

2014 Sixth International Workshop on Quality of Multimedia Experience

(QoMEX 2014)

**Singapore
18-20 September 2014**



IEEE Catalog Number: CFP14QOM-POD
ISBN: 978-1-4799-6537-3

Program

2014 Sixth International Workshop on Quality of Multimedia Experience (QoMEX)

Special Session on Graphics & Rendering

Objective Visual Quality Assessment for 3D Meshes

Lu Dong (Nanyang Technological University, Singapore), Yuming Fang (Jiangxi University of Finance and Economics, P.R. China), Weisi Lin (Nanyang Technological University, Singapore), Seah Hock Soon (Nanyang Technological University, Singapore) 1

Perceptual evaluation of multi-exposure image fusion algorithms

Kai Zeng (University of Waterloo, Canada), Kede Ma (University of Waterloo, Canada), Rania Hassen (University of Waterloo, Canada), Zhou Wang (University of Waterloo, Canada) 7

An Objective Method For High Dynamic Range Source Content Selection

Manish Narwaria (Universite 'de Nantes, France), Claire Mantel (Technical University of Denmark, Denmark), Matthieu Perreira Da Silva (University of Nantes & IRCCyN, France), Patrick Le Callet (Polytechnique Nantes, France), Soren Forchhammer (Technical University of Denmark, Denmark) 13

Special Session on Media Synchronization

Asymmetric Delay in Video-Mediated Group Discussions

Marwin Schmitt (CWI - Centrum Wiskunde en Informatika, The Netherlands), Simon Gunkel (CWI: Centrum Wiskunde & Informatica, The Netherlands), Pablo Cesar (CWI, The Netherlands), Dick Bulterman (CWI, The Netherlands) 19

Human-Centric Multi-Layer Synchronization Scheme with Inter-Sender Synchronization Skew Control

Zixia Huang (University of Illinois at Urbana-Champaign, USA), Klara Nahrstedt (University of Illinois at Urbana-Champaign, USA), Ke Liang (Advanced Digital Sciences Center, Singapore) 25

Conversational Quality and visual interaction of video-telephony under synchronous and asynchronous transmission delay

Katrin Schoenenberg (Deutsche Telekom Laboratories / Berlin University of Technology, Germany), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany), Pierre Lebreton (Deutsche Telekom Laboratories / Berlin University of Technology / University of Nantes & Deutsche Telekom, Germany) 31

Poster Session 1

Does Inter-Subject Variability Depend on Test Material?

Stefan Winkler (Advanced Digital Sciences Center (ADSC), Singapore) 37

ULTRA-EYE: UHD and HD Images eye tracking dataset

Hiromi Nemoto (EPFL & Sony, Switzerland), Philippe Hanhart (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Pavel Korshunov (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland) 39

Adjustment of the direct-to-reverberant-energy-ratio and just-noticable-difference

Stephan Werner (Ilmenau University of Technology & Institute of Media Technology, Germany), Judith Liebetrau (Fraunhofer IDMT, Germany) 41

Is Low Quality Media Affecting the Level of Fatigue?

Sebastian Arndt (Berlin Institute of Technology, Germany), Jan-Niklas Antons (Technische Universität Berlin & Telekom Innovation Laboratories, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany) 43

<i>No reference video quality assessment based on parametric analysis of HEVC bitstream</i>	
Kosuke Izumi (KDDI R&D Laboratories Inc., Japan), Kei Kawamura (KDDI R&D Laboratories, Inc., Japan), Tomonobu Yoshino (KDDI R&D Laboratories Inc., Japan), Sei Naito (KDDI R&D Laboratories, Japan)	45
<i>An Eye Tracking Database for Stereoscopic Video</i>	
Yuming Fang (Jiangxi University of Finance and Economics, P.R. China), Junle Wang (University of Nantes, France), Jing Li (University of Nantes & IRCCyN, France), Romuald Pépion (IRCCyN, Université de Nantes, France), Patrick Le Callet (Université de Nantes, France)	47
<i>Crowdsourcing based subjective quality assessment of adaptive video streaming</i>	
Muhammad Shahid (Blekinge Institute of Technology, Karlskrona, Sweden), Jacob Søgaard (Technical University of Denmark (DTU), Denmark), Jeevan Pokhrel (Telecom Sud Paris & Montimage, France), Kjell Brunnström (Acreo AB - NetLab: IPTV, Video and Display Quality, Sweden), Kun Wang (Royal Institute of Technology & Acreo Swedish ICT, Sweden), Samira Tavakoli (Universidad Politécnica de Madrid, Spain), Narciso García (Universidad Politécnica de Madrid, Spain)	49
<i>EyeC3D: 3D video eye tracking dataset</i>	
Philippe Hanhart (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	51
<i>Got What You Want? Modeling Expectations to Enhance Web QoE Prediction</i>	
Andreas Sackl (FTW Telecommunications Research Center Vienna, Austria), Raimund Schatz (Telecommunications Research Center Vienna (FTW), Austria)	53
<i>On the Impact of Speech Intelligibility on Speech Quality in the Context of Voice over IP Telephony</i>	
Falk Schiffner (Assessment of IP-based Applications, Telekom Innovation Labs, TU Berlin, Germany), Janto Skowronek (Deutsche Telekom Laboratories / Berlin University of Technology, Germany), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany)	55
<i>An Annotated Dataset for Web Browsing QoE</i>	
Raimund Schatz (Telecommunications Research Center Vienna (FTW), Austria), Sebastian Egger (Telecommunications Research Center Vienna (FTW), Austria)	57
<i>Effect of Content Characteristics on Quality of Experience of Adaptive Streaming</i>	
Samira Tavakoli (Universidad Politécnica de Madrid, Spain), Muhammad Shahid (Blekinge Institute of Technology, Karlskrona, Sweden), Kjell Brunnström (Acreo AB - NetLab: IPTV, Video and Display Quality, Sweden), Benny Lövström (Blekinge Institute of Technology, Sweden), Narciso García (Universidad Politécnica de Madrid, Spain)	59
<i>Perceptual Performance Analysis for Visual Attention Model Based Asymmetric Stereoscopic 3d Video Coding</i>	
Erhan Ekmekcioglu (University of Surrey, United Kingdom), Varuna De Silva (Apical Ltd, United Kingdom), Safak Dogan (University of Surrey, United Kingdom), Ahmet Kondoz (Loughborough University, United Kingdom)	61
<i>A Perceptually Motivated No-reference Video Quality Assessment Algorithm for Packet Loss Artifacts</i>	
Manasa K (Indian Institute of Technology Hyderabad, India), Manasa Priya K (Indian Institute of Technology Hyderabad, India), Sumohana Channappayya (Indian Institute of Technology Hyderabad, India)	63
<i>Assessing the impact of display size, game type, and usage context on mobile gaming QoE</i>	
Justus Beyer (Quality and Usability Lab, Telekom Innovation Laboratories, TU Berlin, Germany), Viktor Miruchna (Quality and Usability Lab, Telekom Innovation Laboratories, TU Berlin, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	65

Oral Session 1

<i>Blind Distortion Classification Using Content and Perception Based Features</i>	
Praneeth Dendi (Uurmi Systems Private Limited, India), Venkatanath Neeluri (Uurmi Systems Private Limited, India), Maruthi Chandrasekhar Bh (Uurmi Systems Private Limited, India), Sumohana Channappayya (Indian Institute of Technology Hyderabad, India), Swarup Medasani (Chief Technology Officer & Uurmi Systems, USA)	67
<i>Adaptive Texture Synthesis Based on Perceived Texture Regularity</i>	
Srenivas Varadarajan (Arizona State University, USA), Lina Karam (Arizona State University, USA)	72
<i>The aesthetic appeal of depth of field in photographs</i>	
Tingting Zhang (Delft University of Technology, The Netherlands), Harold Nefs (Delft University of Technology, The Netherlands), Judith Redi (Delft University of Technology, The Netherlands), Ingrid Heynderickx (Eindhoven University of Technology, The Netherlands)	77
<i>Content or reproduction: Natural scene perception in immersive and non-immersive reproduction setups</i>	
Olli Rummukainen (Aalto University, Finland), Catarina Mendonça (Aalto University, Finland)	83
<i>Evaluating the influence of expectations, price and content selection on video quality perception</i>	
Andreas Sackl (FTW Telecommunications Research Center Vienna, Austria), Raimund Schatz (Telecommunications Research Center Vienna (FTW), Austria)	89
<i>Influence of a Voice on the Quality of Synthesized Speech</i>	
Florian Hinterleitner (Quality and Usability Lab, Germany), Christiana Manolaina (Quality and Usability Lab, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	95

Special Session on Quality Fluctuations

<i>Modelling Multi-episodic Quality Perception for Different telecommunication Services: First Insights</i>	
Dennis Guse (Quality and Usability Lab, Telekom Innovation Laboratories, Germany), Benjamin Weiss (TU Berlin, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	101
<i>Assessing Effect Sizes of Influence Factors Towards a QoE Model for HTTP Adaptive Streaming</i>	
Tobias Hoßfeld (University of Wuerzburg, Germany), Michael Seufert (University of Würzburg, Germany), Christian Sieber (Technische Universität München, Germany), Thomas Zinner (University of Wuerzburg, Germany)	107
<i>Evaluation of Video Quality Fluctuations Using Pattern Categorisation</i>	
Clemens Horch (Technische Universität München, Germany), Julian Habigt (Technische Universität München, Germany), Christian Keimel (Technische Universität München, Germany), Klaus Diepold (Technische Universität München, Germany)	113
<i>The influence of network quality fluctuations on Web QoE</i>	
Andreas Sackl (FTW Telecommunications Research Center Vienna, Austria), Sebastian Egger (Telecommunications Research Center Vienna (FTW), Austria), Raimund Schatz (Telecommunications Research Center Vienna (FTW), Austria)	119
<i>Quality impact due to initial loading, stalling, and video bitrate in progressive download video services</i>	
Marie-Neige Garcia (Technische Universität Berlin & Telekom Innovation Laboratories, Germany), Dominika Dytka (Prysmian Group, Germany), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany)	125
<i>Quality of Experience-centric management in LTE-A mobile networks: The Device-to-Device communication paradigm</i>	
Eirini Lioutou (University of Athens, Greece), Emmanouil Papadomichelakis (University of Athens, Greece), Nikos Passas (University of Athens, Greece), Lazaros Merakos (University of Athens, Greece)	131

Poster Session 2

<i>Quality of Experience and HTTP adaptive streaming: A review of subjective studies</i>	
Marie-Neige Garcia (Technische Universität Berlin & Telekom Innovation Laboratories, Germany), Francesca De Simone (Telecom ParisTech, France), Samira Tavakoli (Universidad Politécnica de Madrid, Spain), Nicolas Staelens (Ghent University - iMinds, Belgium), Sebastian Egger (FTW - Telecommunications Research Center Vienna & Signal Processing and Speech Communication Laboratory, Graz University of Technology, Austria), Kjell Brunnström (Acreo AB - NetLab: IPTV, Video and Display Quality, Sweden), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany)	137
<i>Non-Linear EEG Features for Odor Pleasantness Recognition</i>	
Eleni Kroupi (EPFL, Switzerland), Dionisije Sopic (EPFL, Switzerland), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	143
<i>Sound Influences Visual Attention Discriminately in Videos</i>	
Xiongkuo Min (Shanghai Jiao Tong University, P.R. China), Guangtao Zhai (Shanghai Jiao Tong University, P.R. China), Zhongpai Gao (Shanghai Jiao Tong University, P.R. China), Chunjia Hu (Shanghai Jiao Tong University, P.R. China), Xiaokang Yang (Shanghai Jiao Tong University, P.R. China)	149
<i>HDR image compression: a new challenge for objective quality metrics</i>	
Philippe Hanhart (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Marco V. Bernardo (University of Beira Interior - Remote Sensing Unit and Instituto de Telecomunicações, Portugal), Pavel Korshunov (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Manuela Pereira (University of Beira Interior, Portugal), Antonio M. G. Pinheiro (University of Beira Interior & OC-UBI - Optics Center of University of Beira Interior, Portugal), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	155
<i>An Evaluation of Reconstruction Filters for a Path-Searching Task in 3D</i>	
David Roberts (University of Durham, United Kingdom), Ioannis Ivrissimtzis (Durham University, United Kingdom), Nick Holliman (Durham University, United Kingdom)	161
<i>Assessment of Audio/Video Synchronisation in Streaming Media</i>	
Francois Pitie (Trinity College Dublin, Ireland), Damien Kelly (Google Inc., USA), Thierry Foucà (Google Inc., USA), Naomi Harte (Trinity College Dublin, Ireland), Anil Kokaram (Google Inc., USA)	167
<i>A Quality of Experience Model for Adaptive Media Playout</i>	
Benjamin Rainer (Alpen-Adria-Universität Klagenfurt, Austria), Christian Timmerer (Alpen-Adria-Universität Klagenfurt, Austria)	173
<i>Cross-lab Subjective Evaluation of the MVC+D and 3D-AVC 3D Video Coding Standards</i>	
Philippe Hanhart (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Naeem Ramzan (University of West of Scotland, United Kingdom), Vittorio Baroncini (Fondazione Ugo Bordoni, Italy), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	179
<i>Effective Preprocessing Stage in the Fourier Transform domain for Image Quality Assessment</i>	
Min Liu (Shanghai Jiaotong University, P.R. China), Guangtao Zhai (Shanghai Jiao Tong University, P.R. China), Ke Gu (Shanghai Jiao Tong University, P.R. China), Xiaokang Yang (Shanghai Jiao Tong University, P.R. China)	185
<i>Linking Quality Features and Quality Elements by defining an extended 3DVO Quality Taxonomy Model</i>	
Sara Kepplinger (Ilmenau University of Technology, Germany)	191
<i>Investigating subjective attributes of quality for videos displayed with local backlight dimming</i>	
Claire Mantel (Technical University of Denmark, Denmark), Søren Bech (Bang & Olufsen, Denmark), Soren Forchhammer (Technical University of Denmark, Denmark), Jari Korhonen (Technical University of Denmark, Denmark), Jesper Pedersen (Bang & Olufsen, Denmark)	197
<i>Comparing upscaling algorithms from HD to Ultra HD by evaluating Preference of Experience</i>	
Jing Li (University of Nantes & IRCCyN, France), Yao Koudota (University of Nantes, France), Marcus Barkowsky (University of Nantes, France), Hélène Primon (VITEC, France), Patrick Le Callet (Polytechnique Nantes, France)	203
<i>Verification on Stability and Reproducibility of DSCQS Method for Assessing 4K Ultra-HD Video Quality</i>	
Kimiko Kawashima (NTT Network Technology Laboratories, NTT Corporation, Japan), Jun Okamoto (NTT, Japan), Takanori Hayashi (NTT, Japan)	209

<i>Web-QoE under real-world distractions: Two test cases</i>	
Dennis Guse (Quality and Usability Lab, Telekom Innovation Laboratories, Germany), Sebastian Egger (FTW - Telecommunications Research Center Vienna & Signal Processing and Speech Communication Laboratory, Graz University of Technology, Austria), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	215
<i>Subjective Quality Assessment of Mobile 3D videos</i>	
Zhiwei Fan (Peking University, P.R. China), Tingting Jiang (Peking University, P.R. China)	221
<i>UHD Video Dataset for Evaluation of Privacy</i>	
Pavel Korshunov (Ecole Polytechnique Fédérale de Lausanne, Switzerland), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	227

Oral Session 2

<i>Continuous vs. discrete scale stereoscopic video subjective evaluation: case study on robust watermarking</i>	
Rania Bensaid (Institut Mines Telecom-Telecom SudParis, France), Mihai Petru Mitrea (Institut Telecom - Telecom SudParis, France), Afef Chammem (Institut Mines Telecom- Telecom SudParis, France), Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	233
<i>Beauty is in the scale of the beholder: a comparison of methodologies for the subjective assessment of image aesthetic appeal</i>	
Ernestasia Sahaan (Delft University of Technology, The Netherlands), Judith Redi (Delft University of Technology, The Netherlands), Alan Hanjalic (Delft University of Technology, The Netherlands)	239
<i>Subject Bias: Introducing A Theoretical User Model</i>	
Lucjan Janowski (AGH University of Science and Technology, Poland), Margareth Pinson (NTIA, USA)	245
<i>Subjective Quality Assessment of Screen Content Images</i>	
Huan Yang (Nanyang Technological University, Singapore), Yuming Fang (Jiangxi University of Finance and Economics, P.R. China), Weisi Lin (Nanyang Technological University, Singapore), Zhou Wang (University of Waterloo, Canada)	251
<i>Analysis of Call-Quality Prediction Performance for Speech-only and Audio-visual Telephony</i>	
Benjamin Weiss (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany), Blazej Lewcio (Deutsche Telekom Laboratories, Berlin University of Technology, Germany), Benjamin Belmudez (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	257
<i>Quantifying Sequential Context Effects in Subjective Quality Evaluation</i>	
Nadja Schinkel-Bielefeld (Fraunhofer Institute for Integrated Circuits IIS, Germany)	263

Special Session on Quantitative QoE Assessment

<i>Non-linear modeling of eye gaze perception as a function of gaze and head direction</i>	
Mar Gonzalez Franco (University of Barcelona, Spain), Philip A. Chou (Microsoft Research, USA)	269
<i>Using Eye-Tracking and Correlates of Brain Activity to Predict Quality Scores</i>	
Sebastian Arndt (Berlin Institute of Technology, Germany), Jenni Radun (University of Helsinki, Finland), Jan-Niklas Antons (Technische Universität Berlin & Telekom Innovation Laboratories, Germany), Sebastian Möller (Quality and Usability Lab, Telekom Innovation Labs, TU Berlin, Germany)	275

<i>Analysing the Quality of Experience of Multisensory Media from Measurements of Physiological Responses</i>	
Jacob Donley (University of Wollongong, Australia), Christian H Ritz (University of Wollongong, Australia), Muawiyath Shujau (University of Wollongong, Australia)	280
<i>Assessing the Validity of Subjective QoE Data through Rating Times and Self-Reported Confidence</i>	
Werner Robitzs (TU Berlin / Telekom Innovation Laboratories, Germany), Helmut Hlavacs (University of Vienna, Austria)	286
<i>Evaluating complex scales through subjective ranking</i>	
Pierre Lebreton (Deutsche Telekom Laboratories / Berlin University of Technology / University of Nantes & Deutsche Telekom, Germany), Alexander Raake (Deutsche Telekom Laboratories / Berlin University of Technology, Germany), Marcus Barkowsky (University of Nantes, France), Patrick Le Callet (Polytechnique Nantes, France)	292

Additional Paper:

<i>Assessing Game Experience: Heart Rate Variability, In-Game Behavior and Self-Report Measures</i>	
Elena Nunez Castellar, Kimmo Oksanen, Jan Van Looy.....	298