

JVET-AD0107

EE1-RELATED: SIMPLIFIED PARAMETER SELECTION FOR FILTER SET #1

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Overview

- A simplification for filter set #1 to reduce encoder complexity
 - *Number of parameters for selection is reduced from 3 to 2*
 - *The derivation of the second parameter is dependent on temporal layer id*
- Compared with current filter set #1
 - *RA: 0.01%, 0.29%, 0.28%, EncT 87%, DecT 98%*
 - *LDB: 0.01%, 0.10%, 0.02%, EncT 84%, DecT 97%*

Proposed method

- Use two parameter candidates by default
 - `--NnlfSet1MaxNumParams=2`
- Derive the second parameter based on the temporal layer id.
 - *For low temporal layers, $\{q, q-5\}$*
 - *For high temporal layers, $\{q, q+5\}$*

Experimental results

- Compared with NNVC-4.0 filter set #1

| | Random access Main10 | | | | | |
|----------------|--|--------|--------|------|------|-----|
| | BD-rate Over NNVC-4.0-NnIntra-NnFilterSet1 | | | | | |
| | Y-PSNR | U-PSNR | V-PSNR | EncT | DecT | CPU |
| Class A1 | 0.01% | 0.21% | 0.32% | 86% | 98% | |
| Class A2 | 0.02% | 0.22% | 0.36% | 87% | 99% | |
| Class B | 0.00% | 0.35% | 0.21% | 86% | 98% | |
| Class C | 0.01% | 0.31% | 0.29% | 88% | 97% | |
| Class E | | | | | | |
| Overall | 0.01% | 0.29% | 0.28% | 87% | 98% | |
| Class D | -0.01% | 0.57% | 0.68% | 89% | 98% | |
| Class F | -0.04% | 0.11% | 0.18% | 82% | 91% | |

| | Low delay B Main10 | | | | | |
|----------------|--|--------|--------|------|------|-----|
| | BD-rate Over NNVC-4.0-NnIntra-NnFilterSet1 | | | | | |
| | Y-PSNR | U-PSNR | V-PSNR | EncT | DecT | CPU |
| Class A1 | | | | | | |
| Class A2 | | | | | | |
| Class B | -0.03% | 0.07% | 0.20% | 86% | 98% | |
| Class C | 0.06% | 0.30% | 0.52% | 86% | 97% | |
| Class E | 0.03% | -0.13% | -0.97% | 78% | 95% | |
| Overall | 0.01% | 0.10% | 0.02% | 84% | 97% | |
| Class D | -0.07% | 0.01% | 0.67% | 88% | 100% | |
| Class F | 0.02% | 0.33% | 0.55% | 82% | 94% | |

Conclusions

- A simplification for filter set #1 to reduce encoder complexity
- Negligible loss with 15% encoding time reduction

Thank Ericsson for crosschecking!