JEG-Hybrid
Joint Effort Group on the development/research of generally applicable hybrid video quality assessment algorithms

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To develop a generally applicable no reference Hybrid Perceptual/Bit-Stream model.

Small set of subjective experiments
- Cause limited training
- Cause limited validation

How can we prove validity of a quality metric when it is only trained and validated on a small set of subjective experiments?
STRATEGY

- What do we have? (Have a look at the state-of-the-art)
  - Existing full-reference metrics
  - Subjective tests

- Try to identify shortcomings
  - If there are none, use full-reference metrics as ground truth
  - If there are, what set needs to be subj. evaluated?
WHY A LARGE SCALE APPROACH?

- **Analyzing** the agreement of objective measurements with respect to various application scopes.
  When do FR-metric disagree?

- **Identification** of insufficient algorithmic modeling precision OR missing perceptual features.

- Reproducible **verification** is possible, due to fully reproducible testset and standardized performance algorithms.
WHERE TO START?

WHAT WE PROVIDE

- Database with 41 SRCs, slowly being extended
- Different encodings of these SRCs using H.264/AVC and HEVC
- Indicator information from these HRCs:
  - pixel based feature calculators
  - bitstream based feature calculators
AVAILABLE TOOLSET

- Virtual machine for QoE research including:
  - Available encoders (HM, x264, x265)

- Packet loss simulation:
  - Robust reference decoder (AVC and HEVC) (Enrico Masala)
  - HEVC processing tool chain (open source) (Marie-Neige Garcia)

- Bitstream to machine readable XML

- FR metrics/indicators:
  - Continuous updates of NR video indicators (MOAVI) (Mikołaj Leszczuk, Steve Sciandra)
  - Python implementation of P.1201.2 (Marie-Neige Garcia)
The intention is that every publication can be rerun easily
  - Data, scripts, and virtualbox integration in order to redo all publications

A Virtualbox image is updated weekly at:
  - Accessible through TeamViewer
    (ask credentials to Marcus Barkowsky)

- Git repository (software versioning environment)
- Identification of HRCs using a MySQL database
ONGOING WORK

- Biweekly meetings will continue

- Further statistics on the large scale database:
  - Performance estimation of objective measurements
  - Determining subset for subjective testing
FUTURE WORK

- Extending SRC variety drastically
- Integrate VMAF functionality
- Increased focus on pooling strategies
WHERE CAN I GET MORE INFORMATION?

  (notably section resources, constantly updated, volunteers welcome!)

How may I get involved?

- Subscribe to the VQEG-JEG mailing list
- Join our biweekly conference call
PRESENTATIONS

- Enrico Masala - Enlarging the JEG-Hybrid large database of video sequences

- Ahmed Aldahdooh - From Large-scale to small-scale databases
EXTRA INFORMATION