COST IC1005
THE DIGITAL CAPTURE, STORAGE, TRANSMISSION AND DISPLAY OF REAL-WORLD LIGHTING

December 2012

Newsletter 01

True Brightness – the HDR Experience

One of the main challenges when explaining HDR to a non-expert is the immediate confusion with HD. While we all know HDR = High Dynamic Range which relates to the amount of light in the scene and HD = High Definition which means the number of pixels in an image, the similarity of the two terms means that are very easily confused. COST Action IC1005 believes that this confusion is actually having a substantially negative effect on the promotion of HDR technology. IC1005 is thus now supporting the concept of **True Brightness** which is defined as the HDR experience. This term clearly differentiates HDR and also immediately conveys the significant benefits that HDR technology can bring about.

Christopher Moir, Chair of IC1005's Working Group 4 which is looking at the factors influencing the wide-spread uptake of HDR said:

"The term True Brightness really does help minimise the confusion – allowing us to focus on the benefits that True Brightness will bring about. Embracing this term across Europe through the COST Action, will go a long way in helping to mitigate the confusion between HDR and HD and thus allow us to make far more rapid progress on the adoption of HDR as THE mainstream imaging technology.

HDRi COST IC1005: The Digital Capture, Storage, Transmission and Display of Real-World Lighting

This COST Action (HDRi) assembles leading academic and industrial researchers and practitioners to propose a set of standards for the complete HDR pipeline and establish Europe firmly as the world leader in HDR. The initiative is also being supported by big industry players.

HDRi aims to focus in the HDR video production pipeline and its Working Groups are organized according to this fact: Capture, Manipulation, Delivery and Adoption of Standards & Uptake.

The specification and support of a standard for HDR video, as well as the provision of reference resources for developers and scientist are the main objectives of HDRi.

Training Schools and scientific dissemination are also within the scope of HDRi activity and provide an excellent environment for collaboration among student, researchers and industrial partners.

More than 20 countries are represented in the HDRi Cost Action.

http://www.ic1005-hdri.com/

Training School and Cost Action Meeting in Rennes

During the second week of October 2012, the training school and the MC meeting were celebrated in Rennes (France) hosted by INRIA. This meeting had a strong participation of the industry represented by Sharp, Dolby, Technicolor and Barco. Industrial and market views where shared with technical and scientific open issues around HDR video.

Technical achievements of different partners were shown (Fraunhofer IIS, Technicolor, goHDR among others)

The routes to the adoption of HDRi standards, the evaluation of the Short Term Scientific Missions completed in 2012 and the definition of white papers for each Working Group were also discussed during these sessions.

The training school gave the option to those who attend it to get introduced in the HDR principle and to know about the current state of the art in the different aspects related with the HDR production pipeline.

Next meeting will be celebrated in April 2013 in Porto.

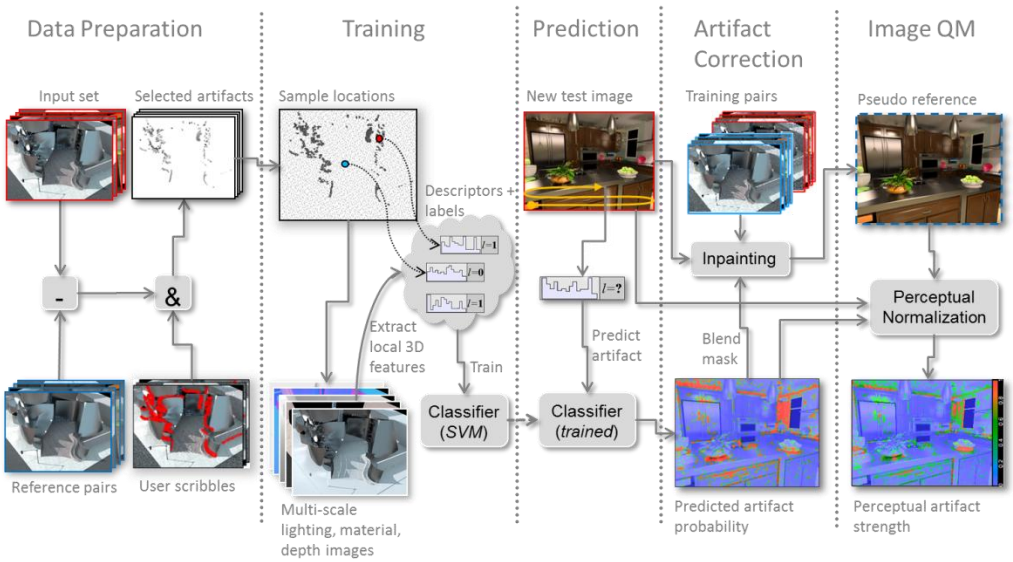
NoRM: No-Reference Image Quality Metric for Realistic Image Synthesis

Martin Čadík, mcadik@mpi-inf.mpg.de (EUROGRAPHICS 2012)

Synthetically generating images of complex 3D scenes using photo-realistic rendering software is prone to artifacts and requires expert knowledge to tune the parameters. The manual work required for detecting and preventing artifacts can be automated through image quality metrics. However, most practical quality metrics rely on a ground-truth reference, which is often not available in rendering applications.

While general purpose no-reference image quality assessment is a difficult problem the performance of the proposed no-reference metric (NoRM) matches the state-of-the-art metrics that require a reference. This level of predictive power is achieved exploiting information about the underlying synthetic scene (e.g., 3D surfaces, textures), and training the learning framework with typical rendering artifacts. The proposed metric successfully detects various non-trivial types of rendering artifacts.

http://www.mpi-inf.mpg.de/resources/hdr/norm/ .



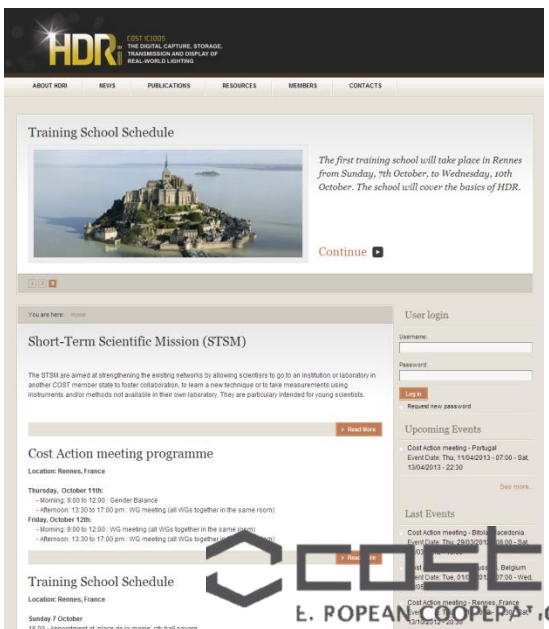
HDRi Web Page

http://www.ic1005-hdri.com/

Visit us in our web page where all the last news, resources and publications will be available.

We also have RSS feeds and a Twitter account to inform about the last activities within the Cost Action. General HDR related news and white papers will also be published in the web page.

More information can be obtained by contacting the Chair of the Action: Prof. Alan Chalmers

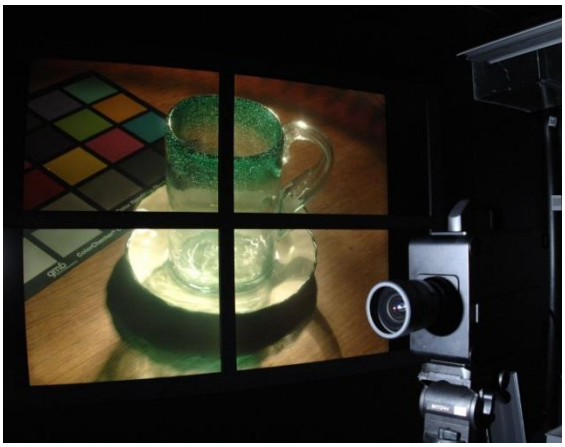


goHDR develops a 60 fps encoder

Researchers at goHDR working in partnership with the Visualisation Group at the University of Warwick have succeeded in achieving real-time encoding of High Dynamic Range (HDR) video. This means that full HDR video content can now be streamed directly to remote displays or storage from consumer HDR cameras, including mobile devices. Gaming will be transformed too, with HDR content being directly available for interactive online and cloud-based games.

The partners worked on goHDR's patented algorithm that is capable of compressing HDR frames by at least 150:1 with minimal perceptual loss of quality. By using OpenCL on a modern 16 core machine, they were able to achieve encoding rates of over 60 frames per second (fps) for 720p resolution and 30 fps for 1080p resolution HDR video footage. Professor Alan Chalmers, Professor of Visualisation at WMG, University of Warwick and Founder and Innovation Director of goHDR, said:

"Previously HDR video compression had to be done off-line. This meant the HDR video data from a camera had to be first stored on special high-speed disks, encoded and finally transmitted.



This could take many minutes, precluding any live broadcasts. Real-time encoding now opens up many more opportunities for people to experience HDR content directly."

http://www2.warwick.ac.uk/newsandevents/pressreleases/maths_helps_mobiles

Gender Imbalance activity

For the second time, as the introduction to COST Action IC1005's Management Committee meeting, an activity was held to address the gender imbalance currently being experienced in the field of High Dynamic Range and Computer Science in general. This time two inspiring female role models, Professor Celine Loscos and PhD student Jennifer Bonnard presented their personal motivations and professional research. Both role models came from The University of Reims Champagne-Ardenne, France.

Both role models addressed the assembled audience of 25 young females, 10 students from the university and 15 students from a local high school in their native language, French. Also in the audience were a number of the Action's Management Committee and visiting HDR experts. After very interesting presentations there was a lively discussion. The young females got some good ideas as to how rewarding a career can be in the field, and a number of new ideas were exchanged about how to continue to strive to address the gender imbalance in the future.

Both the organiser of the event Dr Jasminka Hasic Telalovic, and Professor Loscos will ensure an on-going dialogue with the participants. The next gender imbalance activity will introduce the IC1005's meeting in Oporto, Portugal in April 2013.

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