



Multiview video + warp coding with a MVC+D-like MV-HEVC-based coding system

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Mandate

- Mandate 3 of AhG8
 - Perform coding experiments with multiview video + warp data
 - Investigate suitable configurations for the MVC+Depth / MV-HEVC coders
 - Perform corresponding coding experiments with settings based on CTC





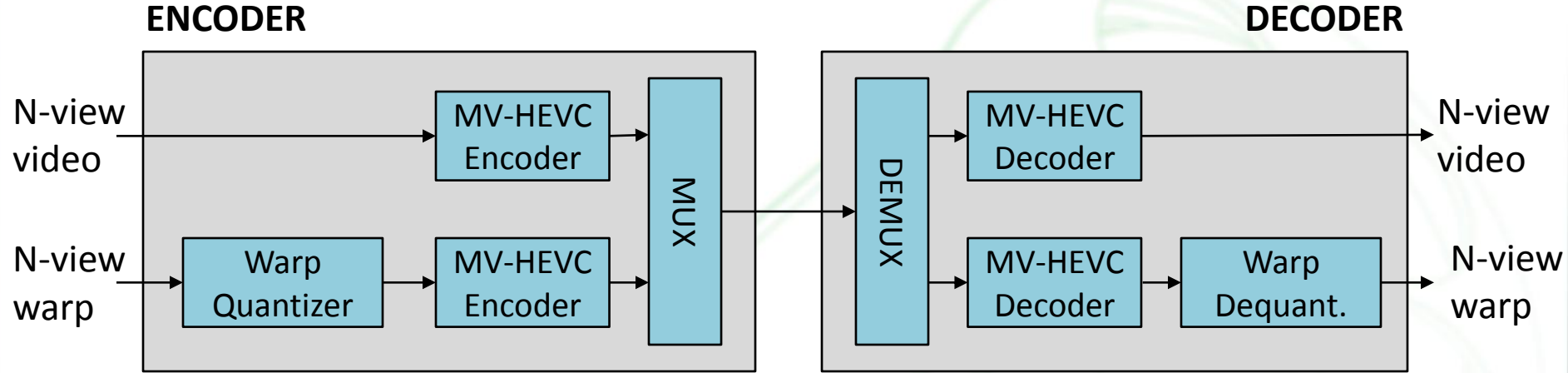
Synthesis SW & Data

- IDW-based synth. SW provided in JCT3V-A0003
- Warp data provided in JCT3V-B0073
 - quality verified at last meeting in a subj. test
- Video test sequences according to CTC





Multiview Video + Warp Coding System



- MVD+D-like MV-HEVC-based coding system





Encoder Configuration

- Use of QPs that match warp bit-rate as close as possible with depth bit-rate of 3D-HEVC anchors (HTM 5.1)
 - configuration files available:
 - <http://zurich.disneyresearch.com/videodata/niko/MPEG/JCT3V-C0033>
- Use of same compressed texture video as in 3D-HEVC anchors
- Note
 - proposed coding system does not exploit dependencies between texture and warp data
 - QPs selected for warp coding are potentially suboptimal





Coding Results

Id	Seq	3D-HEVC Anchors (HTM 5.1)		MV-HEVC Coded Warps		(Warp-Depth)/ Depth	(Warp-Depth)/ (Video+Depth)
		Video [kbit/s]	Depth [kbit/s]	Warp [kbit/s]	Warp QP		
S01	PoznanHall2	1080.06	121.77	118.85	21	-2.4%	-0.24%
		456.08	50.77	53.42	27	5.2%	0.52%
		237.38	27.17	28.12	32	3.5%	0.36%
		133.33	16.03	16.62	37	3.7%	0.40%
S02	PoznanStreet	3184.69	236.98	252.34	13	6.5%	0.45%
		1182.47	77.00	79.55	22	3.3%	0.20%
		554.52	35.79	36.95	28	3.2%	0.20%
		285.12	19.34	18.93	34	-2.1%	-0.14%
S03	UndoDancer	5595.40	275.70	257.28	12	-6.7%	-0.31%
		2376.20	131.06	134.39	17	2.5%	0.13%
		1090.69	69.50	71.86	22	3.4%	0.20%
		512.75	36.40	34.73	28	-4.6%	-0.30%
S04	GhostTownFly	4299.53	357.11	363.76	9	1.9%	0.14%
		1847.98	130.81	129.24	16	-1.2%	-0.08%
		863.64	59.67	57.42	22	-3.8%	-0.24%
		418.83	28.88	30.41	27	5.3%	0.34%
S05	Kendo	1150.06	238.00	236.00	20	-0.8%	-0.14%
		596.27	89.13	88.78	28	-0.4%	-0.05%
		336.37	40.66	39.80	35	-2.1%	-0.23%
		201.48	20.29	20.05	42	-1.2%	-0.11%
S06	Balloons	1183.09	194.45	201.21	21	3.5%	0.49%
		631.40	70.15	65.66	29	-6.4%	-0.64%
		359.50	32.81	34.67	34	5.7%	0.47%
		215.23	17.01	17.20	41	1.1%	0.08%
S08	Newspapercc	1278.51	289.18	292.62	18	1.2%	0.22%
		646.73	107.37	113.12	25	5.4%	0.76%
		351.53	48.66	50.07	31	2.9%	0.35%
		203.56	23.61	22.81	38	-3.4%	-0.35%

- Bit-rate deviations between warp and depth:
-6.7% to +6.5%
- Total rate deviations:
-0.64% to +0.76%





Data Synthesis

- Synthesis of central view (2-view input case)
- Stereo sequences available for viewing which show central synthesized view and right coded view
- Recommendation
 - Conduct viewing during meeting to examine impact of coded warps on synthesis quality
 - Discuss next steps





BACKUP



Quantized Warp

Example of a quantized warp corresponding to Balloons view 3 :



Resolution: 400x200

