

SLS - the Next Generation of Audio Codec

by Susanto Rahardja, Nanyang Technological University and Institute for Infocomm Research

Date: March 17, 2005 (Thursday)
Time: 5:00 pm (refreshment starts at 4:45 pm)
Place: 202 ECEC, NJIT

About the Speaker

Susanto Rahardja received his B.Eng. in electrical engineering in 1991 from the National University of Singapore (NUS), his M.Eng. and Ph.D. from the Nanyang Technological University (NTU), Singapore, in 1993 and 1997, respectively. His research interests include audio signal processing, video processing, binary and multiple-valued logic synthesis and digital communication systems where he published more than 130 internationally refereed journals and conferences. He was the recipient of the IEE Hartree Premium Award in 2002 and the Tan Kah Kee Young Inventors' GOLD Award (Open Category) in 2003. He is the cofounder of AMIK and STMIK Raharja Informatika, an institute of higher learning in Tangerang, Indonesia.

Dr Rahardja is a Senior Member of the IEEE, a Technical Committee member of IEEE ISMVL, Technical Program Committee members of IEEE ICME, IEEE ISCAS and International Workshop on Multimedia Signal Processing. He served as session chairs in ICME and ISCAS as well as reviewers of many journals in IEE Proceedings and IEEE Transactions. He is currently an Associate Professor at the School of Electrical and Electronic Engineering in the Nanyang Technological University and the director of Media Division in the Institute for Infocomm Research where he is responsible for the research directions of 120 full-time researchers.

About the Talk

The advancement of network access and storage technologies has gradually made traditional high-compression technologies less and less attractive. At the same time, users are requesting better and better service quality. This trend is also reflected in the area of audio coding where the lossless audio compression technology has attracted more and more attention recently. It is observed that many digital audio entertainment applications such as Internet music downloads and DVD audio, depends on media technology that enables the reduction or compression of audio data to a fraction of its original size while losing little or none of its fidelity. At one end, there is a sustained demand of audio compression technology that provides near transparent quality. At the other end, there is an increasing demand for a state-of-the-art technology that provides ultimate lossless compression for application such as digital archiving. In addition, a solution that provides audio fidelity continuity in varying bandwidth condition while optimizing the available traffic is necessary.

In this talk, I will introduce the MPEG-4 Lossless audio coding which includes a scalable audio coding solution (SLS) that integrates state-of-the-art lossless audio coding, perceptual audio coding and fine granular scalable audio coding into a single coder framework. In addition to the above functionalities, the SLS provides convenience of backward compatibility to MPEG Advanced Audio Coding (AAC). Unlike the current lossy and lossless audio compression technologies, the SLS is a one-stop solution that provides lossy compression technology that can be enhanced in very fine layers that achieves final lossless state. A ubiquitous solution that offers interoperability among those two technologies is provided which is ideal to serve both lossy and lossless compression marketplaces and that is envisaged to replace the current existing isolated and separate solutions.

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