mode

Kapseok Chang, Woo Yong Lee, Hyun Kyu Chung (Electronics Telecommunications Research Institute, Korea)

Progressive Transmission of Uncompressed Video over mmW Wireless

Huai-Rong Shao, Julian Hsu, Chiu Ngo (Samsung, USA)
ChangYeul Kweon (Samsung, Korea)

Monday, January 11, 2010 • 14:00 – 15:30

Location: Laughlin

M2-7: SS: SAM

Session: Xcast & Multicast in Mobile Networks and Traffic Localization

Chair: John Buford (Avaya Labs Research, USA)

Treemap - The Fast Routing Convergence Method for Application Layer Multicast

Khoa Phan, Nam Thoai (Ho Chi Minh city University of Technology, Vietnam)
Eiichi Muramoto (Panasonic, Japan)
Etikan Kandasamy, Ping Lim (Panasonic Kuala Lumpur, Malaysia)
Tan Yew (Panasonic Singapore (PSL), Singapore)

Atomic Mobile Agent Group Communication

Jinho Ahn (Kyonggi University, Korea)

Transparent Unicast Translation to Improve Quality of Multicast over Wireless LAN

Yuki Tanigawa, Katsunori Yamaoka (Tokyo Institute of Technology, Japan)
Kenta Yasukawa (Ericsson Research Japan, Japan)

Locality Analysis of BitTorrent-Like Peer-to-Peer Systems

Yi Cui (Verbilt University, USA)
Bo Liu (Huazhong University of Science and Technology, China)

A Topology-aware Application Layer Multicast Protocol

Mozafar Bag Mohammadi, Reza Besharati, Mashallah Abbassi Dezfouli (Islamic Azad University, Ilam Unit, Iran)

Monday, January 11, 2010 • 16:00 – 17:30

Location: Elko

M3-1: Smart Spaces and Personal Area Networks for CE

Session: Personal Area Network

Chair: Behrooz Shirazi (Washington State University, USA)

Extending WPANs to Support Multi-hop Communication with QoS Provisioning

Xueli An, Javad Vazifehdan, R Venkatesha Prasad, Ramin Hekmat, I G M M Niemegeers (Delft University of Technology, Netherlands)
Hiroshi Harada (National Institute of Information and Communication Technology, Japan)

PNP-MAC: Preemptive slot allocation and Non-Preemptive transmission for Providing QoS in Body Area Networks

June Yoon, Gahng-Seop Ahn, Myung Lee (City University of New York, USA)
Seong-Soon Joo (ETRI, Korea)

Thermal Management of Biosensor Networks

Yahya Osais, Fei Richard Yu, Marc St-Hilaire (Carleton University, Canada)

TECHNICAL AND SPECIAL SESSIONS - MONDAY

Monday, January 11, 2010 • 16:00 – 17:30

Location: Ely

M3-2: Special Session (SocNets)

Session: Social Networking

Chair: Eng Keong Lua

(Carnegie Mellon University & Carnegie Mellon CyLab, USA)

Mobile Social Closeness and Similarity in Calling Patterns

Santi Phithakkitnukoon, Ram Dantu (University of North Texas, USA)

Establishing Email-based Social Network Trust for Vehicular Networks

Dijiang Huang, Zhibin Zhou (Arizona State University, USA)

Xiaoyan Hong (University of Alabama, USA)

Mario Gerla (University of California, Los Angeles, USA)

Are You My Friend?

Enkh-Amgalan Baatarjav, Aliasgar Amin, Ram Dantu

(University of North Texas, USA)

Nikhil Gupta (Cornell University, USA)

Roles and Knowledge Sharing in the Connectivity of Next Internet Societies

Djamel Hadj Sadok, Luciana Pereira Oliveira, Judith Kelter

(Federal University of Pernambuco, Brazil)

Monday, January 11, 2010 • 16:00 – 17:30

Location: Goldfield

M3-3: Special Session NCWN

Session: Network Coding for Wireless Networks

Chair: Mei Yang (University of Nevada, Las Vegas, USA)

Network Product Coding

Bilal Zafar (Royal Institute of Technology, Sweden)

Symbol Based Log-MAP in Concatenated LDPC-Convolutional Codes

Khaled ElMahgoub (Cairo University, Egypt)

Mohammed Nafie (Nile University, Egypt)

Video-centric Network Coding Strategies for 4G Wireless Networks: An Overview

Marie-Jose Montpetit, Muriel Medard (MIT, USA)

Highly Scalable Indexing - Distributed Locality Sensitivity Hashing

Pawan Gupta, Smita Wadhwa (Yahoo! R&D, India)

TCP-Aware Network Coding with Opportunistic Scheduling in Wireless Mobile Ad Hoc Networks

Tebatso Nage, F. Richard Yu, Marc St-Hilaire (Carleton University, Canada)

Monday, January 11, 2010 • 16:00 – 17:30

Location: Tonopah

M3-4: Pervasive and Ambient Applications

Session: Communication Aspects

Chair: Deepti R Chafekar (Virginia Tech, USA)

DOA Estimation for Wideband Signal: Multiple Frequency Bins Versus Multiple Sensors

Weiwei Cui, Kiwan Eom, Hyungjoon Lim

(Samsung Electronics. Co., LTD., Korea)

Multi-User Signal Classification via Spectral Correlation

Steven Hong (Stanford University, USA)

Eric Like (Air Force Institute of Technology, USA)

Zhiqiang Wu (Wright State University, USA)

Cem Tekin (University of Michigan, USA)

Stochastic Broadcast for VANET

Michael Slavik, Imad Mahgoub (Florida Atlantic University, USA)

Monday, January 11, 2010 • 16:00 – 17:30

Location: Copper

M3-5: Multimedia Communication and Services

Session: MM Networks

Chair: Jin Li (Microsoft Research, USA)

Enhancing Video-on-Demand Payout over Multiple Heterogeneous Access Networks

Dominik Kaspar, Kristian Evensen, Audun Fosselie

(Simula Research Laboratory, Norway)

Paal Engelstad

(Simula Research Laboratory, Telenor R&I, University of Oslo, Norway)

Pål Halvorsenand, Carsten Griwodz

(Simula Research Laboratory, University of Oslo, Norway)

ARMM: An Autonomic Resource Management Mechanism for Virtual Private Networks

Ahmad Quttoum, Zbigniew Dziong

(Ecole de Technologie Supérieure, Canada)

Hadi Otrok (Khalifa University, UAE)

Integrated Design of Hierarchical Modulation and Retransmission Diversity for Multimedia Wireless Networks

Annamalai Annamalai (Prairie View A&M University, USA)

John Matyjas, Michael Medley (Air Force Research Laboratory, USA)

Leader-Based Multicast Service in IEEE 802.11v Networks

Nakjung Choi, Taekyoung Kwon, Yanghee Choi

(Seoul National University, Korea)

Yongho Seok (LG Electronics Institute of Technology, Korea)

Time-Varying Indoor Powerline Channel Modeling with Multimedia Block Precoding

Tae-Eung Sung (Cornell University, USA)

Sunday, January 10, 2010 • Location: Lake Tahoe

12:00 – 14:00 Demonstration Presentations

18:00 – 19:30 Happy Hour Demonstrations

Monday, January 11, 2010 • Location: Lake Tahoe

12:00 – 14:00 Demonstration Presentations

Title: Communication System between Deaf-blind People and Non-disabled People using Body-Braille and Infrared Communication

Authors: Satoshi Ohtsuka

(Gunma National College of Technology, Japan)

Nobuyuki Sasaki (Tsukuba University of technology, Japan)

Abstract: There are several barriers to communicate between deaf-blind people and non-disabled people. The communication method of deaf-blind people is totally different from the language of non-disabled people, so they can't communicate with each other directly. Most importantly, deaf-blind people can't understand whether a communication partner is nearby or not. We resolved these issues by developing a system in which deaf-blind people can communicate bidirectionally using an infrared remote control system. In this system, as a result of the establishment of an infrared communication link, deaf-blind people can detect that communication partners are nearby.

Title: An OpenID Provider based on SSL Smart Cards

Author: Pascal Urien (Ecole Nationale Supérieure de Télécommunication, France)

Abstract: This innovative demonstration shows strong authentication (without password) for OPENID, according to a plug and play paradigm, based on SSL smart cards. It presents two user experiences, a plug and play strong authentication with real OpenID WEB sites, and remote identity management by an original identity server compatible with SSL smart cards.

Title: ilmage – An iPhone Image Based Information Retrieval Application

Authors: Stephen Bock, Sherman Newsome, Qia Wang (University of Missouri, USA)

Wenjun Zeng (University of Missouri, Columbia, USA)

Xiaofan Lin, Jian Lu (Vobile Inc., USA)

Abstract: Image processing is a powerful technology that can be used to analyze an image for many useful purposes. However, software like this is often out of the typical user's reach. ilmage directly confronts this problem. The ilmage application takes the sophisticated technologies of image analysis and identification and makes them readily available on the go. With the use of the iPhone Source Development Kit, ilmage has become an application that is available on the world's most popular mobile device. The user simply takes a photo using the iPhone's built in camera, and in seconds appear similar images with relevant information from within our database.

Title: A Web-based Privacy-Secure Content Trading System for Small Content Providers Using Semi-Blind Digital Watermarking

Authors: Mitsuo Okada, Yasuo Okabe, Tetsutaro Uehara

(Kyoto University, Japan)

Abstract: A privacy-secure content trading system based on semi-blind fingerprinting is presented. Semi-blind fingerprinting provides privacy-secure content trading as secure as blind fingerprinting at feasible processing cost with sufficient robustness. This system assures a fair trading for both a content provider and a purchaser which is effective for a market where a number of small or not so reliable content providers deal with purchasers. We have been aiming at providing a useful tool for the market by overcoming the following defects. In the basic models of conventional fingerprinting, the user's security could be guaranteed only under the premise that a content provider was perfectly trustworthy. Such premise makes a system unpractical. To overcome this defect, various scheme of blind fingerprinting have been proposed in which cryptography technique is used in order to protect user's privacy. However, these are not practical due to heavy computation cost and insufficient robustness of watermark against manipulations. The semi-blind fingerprinting fulfills the need for both feasibility and robustness by altering encryption with image decomposition that blinds up an image to be unrecognizable. Image decomposition and a customized embedding algorithm are implemented to a web-based system, whose perceptual condition of decomposed images and robustness of watermark is evaluated.

Title: MAEMO-based Scalable Platform for Construction of User-driven Social Location Based Services

Authors: Yevgeni Koucheryav

(Tampere University of Technology, Finland)

Sergey I. Balandin (Nokia Research Center, Finland)

Kirill Krinkin (LETI, Russia)

Abstract: The demo presents MAEMO-based scalable platform for easy development of the Social Location Based Services. This platform allows implementation of the new user-driven social services and incorporation of the user-generated content with the publicly available geo maps.

Title: NAL-SIM: An Interactive Simulator for H.264/AVC Video Coding and Transmission

Authors: Hadi Hadizadeh, Ivan Bajic

(Simon Fraser University, Canada)

Abstract: In this demo, we present a high-level graphical simulator for video coding and transmission using the H.264/AVC standard. The main objective of the developed simulator is to build an overall video communication system model including source encoding, channel modeling and decoding in order to interactively investigate the performance of various H.264/AVC coding schemes in the face of bandwidth constraints and channel errors. The developed simulator can be employed as a useful research or educational tool for video communication systems based on the H.264/AVC video coding standard.

Title: Demonstration of Web Contents Collaborative System for Call Parties

Authors: Haruno Kataoka, Masashi Toyama, Yoshiko Sueda, Kenji Takahashi (NTT Corporation, Japan)
Osamu Mizuno (Kogakuin University, Japan)

Abstract: We demonstrate a mock-up that enables the sharing of existing Web contents between the caller and receiver in a phone call. Two methods for this sharing are described. One is a mash-up method using APIs that existing web contents provide. The other is a proxy method that uses existing web contents as is. Both methods can be used with basic web browsers.

Title: The ϵ -ARK Device Family for The Emergency Situations

Authors: Atsuo Inomata (NARA Institute of Science and Technology, Japan)
Hironobu Suzuki (Hironobu SUZUKI Office, Inc., Japan)
Hiroyuki Ohno (Kanazawa University, Japan)

Abstract: elecommunication devices are very important for our daily life. However, we think it is difficult for everybody to use the communication devices effectively in an emergency unless they are normally being used. Therefore, in our research, we have defined the emergency situations first of all. Then we have started developing information communication systems on smart phones and PDAs for the emergency situations. Note that according to our definition, huge natural disasters (e.g. great earthquakes such as Hanshin-Awaji (1995) and Noto (2007) in Japan, Sichuan(2008) in China), pandemic of new infective disease (e.g. swine and bird flu in 2009), unexpected terrorist attacks in many metropolis are part of the emergency situations. Since we have to consider an effective measure taking advantage of these experiences especially from the perspective of the information and communication technologies, we have started discussing about framework that should have usefulness on information communications in an emergency just after the great Hanshin-Awaji earthquake hit Japan in 1995. We have already developed 'Internet-based victim information registration and retrieval system (IAA System)' and 'Emergency Information communication Service Research and Development System (EIS-RDS)'. Some of the problems in an emergency were able to be solved by these systems. However, they are not enough.

Various kinds of new information services and state-of-the-art electronic devices have been implemented on many scenes in our current society. Most of them are based on new information communication technologies such as Wi-Fi (wireless LAN), high-speed data service on 3G/GSM network, identity authentication, and so on. However, there is an afraid of the malfunctions of the telecommunication services in case of the emergency. Congestion of the cellular phone and delay of the mail delivery are well-known problems. Meanwhile, how to notify a present condition or status from inside of the stricken and damaged area to the outside? How to confirm and provide the latest information of them to another people? Unfortunately, there is no useful method yet in case of the emergency. Of course, since recent smart cellular phones are high-performance information communication devices, they perform like small personal computers (e.g. Apple iPhone 3G series or Google Android Devices). However, we think this is very unworthy if this high performance is of no avail for the emergency situations. We defined a basic concept and implemented a small database system on a high performance Linux PDA to manage victims' information. This system consists of a web server, web proxy, an IP router and a gateway function for information publishing to a public and government. When coping with various emergencies with this device, we need to refer to useful information on the Internet. At this time, we took into consideration the possibility of the malfunctions of the Internet access.

We tried to develop an electronic implementation of the 'Swiss ARmy Knife' style device called ' ϵ -ARK'. It provides the following functions. We have developed a prototype of Zark (ϵ -ARK implementation on Zaurus PDA) which is our first son of thee-ARK family. The ϵ -ARK device is able to form a powerful information communication network. Generally, it is necessary to form and construct a small network such as the mobile ad-hoc type communication with limited delay for the emergency. Even if a victim is left

alone in the disaster area in the very early stage ('Self-Help term') of the emergency, the victim is able to acquire and provide important information over the net using the ϵ -ARK, device. Then the victim can wait for 'Mutual-Help' without anxiety. We have already carried out an interview to an officer of a local government (Noto-earthquake in Ishikawa prefecture Japan). Therefore, we have an advantage for the ϵ -ARK device on the emergency information communication system in Japan. We have also discussed next generation of Zark in the age of cloud computing. We mentioned about Apple's iPhone and Google's Android that could behave a terminal of cloud computer but a terminal is hard to work in narrow-band or network disconnect situation.

Therefore, the next generation of Zark should work not only network bridge and router but also proxy server for local network. In this demonstration, we introduce the latest version of ' ϵ -ARK' (Electronic/Emergency ARmy Knife) device family that we have been developing since 2006.

Title: Delivering Internet Media Services to Consumer Electronics Devices in Personal Networks

Authors: Johan Hjelm, Kenta Yasukawa, Ryoji Kato, Shinta Sugimoto, Takeshi Matsumura (Ericsson Research, Japan)
Andreas Fasbender, Martin Gerdes (Ericsson Research, Germany)
Mikael Woxblom (Ericsson Research, Sweden)

Abstract: DLNA devices do, by definition, not support remote connectivity. Even if attached to a LAN that is connected to the Internet, they can generally not be used to consume streamed or downloadable media. By providing a gateway in a mobile phone that exposes a 'remote Digital Media Server' on the LAN, content from different online sources can be made available on locally connected media renderers. Adding to this, the capabilities of the mobile phone can be used to publish presence information of the devices, for example to enable remote control of home appliances for energy management. This paper describes a demonstration of how Internet media services are delivered to devices in a personal network, using the mobile phone as a service control point.

Title: Mobile and Interactive Social Television

Authors: Sujeet Mate, Igor Curcio (Nokia Research Center, Finland)

Abstract: The Mobile and Interactive Social Television (MIST) demo introduces the concept of watching TV/Video content with people of interest via the mobile in a virtual shared space. In this shared space, the participants can interact and watch content together with others. The participants can talk to each other, see each other and also send text messages while watching the content. The coupling of content consumption and interaction allows users to have a common shared context of the viewing experience which creates a social experience that is both participative and interactive. The user feedback reveals that there is a clear and positive benefit and added value to the viewing experience.

Title: Automated Document Conversion System for Simple Multimedia Platforms

Authors: Francisco Castano, Rafael Martínez-Álvarez, Felipe Gil-Castiñeira, Sergio Costas-Rodríguez (Universidade de Vigo, Spain)

Abstract: Sharing documents across different platforms is highly necessary nowadays. However, many devices, as embedded ones, cannot deal with formats like PDF or PowerPoint, despite their widespread use. In this demo, we propose an automated format conversion system to allow the visualization of formats that are not supported in simple multimedia embedded devices.

Title: Evidence Collecting System from Car Black Boxes

Authors: **Kangsuk Chae, Daihoon Kim, Seohyun Jung, Jaeduck Choi, Souhwan Jung**
(Soongsil University, Korea)

Abstract: This demonstration shows how to collect evidence from car black boxes in a VANET environment. In recent years, CCTV has become a popular crime prevention tool. However, CCTV is costly to install and maintain. Furthermore, although a car black box CCTV provides high-quality information, their collection rate has been very low. In this paper, we will show how to effectively collect and manage the information obtained from car black boxes.

Title: Collaborative Service Enhancement in Intelligent Environments: Service Delivery from User Terminals to Infrastructure Devices

Authors: **Francisco Castano, Felipe Gil-Castiñeira, Enrique Costa-Montenegro**
(University of Vigo, Spain)

Abstract: We present a service model that allows terminals to extend their capabilities by delivering services to intelligent infrastructures. For example, a terminal may deliver a pack containing a visualization application and a file to an infrastructure screen. We also present a variant where a user can invite other users to access a shared service on the infrastructure from other terminals.

Title: Know User Continuous Authentication System

Authors: **Ines Brosso** (USP, Brazil)
Graça Bressan (Escola Politécnica - USP, Brazil)
Fernando Henrique Ferreira (Mackenzie University, Brazil)
Wilson Ruggiero (USP, Brazil)

Abstract: This work presents KUCAS (Known User Continuous Authentication System), a work-in-progress security system, that has a continuous authentication mechanism of users in software application. The KUCAS system makes use of environmental context information, users behavior analysis, the behavior theories of Skinner and the Mathematical Confidence of Dempster-Shafer Evidences Theory, that establishes trust levels to authenticate the user by his behavior analysis, during an application software, in a specific domain of the computer networks, in a period of time. The dynamics of enclosed management in this system compares the current behavior with the user's previous behaviors description and with the trust restrictions. In case of indications of changes in the user's behavior, the system provides the behavior analysis of the user using database restrictions information. If there are uncertainties and divergences, mechanisms of security and alert signals are triggered.

Title: Cross-Site Request Forgery: Attack and Defense

Authors: **Tatiana Alexenko, Wenjun Zeng, Suman Deb Roy**
(University of Missouri, Columbia, USA)
Mark Jenne (Rose Hulman Institute of Technology, USA)

Abstract: Cross Site Request Forgery (CSRF) has emerged as a potent threat to Web 2.0 applications. Because of the stateless nature of the HTTP protocol, a malicious website can force the user's browser to send unauthorized requests to a trusted site. This demo provides hands on exposure of the various ways in which some popular web applications are exploited using CSRF, in addition to demonstrating techniques by which CSRF signatures can be detected and attacks effectively resisted even before initiation. The user needs only to install a browser extension to get notified about potential CSRF vulnerabilities. Because validating the Referer Header is a common CSRF prevention method, a novel solution to the Referer privacy issue will also be demonstrated.

Title: A Service-Oriented Platform for iTV Applications Deployment

Authors: **Didier Donsez, Stéphane Chomat, Kiev Gama, Walter Rudametkin, Lionel Touseau**
(Université Joseph Fourier, France)

Abstract: Interactive television is a new field for applications developers. However, the applications deployment has to take into account broadcast network constraints. This demonstration shows the design of service-oriented platform for the deployment of modular and dynamic iTV applications. Our proposition named OSGiTV is validated by a prototype of iTV platform using the OSGi platform and DVB MHP standards.

Title: Enabling Elastic Mobile Devices via Cloud Computing

Authors: **Simon Gibbs, Anugeetha Kunjithapatham, Sangoh Jeong, Xinwen Zhang**
(Samsung Information Systems America, USA)

Abstract: Cloud computing has the potential to radically increase the power of applications running on constrained consumer electronic (CE) devices. By making use of resources on the cloud, CE devices can potentially expand, or reduce, their processing capability in order to meet application demands. We look at how CE devices can dynamically leverage the cloud to perform heavy data processing or compute-intensive tasks. We build a web-friendly Elastic Application Framework and facilitate developers in creating applications that are able to run partially on a device and partially on a cloud platform (such as Amazon's EC2 and Microsoft's Azure). Our framework supports elastic application development on mobile device platforms including Windows Mobile and Android, and for Windows XP. In this demo we show two applications that are developed with our framework including elastic image processing and augmented reality. Our prototypes and experimental results indicate that our approach efficiently augments device capabilities and enables rich applications on constrained CE platforms.

Tuesday, January 12, 2010 • 8:30 – 12:00

Location: Elko

T1: SIP and RIA

Instructors: Henry Sinnreich (Adobe Systems, USA)

Alan Johnston (Avaya, USA)

The SIP Tutorial includes an introduction to SIP and its associated protocols such as RTP (Real-time Transport Protocol) and SDP (Session Description Protocol). Both client-client server and peer-to-peer SIP systems are discussed. Various issues of working over the Internet, especially NAT (Network Address Translation) traversal are presented as well as SIP-specific solutions such as the STUN/TURN and ICE protocols. SIP security issues are also presented. Examples of various SIP based communication applications are provided, in the areas of telephony, presence, instant messaging and multimedia.

The dominant VoIP (Voice over IP) standard protocol, SIP has initially been modeled after HTTP (Hyper Text Transport Protocol), but since then these two application protocols have developed quite differently: SIP has been embraced by the telecom industry while the Rich Internet Applications (RIA) on the web are a transformative driver for many industries. The tutorial discusses the potential of combining SIP with RIA in an homogenous manner, that includes applying web architectural principles to certain SIP systems.

Tuesday, January 12, 2010 • 8:30 – 12:00

Location: Ely

T2: IPTV and the Future of Video Services

Instructor: Ali C. Begen (Cisco, USA)

Service providers have been recently investing heavily in IP technologies with the goal of providing reliable, high-quality digital TV content to their subscribers with rich personalization features. This new form of television, called IPTV, leverages many existing networking architectures and protocol specifications, but also led the way to develop new ones to address its specific requirements.

In this tutorial, we provide a detailed overview of IPTV and its building blocks, explain the architectures and protocols used to carry video over IP in core, aggregation, access and home networks along with the current standardization efforts, and present observations and experiences from real deployments. The tutorial also touches on several concepts related to IPTV, including over-the-top services, Internet/Web TV, the TV Everywhere model and targeted advertising.

Tuesday, January 12, 2010 • 8:30 – 12:00

Location: Goldfield

T3: 4G - Next Generation Mobile Applications

Instructors: Shoshana Loeb, Euthimios (Thimios) Panagos

(Telcordia Technologies, USA)

Emerging mobile platforms

Today, mobile handset processing power and functionality parallels that of laptop/desktop computers. Despite its limitations (battery life, screen size, and input), the mobile device is emerging as a major computing platform that fuels a major category of software applications. In this section of the tutorial, we will survey the existing fragmented state of the mobile platform space and discuss the key advantages and disadvantages of existing platforms.

Mobile 2.0 - Web 2.0 on mobile devices

Mobile 2.0 refers to the next generation of mobile broadband services that extend the social aspects of Web 2.0 (collaboration and sharing among users) to the mobile world. Today's mobile device characteristics and capabilities take the social Web aspects of Web 2.0 to the next level by enabling personal, always-on, and location-aware services. In this section of the tutorial, we will discuss the unique opportunities and challenges associated with Mobile 2.0 applications.

The mobile "cloud"

While many mobile applications are stand-alone and do not require any communications beyond that of the device itself, the more interesting class of mobile applications involves communications with services residing in the cloud. While most of these services are existing Web-based services (e.g., Google search, Yahoo local, Twitter, etc.), several advanced and personalized services require a new class of "cloud" services. In this section of the tutorial, we will survey several of these mobile cloud services.

Location information as an enabler

Location plays an important role in our daily lives due to its unique ability to connect our surrounding physical world with digital information and content available for this physical world. Mobile devices are poised to become the primary delivery medium for a new generation of location-aware services. In this section of the tutorial, we will review positioning technologies for mobile devices and discuss their main strengths and weaknesses.

Location-aware services

Location-aware services are gaining a prominent role due to their game-changing potential. However, wide-spread acceptance of these services faces many technical, business, and psychological barriers. On the technical side, understanding the context in which mobile handsets are being used, the strengths and unique challenges of mobile handsets, and providing a simple and intuitive user interface are key factors in successful user adoption. On the business side, developing strategies for enabling advertisers and content/information providers and making the service available to a wide audience is required for profitable services. On the psychological side, enforcing strict security and data lifecycle management will ease user worries associated with the privacy of the information collected and shared by location-aware services. In this section of the tutorial, we will address the above challenges to some depth.

Mobile social networking

In this section of the tutorial, we will discuss social networking in the context of mobility. In particular, we will discuss some of the emerging mobile virtual worlds, mobile augmented reality, and life streaming applications.

Personal navigation applications

Today, personal navigation devices (PNDs) go beyond driving direction from point A to point B. For instance, they offer: Bluetooth connectivity with cellular phones for hands-free calling and accessing back-end services, built-on MP3 players, speech recognition and text-to-speech, a large database of Points of Interest, and access to online content and information in real-time (such as gas prices, movie listings, etc.). In addition, PNDs have started embracing user context and linking with popular social network sites. In this section of the tutorial, we will discuss current trends in the space of PNDs and address the emerging class of personal navigation applications running on mobile handsets.

mHealth

Applications accessible through mobile devices, such as mobile phones, are playing an increasingly important part in the delivery of high quality and personalized healthcare services. Several efforts are under way to transform smartphones into computational and medical imaging devices. In this section of the tutorial, we will examine current usage of mobile devices and networks by mobile healthcare applications, and discuss how mobile devices and networks could be used for creating patient-centered healthcare applications.

Tuesday, January 12, 2010 • 8:30 – 12:00

Location: Tonopah

T4: Content Delivery Networks

Instructor: Bruce Maggs (Duke University, USA)

This tutorial will provide a broad overview of Content Delivery Networks: the services they provide, their architectures, their operation, and their place in the Web infrastructure business. Using Akamai Technologies as a case study, the tutorial will explain methods for delivering static content, streaming content (live and canned), and dynamically generated content. It will discuss the algorithms used for load balancing, optimizing client performance, and minimizing expenditures on network bandwidth. Statistics from several of the largest Web events will be described. The talk will also discuss security issues, such as how to mitigate denial of service attacks. Finally, the tutorial

will describe several new research areas, such as providing database scalability services and techniques that content delivery networks or large content providers can use to minimize energy costs.

Tuesday, January 12, 2010 • 13:00 – 16:30

Location: Elko

T5: Peer-to-Peer Networking for Consumer Electronics

Instructors: **John Buford**, (Avaya Labs Research, USA)

Eng Keong Lua (Carnegie Mellon University, USA)

Peer-to-peer overlay networks are an important new platform for designing distributed applications, and are synergistic with trends in consumer electronics, such as broadband wireless interfaces, increased CPU and memory capacity. P2P has a sizable and rapidly growing body of research. This tutorial surveys the key results and main trends in overlay networks, introduces terminology, and explains the organization of the research literature. We also summarize existing research in P2P in a number of key areas related to consumer electronics, and discuss open issues and research directions. The expected outline of the tutorial is: Introduction and motivation; Example applications; P2P overlay networks; Search; Mobile P2P; Multimedia content delivery; Service overlay networks; P2P for Consumer Electronics; Research Directions.

Tuesday, January 12, 2010 • 13:00 – 16:30

Location: Ely

T6: Towards Glitch-Free VoIP and Video Conferencing

Instructor: **Jin Li** (Microsoft Research, USA)

Worldwide VoIP (voice over Internet protocol) service revenue was 24.1 billion USD in 2007, surged 52% over 2006. Both residential and business VoIP services experienced strong growth, with particularly stronger growth at the residential side, with revenue up 56%, and subscribers up 60%. It is predicted that VoIP service revenue would double over the next 4 years, reaching 61.3 billion USD in 2011, yielding an annual growth rate of 26%.

A key obstacle for VoIP to completely substitute PSTN (public switch telephone network) is VoIP's current capability to provide quality and reliable service compared to PSTN. While the VoIP customers are cheering for its flexibility and efficiency, they are dismayed by its quality and reliability. Since VoIP call does not traverse a dedicated network like a PSTN or a cell phone network, the QoS (quality of service) of VoIP call depends on the capability of the application in managing the packet jitter, packet loss and addressing the possibility of unreliable bandwidth on the path. It is perceived that the QoS of VoIP is not only inferior to that of PSTN, but also to that of cell phone network.

In this tutorial, we take a close look at the VoIP and video conferencing system, from the system component, the audio/video component and to the network component. Through the tutorial, we hope that the students will gain a broad knowledge of the inner works of the state-of-the-art VoIP and video conferencing system. Moreover, the students will also learn various technologies in both codec and networking area that can be used to design a VoIP and video conferencing system with superior quality of service.

Tuesday, January 12, 2010 • 13:00 – 16:30

Location: Goldfield

T7: Delay and Disruption Tolerant Networking

Instructors: **Anders Lindgren**

(Swedish Institute for Computer Science, Sweden)

Pan Hui (Deutsche Telekom Laboratories, Germany)

Delay and Disruption Tolerant Networking (DTN) is one of the research areas within mobile networking that have grown the fastest over the past few years. A lot of work have been done and published about DTNs, and DTN research has become gone from a small niche area to a hot topic in many major

conferences, including Mobicom, Mobihoc, Sigcomm, and Infocom. Work in this area address networking in environments where some of the implied assumptions of traditional network protocols cannot be met. These characteristics of the networks can include very long propagation delays and frequent disruptions in network links (meaning that there may never even exist a fully connected end-to-end path). Frequently, node mobility must be used to move messages through the network, with opportunistic communication contacts eventually allowing messages to be delivered to their destination.

Work in this area was initially begun to support interplanetary networking, but soon many terrestrial scenarios with similar characteristics were discovered. Such scenarios include communication in remote and rural areas and developing countries, vehicular communication, and sensor networks.

The very long delays and the lack of end-to-end connectivity means that traditional protocols that require frequent end-to-end interaction become unfeasible and thus there is a need for new communication architecture and application paradigms. Sessions should be bundled and send in single messages whenever possible, and applications must be designed such that they do not leave the user waiting indefinitely for an answer that may take a long time to be delivered.

In this tutorial we will give a background and motivation to the research area and show what the differences from traditional networks are. We will then provide an outline of the research that has been done in the area up to this point in different aspects of the system, as well as provide some case studies of real systems. Finally, future challenges for research in this area will be provided. We believe both practical implementation knowledge and deep understanding of the topics are important to give a tutorial, and the instructors have experience in both aspects, and thus, our tutorial would be highly beneficial to participants.

Tuesday, January 12, 2010 • 13:00 – 16:30

Location: Tonopah

T8: Wireless Broadband Networks Technologies

Instructors: **H. Anthony Chan**, **Justin Xiang**

(Huawei Technologies, USA)

Wireless access network standards are diverse as each is optimized for different category of usage, whereas their core network provides opportunity for convergence. The major wireless network standards include those in the 3GPP (3rd Generation Partnership Project) family, 3GPP2 family, and the wireless networks under IEEE 802 family. The number of mobile subscriptions worldwide continues to grow and had reached 4 billion, out of which about 85% are GSM. The 3GPP family takes advantage of the dominance of GSM phone and provides evolution path for cellular phones while also providing access to other wireless networks. It evolves GSM in 2G Wireless to Beyond 3G, and to 4G. The radio access network had evolved to UTRA and WCDMA in 3G Wireless, to HSPA and HSPA+ in Beyond 3G Wireless, and then to Long Term Evolution (LTE). The core network had evolved to UMTS network and then to Evolved Packet Core (EPC) as it moves to all-IP network supporting different access networks with many different services and yet to reduce complexity with fatter network. The 3GPP2 also has an evolution path, but EPC core network is providing access to 3GPP2 access networks, EPC will become the convergent core network for both 3GPP and 3GPP2.

With the convergence of wireless networks, wired networks, and broadcast networks, the wireless networks are evolving fast towards 4G wireless and beyond. ITU has defined the requirements in IMT-Advanced to provide the standard for 4G Wireless. The 3GPP system of EPC, LTE+ and Femtocell is expected to be a strong player in 4G Wireless. The tutorial overviews the key concepts and understanding of the architecture, requirements, challenges, future trends, and the key issues affecting operator decisions.

Saturday, January 9, 2010 • 17:00 – 18:30

Location: Goldfield

Delivering Any Video to Any Device: Getting the Network Ready

Abstract

Given today's competitive environment, where over the top content, time-shifted TV, and Web 2.0 services are playing a major role in the viewer experience, service providers recognize the importance of building a network that can deliver innovative new applications and services much faster than ever before. They are searching for cost effective ways to deliver hundreds of channels of multi-formatted video, be it traditional, VOD, HD, or even 3D contents, to all platforms - whether TV, PC, or mobile devices - with the highest quality end-user experience. This session will review the roadmap to attaining a converged video delivery architecture necessary to handle the growing video services and libraries, as well as outline the approaches to monetizing content effectively with addressable and targeted advertising and cementing the consumer relationship. It will map out the steps in preparing the network to deliver video services to any device and look at the market dynamics and challenges in migrating to a network capable of delivering any video service to any device.

Moderator

Yaron Raz, Director, Video Solutions Marketing, BigBand Networks

Panelists

Ken Durand, Senior Director, Software Product Management TANDBERG Television | Part of the Ericsson Group

Jim Benz, VP, Business Development, CSG Systems

Biren Sood, Entrepreneur-In-Residence, Lightspeed Venture Partners

Rod Walsh, Principal Researcher, Nokia Research Center, Finland

Saturday, January 9, 2010 • 17:00 – 18:30

Location: Tonopah

Social TV and Video Convergence: what will work and what won't

Abstract

There does not seem to be a week without major changes in the TV industry. From the latest uses of YouTube, to TV-Anywhere, to context-based and mobile video applications; we are living through the transformation of TV from a device in the living room to a cloud service available on any screen anytime. The "new TV" is profiting from the convergence of personal entertainment and the dynamics of the on-the-go lifestyle. Social TV is emerging as the next wave in these disruptions. TV was always social but the expanding TV ecosystem is increasing the number of tools viewers can use to interact with each other. What are the approaches that will take Social TV beyond realtime video + chat? How will Social TV emerge from connecting devices, content and people? What is the role of Social TV in a seamless world of mobile interactivity? The panel will address these issues from different points of view: content, devices, business and legal.

Moderator

Marie-José Montpetit, MIT RLE

Panelists

Henry Holtzman, MIT Media Lab Chief Knowledge Officer

Reed Martin, MIT Media Lab

Sarah Szalavitz, Co-Founder of 7Robot

Sujeet Mate, Nokia Research Center

Amanda Peyton, MIT Sloan School of Management

Herikko Heitanen, Harvard Berkman Fellow

Jim Lanzone, CEO and founder of Clicker.com

Monday, January 11, 2010 • 17:00 – 18:30

Location: Silver

Ecological Home Network

Abstract

Recent development of home network consists of home server, various sensors and a lot of home appliances and equipments. Most of the houses need to be equipped with this kind of home network, and we may face to energy saving problems. Home network itself needs to be designed as energy saving system, and we also control home appliances to be energy saved operation. We are faced to serious environmental issues for our globe, and it is necessary to help the solution of environmental problems through use of Information Technology.

In this panel, we will discuss about what "Ecological" means, how the Ecological Home Network works practically, and finally will discuss about the future of the Ecological home network there are several concepts quite similar to Ecological, i.e. Healthy, Safety or Secured.

We will also discuss how IT supports such kind of concepts, and the Ecological Home Network may be the key component of the platform to realize the system with such important concepts in the future.

Moderator

Nobuo Saito, Komazawa University

Panelists

Norihiro Ishikawa, NTTDocomo

Hiroshi Mineno, Shizuoka University

Ken-ichi Kameyama, Toshiba

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Diamond



About Samsung

The vision of SAMSUNG Electronics is "Leading the Digital Convergence Revolution" and our mission to carry out this vision is "Digital – ε Company". These are two requirements for being "Digital – ε Company" and the first is clearly about being "Digital" producing not just digital products, but products that inspire digital integration across our entire company. The second part of being a "ε" is to use ε – Processes connecting R & D, production, and marketing to customers, partners, and the market-disciplined approach is the way we bring value to every part of our supply chain, including products data and customer relationship through Enterprise Resource Planning (ERP).

Gold

NOKIA

About Nokia

Nokia is a pioneer in mobile telecommunications and the world's leading maker of mobile devices. Today, we are connecting people in new and different ways - fusing advanced mobile technology with personalized services to enable people to stay close to what matters to them. We also provide comprehensive digital map information through NAVTEQ; and equipment, solutions and services for communications networks through Nokia Siemens Networks.



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