

Plenary Talks

February 26 (Wednesday) 9:30 AM

Device-to-Device (D2D) Communication: Standalone versus Infrastructure-coordinated.

By Dr. Frank Y. Li.

University of Adger, NORWAY.

Abstract:

D2D communication has gained increasing popularity in recent years, not only among researchers but also among standardization bodies. D2D communication enables two or more mobile devices in the proximity of each other to establish direct local links, either in an autonomous manner to form an ad hoc network or coordinated by a base station to perform direct data transfer.

The benefits of D2D communication include ubiquitous computing and communication, traffic offload from cellular networks, improved energy efficiency and extended coverage, peer-to-peer communication supporting social networks etc.

This talk will present the newest developments on this topic, including the efforts from both 3GPP and IEFT, and outline a few research directions within this topic.

About the speaker:

Frank Y. Li holds a Ph.D. degree from the Norwegian University of Science and Technology (NTNU). He worked as a Senior Researcher at UniK - University Graduate Center, University of Oslo before joining the Department of Information and Communication Technology, University of Agder (UiA) in August 2007 where he is currently a Professor. During the past few years, he has been an active participant in several Norwegian and EU FP6/FP7 research projects. He is listed as a Lead Scientist by the European Commission DG RTD Unit A.03 - Evaluation and Monitoring of Programmes in Nov. 2007. Dr. Li is a Senior Member of the IEEE. His research interests include MAC mechanisms and routing protocols in 4G and beyond mobile systems and wireless networks, mesh

February 27 (Thursday,) 9:00 AM

Recent Trends in Multimedia Communications over the Web.

By Dr. Enrico Masala.

Politecnico di Torino, ITALY.

Abstract

Recent years have witnessed an amazing growth of multimedia delivery services over the Web. Among the several challenges faced in optimizing such services, two are particularly crucial. First, how to efficiently compress data while the demand for high-quality bandwidth-hungry contents is constantly increasing. Second, how to efficiently deliver the content over the Web using the Internet architecture which has been mostly optimized to transmit data using the HTTP protocol. This talk addresses both issues. First, it overviews the current efforts to design more and more efficient multimedia compression algorithms, with particular attention to video and related international standards such as HEVC.

Then, it focuses on strategies for efficient delivery, considering the case of on-demand streaming, by introducing and analyzing the approach known as dynamic adaptive streaming over HTTP.

A brief overview of the current solutions adopted by major companies is given as well as some details about the recently published DASH standard. The talk is concluded by highlighting the current research issues and potential future developments.

About the speaker:

Enrico Masala received the Ph.D. degree in computer engineering from the Politecnico di Torino, Turin, Italy, in 2004. In 2003, he was a visiting researcher at the Signal Compression Laboratory, University of California, Santa Barbara, where he worked on joint source channel coding algorithms for video transmission under the supervision of prof. Rose. In 2010 he was a Lecturer in computer communications at Middlesex University, London, UK. Since the end of 2010 he is Assistant Professor in computer engineering at the Politecnico di Torino, Italy. Dr. Masala has published more than 50 papers at various international journals and conferences. He has served as a reviewer and TPC member for various international journals and conferences. His main

February 28 (Friday) 9:00 AM

LTE Physical Layer.

By Dr. Jaime Sánchez.

CICESE, MEXICO.

Abstract

The increase of multimedia traffic along with the demand of better and faster services on mobile terminals has imposed a strong challenge to the wireless service providers and equipment designers. The limited range of available radio frequencies requires new technologies that allow a better spectral efficiency. These facts have been taken into consideration by the 3GPP committees, which have decided to migrate from WCDMA (3G) to OFDMA as the access technique for the 4th generation (4G) cellular networks.

The physical layer of 4G networks includes two technologies that have proved to increase the spectral efficiency and perform reliably on the hostile mobile radio environment. These are the use of multiple orthogonal carriers (OFDM) and multiple antennas at the transmitter and the receiver (MIMO).

This talk addresses the evolution of cellular network technologies and then focuses on the MIMO and OFDM techniques adopted for LTE and LTE-Advanced.

About the speaker:

Received an Engineering degree in Communications and Electronics from IPN, Mexico City (1976); M.Sc. in Electronics and Telecommunications from CICESE, Ensenada, Mx (1979); and D.Sc. in Electrical Engineering, Major in Communications, from The George Washington University (2001). Since 1979, he has held a research and faculty position at the Electronics and Telecommunications Department in CICESE, Ensenada B.C., México. Dr. Sanchez spent a one semester sabbatical at Telefónica de España in 1989, was a visiting scholar at University of Arizona Tucson (ECE) in 1997, and a visiting scholar at The University of Texas at Austin (ECE) in 2008. He has published several papers in IEEE Journals and International Conferences. Current research interests include Wireless Networks, Software Defined Radio, Space-Time-Frequency Coding, Channel Modeling, Multicarrier Modulation (OFDM), and MIMO techniques. He is an IEEE and IEICE member.