**VQEG Meeting in Rennes, France, Spring of 2012**

**Monday, June 11**

**Project Summaries**

Thanks to Margaret Pinson for taking notes on Monday.

Filippo Speranza must step down as VQEG Co-Chair. Nominations for a replacement will be discussed this week.

Each group summarized their status. For project descriptions, see: <http://www.its.bldrdoc.gov/vqeg/projects.aspx>

**ILG:** Hybrid models were submitted and shown to run correctly on ILG computers. Secret source scenes from NTIA are available for redistribution at this meeting (500 GB).

**MM2:** discussions this week on the direction for this project

**HDTV:** phase 2 test plan mostly completed; waiting for Hybrid validation test to be completed.

**Hybrid:** (no Co-Chairs present) see ILG summary above.

**Tools and Subjective labs setup group:** investigating hosting of JEG-Hybrid software on VQEG website. See <http://www.its.bldrdoc.gov/vqeg/project-pages/tools.aspx> and <http://vqegstl.ugent.be/> for VQEG tools currently available.

**Project for Collaborative Development (JEG):** (summary will wait until Co-Chair arrives)

**3DTV:** Have had 3 conference calls. Start to build a database of 3D test video sequences: IRCCyN filmed some 3D with their camera. These sequences were impaired and made available. Idea is to have multiple experiments use the same set of 3D sequences (SRC and HRC) for different experiments. Subjective test equipment, the scope of the first experiments and how to screen subjects are still to be decided. A paired comparison experiment is being considered. The group will design two different 3D datasets: one for paired comparison and another for influence of environment on the experiment. The second will have no depth defect impairments; and is being redistributed at this meeting by hard drive. People are asked to run this experiment in their labs, for comparison purposes (400 GB).

**QART:** Quantify quality of task based video, through usefulness of video for a particular purpose (e.g., recognizing an object). Work is driven mainly by AGH and NTIA. Generalized Use Classes are being discussed and will be presented later today.

**JEG-Hybrid:** Goal is to have joint collaborative work on Hybrid models (bit-stream + output video). Bit-stream parser needed, and being developed jointly by JEG-Hybrid and Tools projects. JEG-Hybrid is doing monthly audio calls (4 to 5 since last meeting). Source scene collection has resulted in a large set of scenes. The next task is to create impairments, which will be underway soon (5,000 to 10,000 sequences with coding-only artifacts). One small dataset is being made available by IRCCyN, including SRC, HRC, MOS and HMix files (parsed bit-stream). Analysis of dataset will be published soon. This is available on a hard drive (300 GB).

**RICE:** Interactive subjective test methodology is expected to begin at the next VQEG meeting.

**MOAVI:** Monitoring of Audio Visual Quality by Key Indicators, based on NR model approach. Goal is to develop key indicators for detecting blockyness, bluring, etc. This is expected to be a collaborative approach. Discussions will begin at this meeting.

**HDR:** (no Co-Chairs present)

**Liaison Reports**

**MPEG activity:**

* High efficiency video coding (HEVC): successor of H.264, standardized by Jan 2013, 50% bitrate reduction at equal subjective quality.
* MPEG frame compatible (MFC): how to fit stereoscopic 3D in a 2D picture (side-by-side or top-bottom). Slow progress.
* 3DTV: autostereoscopic display with compatibility for stereo 3D (3 texture views + 3 depth views).

**ITU-R WP6C:** (waiting for more details from Chulhee)

* 3D subjective test Recommendation undergoing approval. This appears to be very similar to ITU-R Rec. BT-500.

**ITU-T SG12:**

* P.NAMS and P.NBAMS reached an important milestone: model results have been disclosed and were remarkably good. P.NAMS is a no-reference audiovisual quality model, H.264 limited to 1 decoder. P.NAMS models are packet-based models with no decoding of the bit-stream allowed. P.NBAMS is similar, yet allowed models to look into the bit-stream. The wining group of models is divided into types (e.g., bit-rate range, type of application). Tied winning models within a particular category will be combined into a single model (i.e., one model per standard) by September 2012. More details are available in the incoming liaison.
* Consented P.stat, specifies statistical procedures for comparing objective measurement methods. This includes statistics proposed in VQEG (e.g, RMSE\* that takes the accuracy of subjective MOS into account). This Recommendation should be considered by VQEG for validation within future test plans.

**ITU-T SG9:**

* P.3D-sam (subjective methods for 3D) had a variety of contributions and resulted in an updated text. Work is ongoing.
* P.3D-fatigue (visual fatigue of 3D) also had a variety of contributions relating to safety, mainly from Korea. Work is ongoing.
* P.3D-display (3D display requirements, how to select a display for 3D subjective testing) made progress.
* J.av-dist (how to perform subjective assessment of audiovisual quality, including separate measurements of audio & video). Different steps of subjective testing were inserted, such as informed consent, and subjective test design.
* Scope of Q2 and Q12 revised to reflect technology changes.

**3D@Home:** (Phil not present to report)

**COST Action IC1003 Qualinet:** (below for Liaison report)

**Proposal by Mikołaj and Lucjan (AGH University of Science and Technology)**

Proposal on new journal dedicated to quality of experience. Need based on recent calls for papers (lots of QoE); flagship journal to consolidate research on QoE, promote homogenous methodologies, bring together different professions, first focus on existing methodologies. Publications currently divided between many journals.

Open Access Formula: world-wide trend is to have freely accessible journals, more citations, shorter pat to impact, fees can include verification costs (i.e., claims of accuracy can be trusted, because they were checked).

Sponsor will be investigated and approached (e.g., IEEE).

Questions: number of issues per year: quarterly or Biennially? How to validate models (with fee)? Tutorial focus (magazine) or technical (research results)? Scope: QoE alone is too narrow, perhaps include human machine interaction (HMI)? Papers that analyze proposed metrics?

Interest: Nicolas, Marcus, Margaret, Chris and Quan

For more information contact **Mikołaj Leszczuk** leszczuk@agh.edu.pl

**Assignment of liaisons:**

* SG12: Chris, Arthur, Jens
* SG9: Quan, Margaret, Chulhee
* MPEG: Glenn
* IEEE: Arthur
* Qualinet: Kjell

**QART Session**

Mikołaj presented “Automatic classification of video sequences into specified generalized use classes of target size and lighting level”. See slides in meeting minutes directory (<ftp://vqeg.its.bldrdoc.gov/Documents/VQEG_Rennes_Jun12/MeetingFiles/VQEG_QART_2012_016_AGH_GUC.pdf>).

More progress expected at the VQIPS meeting in July, hosted by NTIA’s [www.pscr.gov](http://www.pscr.gov) project.

**JEG-Hybrid Project**

(Slides presented are not currently posted to the VQEG meeting site.)

Marcus summarized the JEG-Hybrid project:

* Experiment “JEG264HMIX1” with H.264 coding-only conditions (650 sequences). IRCCyN performed this experiment and is redistributing it here at VQEG: SRC, PVS, HMIX1, HMIX2, PCAP, subjective MOS + individual person ratings, objective MOS from model “Indigo”.
* Next step is to create a database of coding-only conditions (SRC + H.264); rate with objective models
* Then, add packet loss to above (50 different packet loss conditions)

Progress since last meeting:

* Subjective database “JEG264HMIX1”
* VirtualBox image / tool chain completed and nearlyl ready for redistribution:
  + encoders (jm, x264)
  + decoders (jm, ffmpeg)
  + packet loss generation (Sirranon)
  + analysis (H264AnnexBExgtraction
  + JM
  + Inigo objective model)
* VirtualBox will be easy to use once ready for redistribution (5 minute installation)

Issues center upon storage space needed (i.e., very large amounts):

* Storage of PVSs for perhaps 50,000 PVSs. Proposed solution: lossless encoding (ffmpeg/x264) MD5 sums for decoded files
* HMIX (XML) files. Proposed solution: Bzip2
* PCAP, uncompressed

SRC Selection:

* VQEG HDTV sequences; University of Vienna (gaming/user generated); animated (Sita Sings the Blues, Elephants Dream, Big Buck Bunny)
* Issue: how to select SRC? Which ones should be used? Which ones are different / unique? Start with VQEG HDTV test SRC then supplement with others?
* Number: perhaps 50 to 200 SRC. 50 SRC would be a good start.
* Format: anything 1080 (progressive or interlace, various frame rates). 720p should be up-scaled to 1080.
* Volunteers for SRC Selection: Savvas, Margaret (lead), Mikołaj, Glenn

HRC Generation:

* Encoding (list of parameters implemented at AGH)
  + Some options are objectionably slow (e.g., 140 hours for a 10-sec SRC)
  + GoogleDoc available with HRC “wish list”
  + Contact Mikołaj for more information
* Packet loss:
  + generate realistic scenarios
  + obtain/apply packet traces
  + decode with different decoders (error concealment, delay handling)
  + more work needs to be done here
  + Contact Nicolas for more information
* Volunteers for HRC Generation: Kjell (with assistance of two Swedish companies), Nicolas, Mikołaj, more people needed to investigate packet loss.

Evaluation:

* Objective: run FR models on our database (JEG264HMIX1):
  + run available FR & RR models
  + statistical analysis (MOS versus objective model)🡪help decide which clips should be analyzed subjectively to obtain more information, and which ones are not so valuable because the objective model tells everything.
* Subjective: select scenes (different than JEG264HMIX1) and HRCs for subjective evaluation
* Volunteers: Margaret (run models), Chris (perhaps), Silvio (perhaps)

Presentation by Lucjan on JEG-Hybrid Data Analysis: Lucjan outlined a method for analyzing the value of proposed JEG-Hybrid metrics. See the presentation in <ftp://vqeg.its.bldrdoc.gov/Documents/VQEG_Rennes_Jun12/MeetingFiles/VQEG_JEG_HYBRID_2012_018_dataAnalysis_AGH.pdf>

**Liaison from Qualinet**

The liaison was presented and considered. See <ftp://vqeg.its.bldrdoc.gov/Documents/VQEG_Rennes_Jun12/MeetingFiles/VQEG_LIAISON_2012_006_Qualinet_to_VQEG_Qo0225.pdf> Kjell will draft a reply liaison.

**Action Item:** investigate having a joint Qualinet / VQEG reflector, to spur greater interest in collaboration between these groups.

The following people expressed interest in being on such a reflector: Kjell, Nicolas, Lucjan, Mikołaj, Marcus, Glenn, Quan, Margaret, Arthur, Chris