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Status Input

Title [MPEG-I Visual] IVDE and TMIV CTC depth maps comparison

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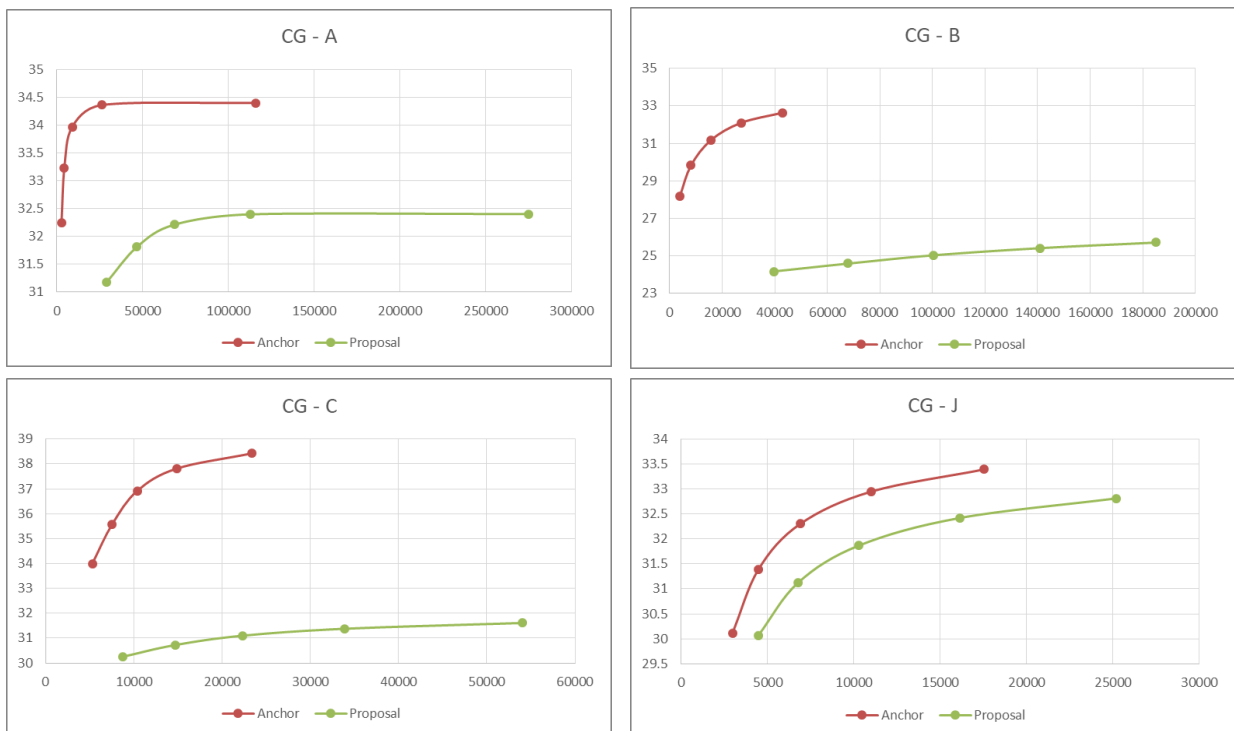
1 Introduction

This document presents a comparison of TMIV performance for depth maps generated using IVDE and MIV CTC depth maps.

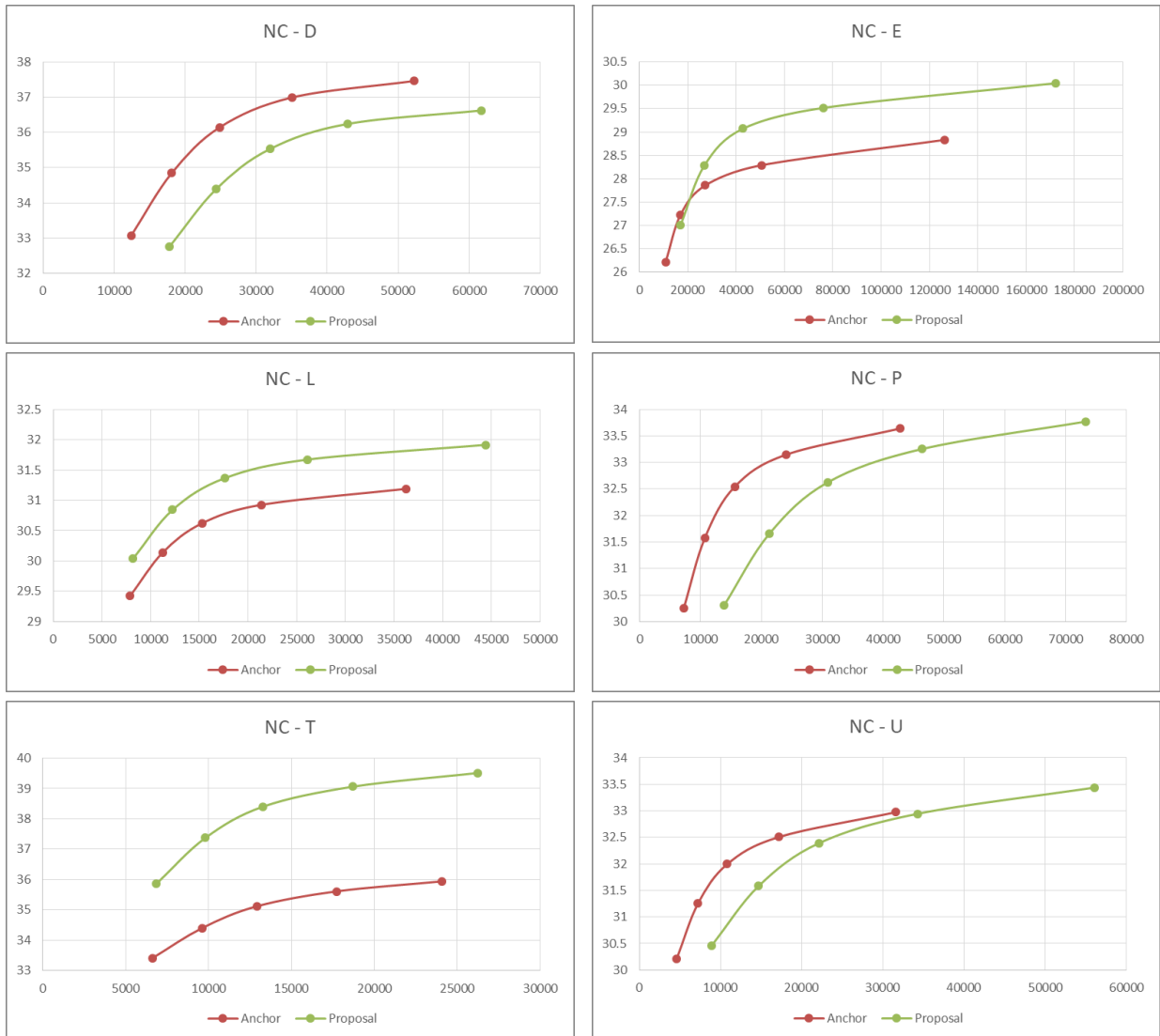
2 Experimental results

Results of TMIV 5 A17 anchor based on MIV CTC depth maps [N19214] and for depth maps generated using IVDE [N19224] are presented below. Configuration of IVDE was the same for all sequences and based on [M53407].

CG content



Natural content



Results show that for CG content, the BD-rate is worse for estimated depth maps, as their quality is worse than for ground-truth depth. However, for the natural content, in 3 sequences there is a BD-rate gain in comparison to current CTC depth maps.

Note that configuration of IVDE was not fine-tuned and the same for all sequences.

Mandatory content - Proposal vs. Low/High-bitrate Anchors

Sequence		High-BR BD rate Y-PSNR	Low-BR BD rate Y-PSNR	Max delta Y-PSNR	High-BR BD rate VMAF	Low-BR BD rate VMAF	High-BR BD rate IV-PSNR	Low-BR BD rate IV-PSNR	Pixel rate ratio
ClassroomVideo	SA	0.0%	2950.4%	5.00	0.0%	3454.6%	767.6%	952.4%	0.63
TechnicolorMuseum	SB	0.0%	0.0%	24.31	0.0%	0.0%	0.0%	0.0%	0.63
InterdigitalHijack	SC	0.0%	0.0%	20.70	0.0%	342.4%	0.0%	0.0%	0.63
OrangeKitchen	SJ	102.5%	73.9%	15.80	136.1%	81.4%	53.5%	50.0%	0.62
TechnicolorPainter	SD	60.1%	51.4%	8.12	55.7%	48.9%	63.1%	56.9%	0.63
IntelFrog	SE	-61.8%	-13.4%	11.75	-33.3%	10.6%	-41.3%	-0.7%	0.62
PoznanFencing	SL	-47.1%	-28.8%	13.69	-36.8%	-20.7%	-31.5%	-20.6%	0.52

Optional content - Proposal vs. Low/High-bitrate Anchors

PoznanCarpark	SP	83.5%	90.6%	12.59	83.0%	91.6%	56.5%	75.9%	0.52
PoznanHall	ST	0.0%	0.0%	10.87	-35.0%	-21.0%	0.0%	-60.3%	0.52
PoznanStreet	SU	47.0%	68.0%	12.41	48.3%	72.6%	67.9%	81.1%	0.52

3 Recommendations

We recommend to change MIV CTC depth maps to new depth maps estimated using IVDE for SE, SL and ST.

4 Acknowledgement

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5 References

- [N19214] Common Test Conditions for Immersive Video, ISO/IEC JTC1/SC29/WG11 MPEG2019/N19214, Online, April 2020.
- [N19224] Manual of Immersive Video Depth Estimation, ISO/IEC JTC1/SC29/WG11 MPEG2020/N19224, Online, April 2020.
- [M53407] D. Mieloch, A. Dziembowski, J. Stankowski, O. Stankiewicz, M. Domański, G. Lee, Y. Jeong, “[MPEG-I Visual] Immersive video depth estimation”, JTC1/SC29/WG11 MPEG2020/M53407, Online, April 2020.