

AKADEMIA GÓRNICZO-HUTNICZA
IM. STANISŁAWA STASZICA W KRAKOWIE

AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

AGH

Objective Video Quality Assessment Method for Recognition Tasks

Mikołaj Leszczuk, Lucjan Janowski,
Jakub Nawala

Metrics for General Quality of Experience (QoE)

» Full-Reference:

- Peak Signal-to-Noise Ratio (PSNR)
- Structural SIMilarity (SSIM)

» No-Reference:

- AGH Video Quality Indicators (AGH VQI,
<http://vq.kt.agh.edu.pl/>)

» Conventionally used in video processing systems for video quality evaluation

Metrics for Target Recognition Video (TRV)

- » Not appropriate for recognition tasks in video analytics (TRV)
- » Correct estimation of video processing pipeline performance - still significant research challenge in Computer Vision (CV) tasks

Research Goal

- » New proposal concept of objective video quality assessment method for recognition tasks
- » Method to be trained and tested on representative set of video sequences

General Research Content and Technical Approach

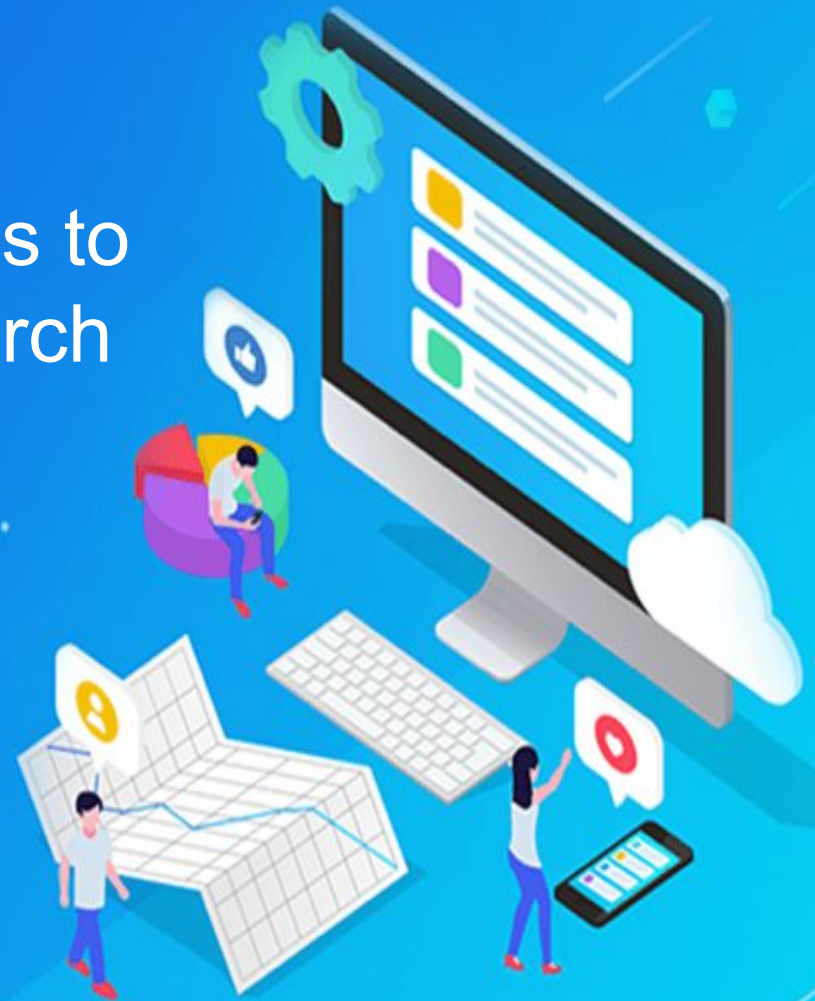
- » Acquisition of existing and new Source Reference Circuits (SRC)
- » Preparation of Hypothetical Reference Circuits (HRC)
- » Preparation of Processed Video Sequences (PVS)
- » Experimental comparison of recognition results and quality scores
- » Development of new objective video quality assessment model for recognition tasks



Funding?

Huawei Innovation Research Program (HIRP)

- » Providing funding opportunities to leading universities and research institutes
- » Conducting innovative research in communication technology, computer science, engineering, and related fields



Expected Outcomes and Results

- » Proof-of-concept software (source code) implementing concept proposed & demonstrating its performance
- » Representative SRC/HRC/PVS data set for model demonstration
- » Results reported as scientific research papers:
 - Review of state of the art methods used for evaluation metrics
 - Description of new innovative approach proposal

Next Steps

- » Project being started these days
- » Planned duration: 12 months
- » Reporting:
 - 1-2 VQEG meetings
 - Conference (QoMEX?) paper(s)



Thank You For Your
Attention!

