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CODING OF MOVING PICTURES AND AUDIO**

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Source Philips
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Title MIV CE-2.1 related: stricter pruning criteria
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Abstract

There are still "holes" in the rendering of pose traces and we attribute this to the pruning process. This contribution explores the use of stricter pruning criteria when creating and filtering pruning masks to prune less pixels.

1 Introduction

This experiment introduced a `maxTextureError` parameter in addition to the existing `maxDepthError` parameter of the `HierarchicalPruner`.

2 Objective evaluation

Below figure presents the objective results in A97. The results for IntelFrog are omitted because we only realized that we forgot to update the textures after we saw the results of the other sequences.

Proposal vs. Low/High-bitrate Anchors

Test class	Sequence	Anchor (ff)	High-BR	Low-BR	Max	High-BR	Low-BR	High-BR	Low-BR	Pixel
			BD rate Y-PSNR	BD rate Y-PSNR	delta Y-PSNR	BD rate VMAF	BD rate VMAF	BD rate IV-PSNR	BD rate IV-PSNR	
CG	ClassroomVideo	AA97 (MIV)	19.6%	36.5%	2.98	29.5%	44.1%	23.8%	36.8%	0.59
	TechnicolorMuseum	BA97 (MIV)	6.0%	9.6%	13.56	3.0%	8.8%	4.5%	8.5%	0.59
	InterdigitalHijack	CA97 (MIV)	-19.1%	-9.4%	8.08	6.9%	7.9%	-23.8%	-14.9%	0.59
	OrangeKitchen	JA97 (MIV)	-22.0%	0.2%	10.80	9.4%	26.6%	-25.0%	-4.9%	0.59
	NokiaChess (*)	NA97 (MIV)	-64.6%	-45.5%	11.12	-3.4%	17.0%	-60.7%	-45.0%	0.59
	All MIV Anchor			-3.9%	9.2%	13.56	12.2%	21.9%	-5.1%	6.4%
NC	TechnicolorPainter	DA97 (MIV)	2.5%	3.2%	8.15	0.0%	0.0%	0.0%	0.0%	0.71
	IntelFrog	EA97 (MIV)	#VALUE!	#VALUE!	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!	0.12
	PoznanFencing	LA97 (MIV)	0.0%	-26.0%	11.25	0.0%	-23.8%	-29.2%	-7.9%	0.49
	PoznanCarpark (*)	PA97 (MIV)	-33.8%	-25.6%	10.42	-25.5%	-19.7%	-35.7%	-26.8%	0.49
	PoznanHall (*)	TA97 (MIV)	-48.5%	-31.5%	9.53	-26.9%	-13.4%	-36.4%	-25.0%	0.49
	PoznanStreet (*)	UA97 (MIV)	-14.7%	-5.4%	9.58	-18.4%	-2.7%	-1.6%	3.0%	0.49
All MIV Anchor			#VALUE!	#VALUE!	11.25	#VALUE!	#VALUE!	#VALUE!	#VALUE!	

3 Discussion

The experiment was successful in the sense that it provided information:

- There are still some holes
- The atlas and video bitrate is higher
- The PSNR is higher
- The appearance can be a bit more patchy
- There is some instability with that

Driving pruning decisions by texture error artificially increases the PSNR but does not automatically increase subjective quality. For instance when a region with a highlight (e.g. floor of SN) receives a patch from a nearby view, then the pixels in that patch improve and others stay the same so the PSNR goes up. For a human, the edge of that patch is however disturbing.

4 Availability of software and pose traces

On request.

5 Recommendations

We recommend NOT to integrate this proposal into the test model.

We recommend to actively create more time for CE experiments by:

- have software available before or during the MPEG 130 week
- avoid decisions that are "nice" but require substantial implementation work
- reconsider which CE experiments are most relevant to increase visual quality