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Title FTV AHG: EE3 Results on “Champagne Tower” and “Pantomime”
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1. Introduction

This document reports EE3 results on “Champagne Tower” and “Pantomime”. Such test sequences are provided by Nagoya University [1]; they are both 1280×960 resolution with 300 frames.

2. Simulation Setup

One of the EE3 objective is to investigate the best available coding technologies [2]. Coding performances of 3D-HEVC and MV-HEVC of 3D-HTM 10.0 are compared in this report [3]. As for view synthesis, original depth data are used in order to evaluate the quality of coded texture views. MV-HEVC is not developed for depth coding. Thus, depth data coded by 3D-HEVC cannot be compared in this case.

Simulations are conducted under the common test conditions of JCT3V [4]. For both sequences, the coded views are 37, 39 and 41; synthesized views are 37.5, 38, 38.5, 39.5, 40 and 40.5. Reference data for synthesized views are the results of view synthesis using original texture and depth data. Table 1 summarizes the simulation setup.

Table 1. Simulation setup

Test case	Texture	Depth
Reference	Original	Original
1	Coded by MV-HEVC	Original
2	Coded by 3D-HEVC	Original

3. Simulation Results and Discussion

Table 2 and Table 3 represents the results of “Champagne Tower” and “Pantomime”, respectively. Table 4 shows the BD-rates, comparing MV-HEVC vs 3D-HEVC. While PSNR results of MV-HEVC and 3D-HEVC are quite similar, 3D-HEVC exhibits lesser bitrates. IN

regards to MV-HEVC, 3D-HEVC provides average gains of 12.35% and 10.25%, for video and synthesis, respectively.

Since 3D-HEVC uses depth views for prediction while compressing texture data, the overall compression efficiency is higher than MV-HEVC. Yet, not all views possess depth data; thus this is a limitation of 3D-HEVC.

Table 2. Results of “Champagne Tower”

QP	MV-HEVC			3D-HEVC		
	Bitrate (kbps)	Video PSNR (dB)	Synthesis PSNR (dB)	Bitrate (kbps)	Video PSNR (dB)	Synthesis PSNR (dB)
25	2216.3280	42.3620	44.2484	2059.8656	42.3730	44.2217
30	1115.4784	40.2357	42.0585	1022.8240	40.2731	42.0399
35	618.8040	37.7248	39.4058	564.6848	37.7879	39.4023
40	353.7560	34.9338	36.4693	324.3400	35.0145	36.4746

Table 3. Results of “Pantomime”

QP	MV-HEVC			3D-HEVC		
	Bitrate (kbps)	Video PSNR (dB)	Synthesis PSNR (dB)	Bitrate (kbps)	Video PSNR (dB)	Synthesis PSNR (dB)
25	3859.2280	42.0695	43.8090	3402.7392	42.0890	43.7420
30	1910.2008	39.5762	41.0732	1657.0760	39.6652	41.0282
35	1041.5648	36.9260	38.1549	902.3440	37.0725	38.1400
40	580.4536	34.1816	35.1980	510.3152	34.3835	35.2095

Table 4. MV-HEVC vs. 3D-HEVC BD-rates

Test sequence	Video	Synthesis
Champagne Tower	-9.4%	-8.1%
Pantomime	-15.3%	-12.4%
Average	-12.35%	-10.25%

4. Acknowledgment

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5. References

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