THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar

INC

Just FUN: A Joint Fountain Coding and Network Coding Approach to Loss-Tolerant Information Spreading

by

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Date　:　**24 June 2014 (Tuesday)**
Time　:　**11:00 am - 12:00 pm**
Venue：　**Room 833, Ho Sin Hang Engineering Building**
The Chinese University of Hong Kong

Abstract

In this talk, I will present a joint FoUntain coding and Network coding (FUN) approach to address the problem of information spreading over lossy communication channels. Different from the Transmission Control Protocol (TCP), our FUN approach is a mechanism of Forward Error Correction (FEC), which does not use retransmission for recovery of lost packets. The novelty of our FUN approach lies in combining the best features of fountain coding, intra-session network coding, and cross-next-hop network coding. As such, our FUN approach is capable of achieving unprecedented high throughput while allowing uncoordinated multiple source transmission of the same file to the same destination. FUN is well suited for peer-to-peer Content Delivery Network (CDN), file transfer from distributed storage networks, social networks, social TV, and mobile TV. Experimental results demonstrate that our FUN approach achieves higher throughput than existing schemes for multihop wireless networks.

Biography

Dapeng Oliver Wu received Ph.D. in Electrical and Computer Engineering from Carnegie Mellon University, Pittsburgh, PA, in 2003. Since 2003, he has been on the faculty of Electrical and Computer Engineering Department at University of Florida, Gainesville, FL, where he is currently Professor. His research interests are in the areas of networking, communications, video coding, image processing, computer vision, signal processing, and machine learning. He received University of Florida Research Foundation Professorship Award in 2009, AFOSR Young Investigator Program (YIP) Award in 2009, ONR Young Investigator Program (YIP) Award in 2008, NSF CAREER award in 2007, the IEEE Circuits and Systems for Video Technology (CSVT) Transactions Best Paper Award for Year 2001, the Best Paper Award in Globecom 2011, and the Best Paper Award in QShine 2006. Currently, he serves as an Associate Editor for IEEE Transactions on Circuits and Systems for Video Technology. He is the founder of IEEE Transactions on Network Science and Engineering. He was the founding Editor-in-Chief of Journal of Advances in Multimedia between 2006 and 2008, and an Associate Editor for IEEE Transactions on Wireless Communications and IEEE Transactions on Vehicular Technology between 2004 and 2007. He is also a guest-editor for IEEE Journal on Selected Areas in Communications (JSAC), Special Issue on Cross-layer Optimized Wireless Multimedia Communications. He has served as General Chair for IEEE GlobalSIP 2015, Technical Program Committee (TPC) Chair for IEEE INFOCOM 2012, and TPC Chair for IEEE International Conference on Communications (ICC 2008), Signal Processing for Communications Symposium. He served as Chair for the Award Committee, Technical Committee on Multimedia Communications, IEEE Communications Society. He is an IEEE Fellow.

** All ARE WELCOME **

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