IIP Immersive Video Quality Database

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Introduction

The **IIP Immersive Video Quality Database** is created through subjective quality assessment experiments to evaluate the quality of panoramic videos with compression distortions. The database contains Differential Mean Opinion Score (DMOS) scores on 40 distorted sequences generated from 8 raw panoramic videos using HEVC compression. Subjective rating scores by 27 un-expert subjects (screened from a total of 30 subjects) are used for the calculation of the DMOS. HTC VIVE is used for sequence display and a modified display protocol designed for high resolution panoramic videos is adopted. More details on the protocol and experiments could be found in our papers listed below.

Test sequences

Since the reference sequences we used during the experiments are obtained from JVET and we are not authorized to release, here we provide the sequence download source and test sequence generation process so that the test sequences could be obtained accordingly.

1. Reference sequence download

Sequences could be downloaded from ftp://jvet@ftp.ient.rwth-aachen.de or ftp://jvet@ftp.hhi.fraunhofer.de in */testsequences/testset360* directory. Please contact the JVET chairs for login information.

JVET: https://www.itu.int/en/ITU-T/studygroups/2017-2020/16/Pages/video/jvet.aspx

* Corresponding JVET proposal: J. Boyce, E. Alshina, A. Abbas, and Y. Ye, "JVET common test conditions and evaluation procedures for 360◦ video," Joint Video Exploration Team (JVET) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JVET-D1030, 2016

2. Test sequence generation

With the obtained reference sequences, the test sequences are generated by the following steps:

(1) Down-sample the reference sequence to 3600×1800 with Lanczos sampling method implemented in the **360-Lib Software** (https://jvet.hhi.fraunhofer.de/svn/svn_360Lib/trunk/).

(2) Compress the down-sampled references using the High Efficiency Video Coding (HEVC) reference software (**HM version 16.14**, https://hevc.hhi.fraunhofer.de/svn/svn_HEVCSoftware/tags/HM-16.14/doc/software-manual.pdf) with 360-Lib at 5 quantization parameter (QP) values, i.e., **22, 27, 32,**

37, 42. An example of parameter setting is given below:

```
.\TAppEncoderStatic  -c  encoder_randomaccess_main10.cfg  -c  encoder_360_ERP.cfg  -c
sequence.cfg      -c  360test_Viewports.cfg  --SphFile=sphere_655362.txt  -b  test.bin      --
SEIDecodedPictureHash=1  -o  rec.yuv  --CodingFaceWidth=3600  --CodingFaceHeight=1800  --
IntraPeriod=32 -q 22
```

Other configurations: During the test, Random Access (RA) configuration is used. The IntraPeriod parameters are specified according to 360-Lib, 32 for 30fps and 64 for 60fps. Since HMD cannot support 10-bit video display, the 10-bit sequences are converted to 8 bit with 360-Lib software.

Database description

The database contains DMOS scores on 40 distorted sequences generated from 8 raw panoramic videos using HEVC compression. The DMOSs are calculated with the subjective rating data of 27 reliable subjects, which are screened from the data of a total of 30 subjects.

The data are presented in "DMOS.xlsx". Each row contains the name and DMOS score of one test sequence.

- **Column "Sequence":** names of the test sequences, which are composed of the names of their corresponding references and the QP value used for compression, e. g, "Train27" is the test sequence compressed from reference sequence "Train" with QP value 27.

- **Column "DMOS":** DMOS scores of the corresponding sequences.

Source publication

If you use the database in your research, we kindly ask you to cite our papers listed below:

[1] Yingxue Zhang, Yingbin Wang, Feiyang Liu, Zizheng Liu, Yiming Li, Daiqin Yang, Zhenzhong Chen, "Subjective panoramic video quality assessment database for coding applications," *IEEE Transactions on Broadcasting*, vol. 64, no. 2, pp. 461-473, Jun. 2018.

[2] Zhenzhong Chen, Yingxue Zhang, "Subjective video quality database for virtual reality," *VQEG eLetter*, vol. 3, no. 1, 2017. [Online]. Available: https://www.its.bldrdoc.gov/vqeg/eletter