KOLLOQUIUM

Recent Advances in Video Coding and Transmission

Dr.-Ing. Thomas Wiegand

Fraunhofer HHI, Berlin

Donnerstag, der 14.12.2006, 17^{15} Uhr
Cauerstraße 7/9, Hörsaal H5

Diskussionsleitung: Prof. Dr.-Ing. A. Kaup

With the introduction of H.264/AVC, significant improvements have recently been demonstrated in video compression capability. These advances have been brought about by improvements in signal processing techniques along with a relaxation of the bounds on practical computing power. While H.264/AVC has found its way into numerous transmission and storage applications spanning the range from smallest (Mobiles, iPod) to largest video resolutions (HDTV, Blu-Ray, HD DVD), new techniques are being developed and standardized.

One new extension of H.264/AVC is called Multi-view Video Coding (MVC) to efficiently represent video signals simultaneously acquired by multiple cameras. MVC aims at applications such as 3D Television and Free Viewpoint Video. These new applications enable new user experiences including stereoscopic and head motion parallax viewing as well as free viewpoint navigation through scenes.

Another new extension of H.264/AVC is called Scalable Video Coding (SVC) allowing partial transmission and decoding of a bitstream resulting in lower temporal or spatial resolutions or reduced quality. SVC provides functionalities such as graceful degradation in lossy transmission environments as well as bit rate, format, and power adaptation. These functionalities provide enhancements to transmission applications such as video streaming over 3GPP mobile, ad-hoc and peer-to-peer networks as well as broadcasting.

The talk will explain the developments in this area starting from H.264/AVC to MVC and SVC and provides various examples of their use in video transmission applications.