

ITU-T Workshop

Video and Image Coding and Applications (VICA)

Abstract

Geneva, 22 – 23 July 2005

Speaker:	Daniel T. Lee Convenor, JPEG; Yahoo! /USA
Session:	Opening Session
Title of Presentation:	JPEG Family of Image Coding Standards: Retrospective and New Developments

The Joint Photographic Experts Group (JPEG) committee, formed in 1986 under the joint auspices of ISO and ITU-T, was chartered with standardization of “*digital compression and coding of continuous-tone still images.*” The group’s first published standard (ISO/IEC 10918|ITU-T T.81), commonly known as the JPEG standard, is one of the most successful standards in terms of its widespread use in digital imaging applications, especially in digital still cameras. Despite the phenomenal success of JPEG, a growing number of new applications such as high-resolution imagery, digital libraries, high-fidelity color imaging, Internet applications, wireless, medical imaging, etc., require additional, enhanced functionalities that JPEG cannot satisfy due to some of its inherent shortcomings and design points that were beyond the scope of JPEG when it was originally developed. As a result, a new project, called the JPEG 2000, was established by the committee in 1996. The first product, called JPEG 2000 Part 1 (ISO/IEC 15444-1| ITU-T T.800) was published in 2000. Indeed JPEG 2000 is a new image coding system that delivers superior compression performance and provides many advanced features in scalability, flexibility and system functionalities that outperform previous standards. It brings exciting possibilities to many imaging applications such as the Internet, wireless, security and digital cinema. This presentation gives an overview of this triumph in innovations and teamwork. A brief introduction to the new works in the JPEG committee which includes image security, Internet protocols, wireless and image search is outlined. It highlights the lessons learned from the overall JPEG development experience and draw some conclusions on the success factors of this important family of standards.

Index Terms—JPEG, JPEG 2000, color mage coding, data compression, image communication, Motion JPEG 2000, source coding, subband coding, wavelet transform, Internet imaging, digital cinema, image search.