

Proposal for NEM Initiative

Novi Sad, 13.08.2009.

## **CBAVQA**

### **Content-based audio-video quality assessment for multimedia networks**

#### **Abstract:**

The CBAVQA project is intended for multimedia quality of service (QoS) control, in respect to video and audio quality that should be guaranteed and maintained. This requires development of video assessment tools for real-time network monitoring with objective metrics which are well matched with subjective feeling by end-users, and its suitable utilization, adaptation and application in smart multimedia networks. An important aspect of the proposed quality assessment framework is that it performs real-time QoS monitoring, which is considered essential in current multimedia networks. The proposed video and audio quality assessment scheme is to be applied for different multimedia content based on a specifically optimized content-driven framework. This includes development and implementation of content-based clustering algorithms within an advanced framework for no-reference video quality assessment in multimedia management, storage and consumption.

#### **Description:**

CBAVQA project aims at development of tools for real-time audio-video quality monitoring in multimedia networks. Main target applications include broadcasting and IPTV networks. Our intention is to investigate set of all possible artifacts in digital audio-video signals present in current multimedia networks and model their influence on subjective quality assessment by the end-user. This model should then be further utilized in development of an advanced no-reference content-based audio-video quality assessment algorithm for multimedia networks. An important aspect of the proposed framework is its real-time implementation on multi-core DSP platforms and its suitable utilization, adaptation and application in smart multimedia networks.

Efficient audio-video quality assessment scheme requires set of suitably chosen objective metrics describing video and audio features, which are well matched with subjective feeling by end-users. The set of such objective measures (features) should be combined in different (specific) manner for different multimedia content in terms of an event that they present, content features (e.g. in video spatio-temporal activity), and quantity and value of information they provide. Consequently, for this purpose content based classification must be employed and a specific relation between multimedia content/format, required quality and network specifications should be determined and taken into account for development of an advanced framework for video quality assessment in multimedia management, storage and consumption.

The proposed algorithm for audio-video quality assessment is implemented on different DSP platforms and works in real time enabling thus real-time monitoring in multimedia networks. This requires high level of optimization for developed audio-video assessment algorithm in terms of memory requirements and memory access, processing time (in order to achieve real-time work-flow) and complex handling of different video and audio formats acquired in network nodes of interest.



## RT-RK Computer Based Systems-Novi Sad



We are looking for project partners in the area of multimedia network monitoring related to QoS control and quality assessment for multimedia. With such partners we would accomplish a design of a complete system for QoS control and maintenance for different multimedia networks, such as Broadcast, IPTV, mobile and other applications.

### **Company details:**

RT\_RK Computer Based Systems (<http://www.rt-rk.com/>)

### **Contact:**

Prof. Dr. Miodrag Temerinac  
RT-RK VP Research and Education & Head of Computer Engineering & Computer Communications at  
Faculty of Technical Sciences University of Novi Sad

Address: Fruskogorska 11a, 21000 Novi Sad, Serbia

Tel: +381-(0)21-4801-101

Cell: +381-(0)63-538-915

Fax: +381-(0)21-450-721

Email: [miodrag.temerinac@rt-rk.com](mailto:miodrag.temerinac@rt-rk.com)