

Elsevier Journal Signal Processing: Image Communication Special Issue on Image and Video Quality Assessment

Call for Papers

Quality control of images and videos from the input (capture device) to the final output (display and its environment) presented to the human user is essential for image/video applications and services.

PSNR and other connected measures have long been the most popular quality criteria used by engineers and researchers to evaluate and optimise the performances of digital image and video processing schemes. However, these simple-to-compute measurements are not in good agreement with human visual quality judgment. Therefore, there is an established need for efficient Image and Video Quality Assessment schemes (IQA/VQA).

Over the two past decades, objective image & video quality assessment methods have been extensively studied, and many criteria have been designed. Depending on the application considered and the type of information accessible, IQA/VQA can be classified into three types: Full Reference metrics (FR), Reduced Reference metrics (RR), and No Reference Metrics (NR). All these types of visual quality metric are now considered for standardization by various groups, including the Video Quality Experts Group (VQEG) for video and JPEG Advanced Image Coding (AIC) for images.

Even if improvements have been achieved compared to PSNR, there is a need for more efficient and generic IQA/VQA algorithms that are more robust to the image & video content and also to the different types of impairments introduced by the degrading systems.

The aim of this special issue is to provide an overview of state-of-the-art IQA/VQA methods and to address new developments of quality criteria towards many directions such as higher performances in specific applications (coding scheme, resolution, etc.), robustness to the image/video content (content adaptation), and others. This issue calls for high quality, original contributions, including both theory- and practice-oriented papers. Topics of interest include, but are not limited to:

- Impairment-based annoyance modelling (supra-threshold)
- No reference robust visual impairment detection and measurement
- Spatio-temporal mechanism modelling
- Modelling of temporal human visual quality judgment (from on the fly to a global video quality assessment)
- Modelling of spatial or spatio-temporal pooling
- Error sensitivity-based approaches
- Impact of transmission errors on visual quality (current coding standards and next generation standards)
- HVS model-based objective quality metrics
- Other objective quality metrics: impairment-based, structural-based, application-based (hybrid IQA/VQA), ...
- Objective quality metrics for multimedia (audio-visual quality assessment)
- VQA metrics for mid- to low-quality regimes and for high-quality regime (HDTV)
- Full color IQA/VQA metrics
- Perception, annoyance, IQA/VQA modelling in 3D image/video

Special Issue Structure: the special issue will consist of two invited papers and the 7-8 best papers from an open call selected on a competitive basis. The invited papers will come from distinguished researchers in the field, presenting the latest developments of IQA and VQA criteria. The open call targets the wider research community.

Submission procedure: Prospective contributors are invited to submit manuscripts in PDF format only. Papers should be submitted electronically using online manuscript submission at <http://ees.elsevier.com/image>. Authors should indicate that their submission is intended for this special issue (on Image and Video Quality Assessment) in the remarks field.

Special issue timeline:

- Manuscript submission deadline: 1 May 2009
- Preliminary review results: 1 August 2009
- Revised manuscript due: 1 October 2009
- Expected publication date: January 2010

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