

Cross-Check Report of Core Experiment on View Interpolation Prediction (CE3)

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Outline

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Introduction

❖ Purpose of CE 3

- Implementation of View Interpolation Prediction (VIP) tools
- To evaluate the benefits of view synthesis tools

❖ Participants

- MERL
 - Require methods to compute depth
 - Require methods to do the view synthesis from a depth map
 - Require methods to predict from synthesized pictures in addition to pictures in the sequence to be coded
- Nagoya/NTT
 - Require methods to generate depth map from decoded images
 - Require how to derive and encode disparity correction values
 - Require how to synthesize from the corrected depth map

Cross Check

❖ Participated in Cross Checking for “breakdancers”

❖ CE Materials

- Encoder and decoder source codes, encoded and decoded bitstream, and documents for description

❖ Nagoya/NTT

- We have lately received CE materials except for the document

❖ MERL

- Due to the unforeseen setbacks, their CE is delayed again and again

Implementation

❖ Nagoya / NTT

- Same view-temporal structure as that of the reference software
- Add the VIP tool to previous prediction tools
- Encodes the residual data between the original and VIP image

Experimental Results for Low Bitrate

❖ Low Bitrate (Basis QP=30)

	JSVM		Proposed	
View	Bitrate(kbps)	PSNR(dB)	Bitrate(kbps)	PSNR(dB)
0	246.45	37.30	371.38	37.77
1	246.45	37.01	200.73	37.35
2	246.45	37.50	267.77	37.88
3	246.45	36.88	212.73	37.30
4	246.45	37.80	251.83	38.26
5	246.45	36.92	194.29	37.45
6	246.45	37.57	290.32	37.97
7	246.45	37.51	277.31	38.10
Avg.	246.45	37.31	258.29	37.76

Experimental Results for Middle Bitrate

❖ Middle Bitrate (Basis QP=26)

	JSVM		Proposed	
View	Bitrate(kbps)	PSNR(dB)	Bitrate(kbps)	PSNR(dB)
0	489.10	38.53	652.54	38.75
1	489.10	38.56	336.27	38.62
2	489.10	38.86	485.46	38.97
3	489.10	38.56	358.95	38.64
4	489.10	39.14	445.90	39.30
5	489.10	38.41	332.42	38.65
6	489.10	38.95	513.83	39.05
7	489.10	38.93	504.42	39.14
Avg.	489.10	38.74	453.72	38.89

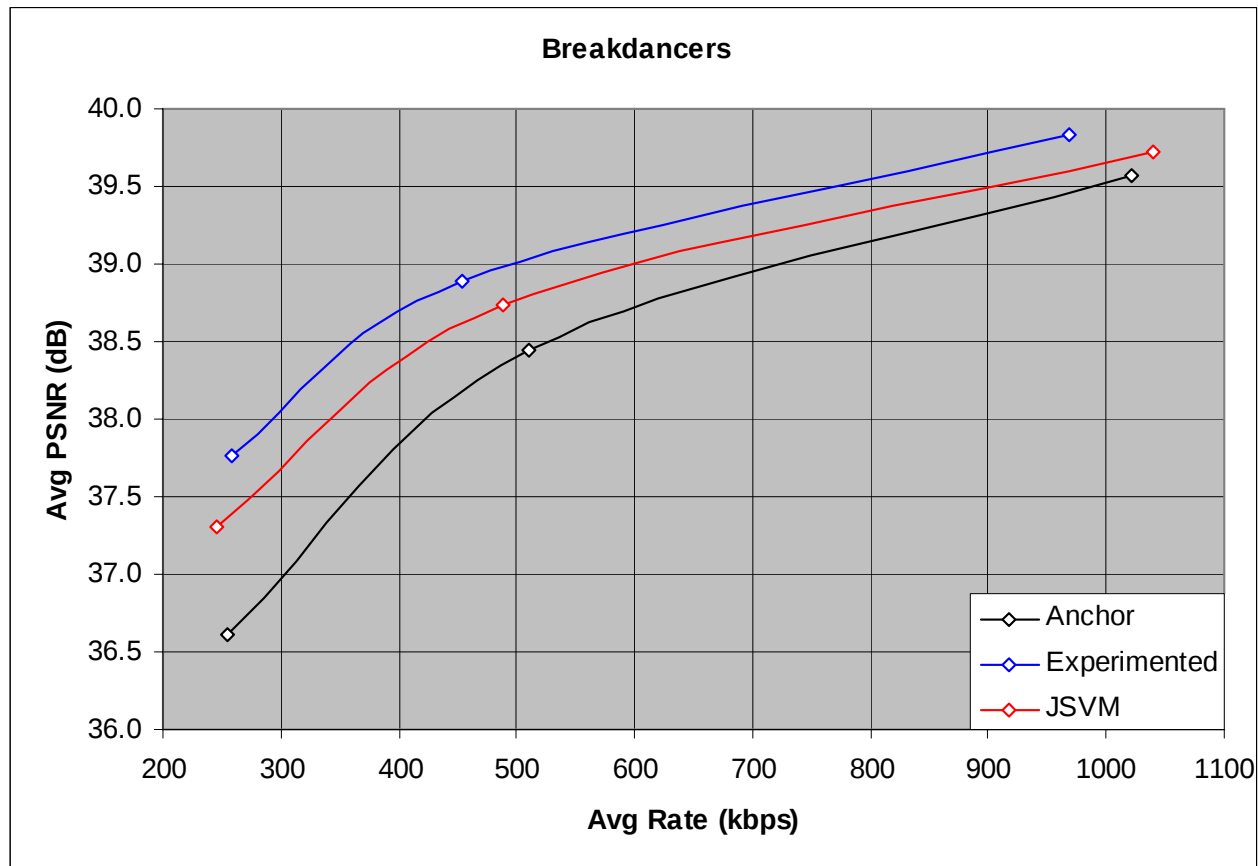
Experimental Results for High Bitrate

❖ High Bitrate (Basis QP=22)

	JSVM		Proposed	
View	Bitrate(kbps)	PSNR(dB)	Bitrate(kbps)	PSNR(dB)
0	1040.54	39.48	1380.75	39.63
1	1040.54	39.58	670.79	39.68
2	1040.54	39.82	1085.14	39.88
3	1040.54	39.64	697.45	39.73
4	1040.54	40.05	997.20	40.15
5	1040.54	39.43	687.13	39.64
6	1040.54	39.88	1108.06	39.94
7	1040.54	39.88	1127.27	40.00
Avg.	1040.54	39.72	969.22	39.83

Rate-Distortion Curve

❖ Rate-Distortion Curve for “Breakdancers”



Conclusion

❖ Cross Checking for the “breakdancers” Sequence

- Only verified the Nagoya/NTT's algorithm
- We did not verified the MERL's algorithm

Contact

Thank You for Your Attention!!

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