Video Coding

Seminar 2
SS 2021

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Homework assignment

- Use the video encoder framework from Homework 1

- Implement the 4:2:0 chroma sampling scheme (see Lecture 2)

- Use 2-D version of the pyramidal lowpass filter kernel, with a suitable size for the needed sampling factor (Lecture 2. **In the Lecture N=8 is ONLY an example**)

- Imshow the **Cb and Cr** components after downsampling

- Imshow the lowpass filter

- Save pure captured video (25 frames only) to `videorecord.txt` and corresponding downsampled one to `videorecord_DS.txt` (**Y, Cb and Cr components**)

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Homework assignment

- **Reduce the size** of the recorded downsampled video by avoiding storing known zeros (save it to `videorecord_DS_compressed.txt`)

- What is the compression factor (`videorecord.txt` vs `videorecord_DS.txt` vs `videorecord_DS_compressed.txt`) that you can achieve?

- Print out to console the file names and corresponding file sizes together with compression ratio relatively to original video

Homework assignment

- In the decoder software open saved video from `videorecord_DS_compressed.txt` file, insert removed zeros and display it
- How does the perceptual quality look like?

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Homework presentation

- Imshow Cb and Cr components after downsampling

- Imshow Cb and Cr components after applying pyramidal lowpass filter

- Print into console the file name with the saved **original** video (Y, Cb, Cr) and its size.

- Print into console the file names with the saved **Downsampled** videos (Y, Cb, Cr) and their sizes.

- Imshow in the decoder reconstructed RGB video from `"videorecord_DS_compressed.txt"`

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