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Title **[MIV] Atlas flickering removal**

Source **PUT, ETRI**

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Abstract

This late contribution presents a modification to atlas generation, which provides better temporal consistency of rendered viewports by changing the behavior of patch writing function in the TMIV encoder. The recommendation is to include the proposed modification in TMIV16.

1 Proposal

In the proposal, the redundancy of a block of a patch is checked using the aggregatedMask – pruning mask aggregated over entire GOP, instead of the pruning mask for a particular frame.

```
auto Encoder::Impl::isRedundantBlock(Common::Vec2i topLeft, Common::Vec2i bottomRight,
                                     uint16_t viewIdx, int32_t frameIdx) const -> bool {
  if (!m_config.patchRedundancyRemoval) {
    return false;
  }
  bottomRight.x() = std::min(topLeft.x() + m_blockSize, bottomRight.x());
  bottomRight.y() = std::min(topLeft.y() + m_blockSize, bottomRight.y());

  for (int32_t y = topLeft.y(); y < bottomRight.y(); ++y) {
    for (int32_t x = topLeft.x(); x < bottomRight.x(); ++x) {
      //if (m_nonAggregatedMask[viewIdx](y, x)[frameIdx]) {
      if (m_aggregator->getAggregatedMask()[viewIdx].getPlane(0)(y,x)){
        return false;
      }
    }
  }
  return true;
}
```

When using the proposal, the atlases contain more occupied pixels, resulting in slightly higher bitrate. On the other hand, the quality (both objective and subjective) is increased.

2 Results

A65

Sequence		BD-rate Y-PSNR	BD-rate IV-PSNR	BD-PSNR Y-PSNR	BD-PSNR IV-PSNR
Chess	B02	-2.4%	2.8%	0.1%	-0.0%
Guitarist	B03	-55.4%	-28.3%	0.5%	0.6%
Cadillac	J02	-5.7%	-3.4%	0.5%	0.2%
Fan	J04	6.7%	8.0%	-0.5%	-0.7%
Group	W01	-2.5%	-0.6%	0.1%	0.0%
Painter	D01	-3.0%	-1.2%	0.3%	0.1%
Frog	E01	-5.1%	-0.2%	0.6%	0.2%
CBABasketball	L02	-4.4%	-3.4%	0.1%	0.1%
Average		**-9.0%**	**-3.3%**	**0.2%**	**0.1%**

3 Recommendation

We recommend including the proposed modification in TMIV16.

4 Acknowledgement

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