Marek Domański

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He (born 1954) received M.S., Sc.D. and Habilitation degrees from Poznań University of Technology, Poland in 1978, 1983 and 1990 respectively. He was with Ruhr University Bochum, Germany in 1986-87 and 1990-91, as a DAAD and Alexander von Humboldt Fellow, respectively. Currently, he is a Professor at Poznań University of Technology.

He is an author or co-author of more than 180 papers and conference contributions mostly on image and video coding and processing, color image processing, digital filters and multidimensional digital systems. He participated in several research and development projects on image and video compression, image and video enhancement and restoration, multidimensional digital filters and telemedicine. He is active in standardization of multimedia, mostly within MPEG expert group of ISO.

He is head of the Chair of Multimedia Telecommunications and Microelectronics at Poznań University of Technology in Poznań, Poland. In 2005, he got a prestigious award MISTRZ from Foundation for Polish Science for his activities in multimedia. Several times, he has been elected as a member of the Committee of Electronics and Telecommunications of Polish Academy of Sciences.

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One-hour lecture proposal:

<u>Introduction:</u> **Poznań University of Technology** – students and research, structure and university system (about 10 minutes)

<u>Talk ONE</u>: **AVC/H.264 video bitrate reduction using structured removal of transform coefficients** (about 25 minutes)

Key words: transcoding, bitrate reduction, AVC

Abstract:

The talk reports experimental results proving that Cascaded Pixel Domain Transcoder (CPDT) is extremely inefficient when used for AVC/H.264 bitstream transcoding aimed at bitrate reduction not exceeding 30% of primary bitrate.

Further, proposed is a transcoder that exploits structured truncation of bitstream and an algorithm for such truncation is described. The experimental results are discussed that show that the proposed transcoder provides bitrate reduction with very small or negligible loss of quality for bitrate reductions not exceeding about 30%. The transcoder complexity is much smaller than that of CPDT (by approximately two orders).

<u>Talk TWO</u>: **3D video activities at Poznań University of Technology, Chair of Multimedia Telecommunications and MicroelectronicsPUT** (about 25 minutes).

Key words: multiview video acquisition system, depth map estimation, view synthesis, 3D video compression

The talk reports research activities on multiview video acquisition and processing. In particular, an experimental 9-camera HD system is described. Moreover, research results in depth map estimation and view synthesis are briefly described. In particular, the experimental results on compression of video with depth maps are reported and discussed.