QUALINET – EUROPEAN NETWORK ON QUALITY OF EXPERIENCE IN MULTIMEDIA SYSTEMS AND SERVICES

COST ACTION IC1003
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Response to Liaison statement from Video Quality Experts Group (VQEG)

Following the recent liaison letter from VQEG, QUALINET would like to thank VQEG for the suggestions of possible areas of collaboration, where VQEG is in need for support. Based on the points listed in the liaison letter from VQEG, QUALINET would like to provide the following feedback for the items highlighted:

1. **Access to new video materials -** If the VQEG needs regarding new video materials are more detailed, and a more concrete request is made by VQEG, QUALINET may help notably by issuing an internal call for the specific video materials. A list of materials already available in QUALINET is attached for information.

2. **Laboratories that can generate errors in video -** As for the new video materials, if a more concrete and detailed request is made by VQEG, QUALINET may again issue an internal call for specific error patterns or error pattern generation applications. An example of the capabilities already available within one of the QUALINET labs (RT-RK) is provided as attachment.

3. **Organizations willing to contribute software and algorithm for joint development of video quality metrics (Joint Effort Group), for example parts of no-reference hybrid models for H.264/AVC, see attached "Call for proposals and participations"**

4. **Research efforts into subjective testing methodologies for 3D video quality assessment**

5. **Input on crosstalk impact on the perceived 3D quality**

6. **Suggestions on 3D metrics for compression and transmission errors**

   QUALINET is very interested in the topics 3 - 6 above as they are very close to its core activities. A new integration task force has been 3 - 6 established within QUALINET to come up with a framework for the evaluation of quality of 2D and 3D video and streaming which will address among others the topics above. QUALINET suggests to maintain a dialog as these activities develop organized as a series of joint meetings preferable as audio calls, that could identify individuals , tasks, develop plans and discuss other relevant issues. It could even be possible to define common deliverables.

Prof. T. Ebrahimi
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TUM Multi Format Test Set

General Information

The TUM Multi Format Test Set consists of 48 different video sequences in SDTV and HDTV formats. They cover a wide range of different content classes from sport to film, but also include typical video test sequences.

All video sequences are available as single frame images in the TIFF format. Information about the individual video sequences, online preview clips and download links can be found at: http://www.ldv.ei.tum.de/en/research/videolab/multiformat-testset/

Formats

- 576p25, 576i50
- 720p60
- 1080i50
- 1080p24, 1080p25

Sequences

Name	Format	fps	Frames	Genre	Content
576i_tum1	576i	50i	1000	Test shot	Zoom out and pan over some buildings of Munich university
576i_tum2	576i	50i	800	Test shot	Pan right over some buildings of Technische Univerisität München
576i_tum3	576i	50i	650	Test shot	Pan left over some buildings of Technische Univerisität München
576i_tum4	576i	50i	1000	Test shot	Pan right over some buildings of Technische Univerisität München
576i_tum5	576i	50i	1050	Test shot	Pan and zoom in over some

					buildings of Technische Univerisität München
576p_testament1	576p	25p	350	Movie (Video)	Two people running through a park, including a cross fade (Letterbox to 16:9)
576p_testament2	576p	25p	400	Movie (Video)	Two people walking towards a house, camera goes up, includes titles (Letterbox to 16:9)
576p_testament3	576p	25p	350	Movie (Video)	Camera goes down from a very top view to a glass of a man sitting in front of a restaurant (Letterbox to 16:9)
576p_testament4	576p	25p	325	Movie (Video)	Camera glides over a wooden table towards two people sitting at the end of this table (Letterbox to 16:9)
576p_testament5	576p	25p	475	Movie (Video)	Camera goes up from very bottom view at the side of a road to top view observing the whole landscape, includes titles
720p_cc1	720p	60p	1200	Sports	Start of a cross country race, very bottom view (Letterbox to 16:9)
720p_soccer1	720p	60p	780	Sports	Camera behind the goal following one attack
720p_soccer2	720p	60p	660	Sports	Camera following the game, quite close shot
720p_soccer3	720p	60p	600	Sports	Many players in the foreground struggling for the ball
720p_soccer4	720p	60p	660	Sports	Camera following the game, zoom in at the end
720p_soccer5	720p	60p	600	Sports	Camera following two different players
720p_soccer6	720p	60p	600	Sports	Many players in the foreground struggling for the ball
1080i_carving1	1080i	50i	550	Test shot	Inside a carving shop, tumbling camera
1080i_carving2	1080i	50i	375	Test shot	Pan over carved crosses
1080i_carving3	1080i	50i	300	Test shot	Roll over carved crosses
1080i_carving4	1080i	50i	329	Test shot	Focus change in a shot containing many carved figures
1080i_cc1	1080i	50i	250	Sports	Start of a cross country race
1080i_cc2	1080i	50i	300	Sports	Crowd of people doing cross country skiing
1080i_cc3	1080i	50i	275	Sports	Crowd of people doing cross country skiing, more close shot than 1080i_cc2
1080i_cc4	1080i	50i	300	Sports	Cross country skiing filmed out of a car following the track
1080i_forest1	1080i	50i	349	Test shot	Forest in winter filmed from a car, sun comes out through the trees
1080i_soccer1	1080i	50i	475	Sports	Ball on a grass yard, camera goes

					up, as the player moves, close shot at the beginning, more wide shot towards the end
1080i_soccer2	1080i	50i	375	Sports	Camera folling the ball at a cross taken by the goalkeeper
1080i_soccer3	1080i	50i	325	Sports	Camera behind the goal following one attack
1080i_soccer4	1080i	50i	400	Sports	Tilt over grass yard to some players
1080i_tum1	1080i	50i	900	Test shot	Pan and zoom in over some buildings of Munich university. Contains many fine details and regular structures
1080i_tum2	1080i	50i	350	Test shot	Similar to 1080i_tum1, but zoom out and faster.
1080i_tum3	1080i	50i	500	Test shot	Similar to 1080i_tum1
1080p_carving1	1080p	25p	425	Test shot	Tumbling camera in a carving shop
1080p_carving2	1080p	25p	325	Test shot	Zoom out from very detailed shot to wide shot inside a carving shop
1080p_carving3	1080p	25p	375	Test shot	Similar to 1080p_carving2 but zoom in
1080p_carving4	1080p	25p	300	Test shot	Focus change in a shot containing many carved figures
1080p_okt1	1080p	24p	400	Film	Famous "Oktoberfest" at night. Many colored lights, spot lights
1080p_okt2	1080p	24p	300	Film	Rich decorated horses at the oktoberfest
1080p_okt3	1080p	24p	240	Film	Pan from many ballons to the front of a beer tent
1080p_okt4	1080p	24p	340	Film	Camera watching the crowd at the "Oktoberfest"
1080p_okt5	1080p	24p	400	Film	Fairground rides
1080p_okt6	1080p	24p	240	Film	Tilt down a tower of a beer tent
1080p_ski1	1080p	25p	525	Sports	Camera on ski following a person skiing
1080p_ski2	1080p	25p	300	Sports	Camera on ski following a person skiing
1080p_ski3	1080p	25p	525	Sports	Camera on ski following a person skiing
1080p_ski4	1080p	25p	375	Sports	Camera on ski held very low to the ground
1080p_ski5	1080p	25p	350	Sports	Camera on ski following a person skiing

More details are available at
http://www.ldv.ei.tum.de/uploads/media/TUM_Multi_Format_Test_Set_Overview_01.xls

License

Contact

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Example of error generation in videos

1. Generating test video sequences with coding and transmission artifacts (this is connected to VQEG Hybrid Group). We are working on setup construction for several different testing scenarios with following processing chain:

    I. Case: Real case scenario - YUV input video sequence -> Encoder (H264,MPEG-2) -> Server/Streamer(Sirannon) -> ---- IP network Transmission ---- -> PCAP Capture (Wireshark) --> Set-Top-Box -> Video capturing device. In this configuration both signals: captured receiving PCAP file and the HDMI output of the STB acquired by the video capturing device might be used as a inputs to the hybrid video quality assessment module.

    II. Case: Real case scenario - YUV input video sequence -> Encoder (H264, MPEG-2) -> Server/Streamer (Sirannon) -> ---- IP network Transmission ---- -> PCAP Capture (Wireshark) --> Multimedia Player (capturing software). The same as the first case except that instead of the hardware decoder (STB) the Video player is used (e.g., VLC) for decoding and capturing.

    III. Case: Real case scenario - YUV input video sequence -> Encoder (H264,MPEG-2) -> TS(Sirannon) -> DVB modulation and transmission (DekTec) ----> DVB Transmission ---- -> DVB demodulator and decoder (STB) --> Video capturing device. In this case at the receiving side, the STB serves as both demodulator and decoder. The TS and the decoded raw YUV files might be used as an input to the video quality assessment framework.

    IV. Case: Simulated (non-real-time) test case scenario: Input video sequence -> Encoder (H264,MPEG-2) -> Server/Streamer(Sirannon) -> PCAP Capture (Wireshark) --> Artifact impairment via simulated software -> PCAPtiTS software -> Software decoder.

2. Work on Content-based video quality assessment framework. It is multi-model approach for no-reference video quality assessment (VQA) in which each quality model is constructed by the corresponding video feature cluster. In this ”feature-cluster” framework scheme each quality model is independently optimized by the corresponding feature-cluster samples. These samples contains a features selected by defined criteria.

3. Obtaining real broadcast content with copyrights that could be used for video quality assessment evaluation purposes.