

2012 3DTV-Conference: The True Vision - Capture, Transmission and Display of 3D Video (3DTV-CON)

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3DTV-CONFERENCE 2012

The True Vision

Capture, Transmission and Display of 3D Video

ETH Zurich, October 15-17, 2012

The 3DTV Conference 2012 will be held on October 15-17 2012, at ETH Zurich, one of world's top ranked technical universities in one of world's most beautiful cities. The conference is organized by the Institute of Visual Computing of ETH.

Call for Papers

Capturing 3D scenery, processing the captured data for storage and transmission, and displaying the result for creating 3D visual sensation are the main functional components of a 3DTV system. The development of each of them is a challenging task and their seamless integration is even more challenging as the ultimate goal is to deliver full-scale, fascinating and very realistic 3D TV service to the consumers.

3DTV-CON 2012 is the 6th in a series of successful conferences having the objective to bring together researchers and developers from academia and industry with diverse experience and activity in distinct, yet complementary, areas to discuss the development of next generation 3DTV technologies, applications and services.

The conference involves a wide range of disciplines: imaging and computer graphics, signal processing, telecommunications, electronics, optics and physics. Professionals from these areas are cordially invited to participate at 3DTV-CON 2012. The conference will consist of tutorials, plenary talks, and special and regular sessions on the conference themes as listed below.

- **3D Capture and Processing:** 3D audio-visual scene capture and reconstruction techniques for static and dynamic scenes, synchronization and calibration of multiple cameras, holographic camera techniques, multi-view and multi-sensor image and 3D data processing, mixing of virtual and real worlds, 3D tracking.
- **3D Coding and Transmission:** Systems, architectures and transmission for 3DTV, coding of multi-view video, 3D meshes, and holograms, audio coding for 3DTV, error resilience and error concealment of 3D video and 3D geometry, signal processing for diffraction and holographic 3DTV.
- **3D Visualization:** Projection and display technology for 3D videos, stereoscopic and auto-stereoscopic display techniques, holographic display technology, reduced parallax systems, integral imaging techniques, underlying optics and VLSI technology, 3D mesh, texture, point, and volume-based representation, object-based representation and segmentation, 3D motion analysis and animation.
- **3D Quality of Experience:** Subjective quality evaluation, objective quality metrics, multimodal experience, interaction with 3D content.
- **3D Applications:** 3D television, cinema, games and entertainment, virtual studios, advanced 3D audio applications, 3D teleimmersion and remote collaboration, 3D imaging in virtual heritage and virtual archaeology, augmented reality and virtual environments, underlying technologies for 3DTV, medical and biomedical applications, 3D content-based retrieval and recognition, 3D watermarking, other applications.

Special Session 1: Telepresence

Real-Time Volumetric 3D Capture of Room-Sized Scenes for Telepresence

Andrew Maimone, Henry Fuchs

Preserving Gaze Direction in Teleconferencing Using a Camera Array and a Spherical Display

Ye Pan, Anthony Steed

Advances in Shader Lamps Avatars for Telepresence

Ryan Schubert, Greg Welch, Peter Lincoln, Arjun Nagendran, Remo Pillat, Henry Fuchs

A Design for a Mobile Robotic Avatar - Modular Framework

Gerald Seet, Wee Ching Pang, Burhan Burhan, Iastrebov Viatcheslav, William Gu, Choon Yue Wong

Towards Next Generation 3D Teleconferencing Systems

Claudia Kuster, Nico Ranieri, Agustina A, Henning Zimmer, Jean-Charles Bazin, Tiberiu Popa, Markus Gross

Localizing a Mobile Robot with Intrinsic Noise

Brian Allen, Flavien Picon, Sebastien Dalibard, Nadia Magnenat Thalmann, Daniel Thalmann

Special Session 2: MUSCADE

Generation of Multi-View Video Plus Depth Content Using Mixed Narrow and Wide Baseline Setup

Frederik Zilly, Christian Riechert, Marcus Müller, Peter Kauff

Parameterized Variety for Multi-View Multi-Exposure Image Synthesis and High Dynamic Range Stereo Reconstruction

Mansi Sharma, Santanu Chaudhury, Brejesh Lall

Depth Image Based Compositing for Stereo 3D

Lars Schnyder, Manuel Lang, Oliver Wang, Aljoscha Smolic

Multi-View Extension of HEVC Using Reduced Resolution Disparity Information for Inter-View Prediction Tools

Heribert Brust, Karsten Müller, Heiko Schwarz, Thomas Wiegand

3D Player for Evaluation of New 3D Techniques

Achim Freimann

Advanced Interpolation Filters for Depth Image Based Rendering

Christian Riechert, Frederik Zilly, Marcus Müller

Regular Track 1: Coding of Depth[+Video] Data

Smart 3D Video Coding

Srijib Maiti, Emiliano Piccinelli, Davide Aliprandi, Pasqualina Fragneto, Beatrice Rossi

A Scalable Coding Approach for High Quality Depth Image Compression

Yun Li, Mårten Sjöström, Ulf Jennehag, Roger Olsson

Model-based Intra Coding for Depth Maps in 3D Video Using a Depth Lookup Table

Fabian Jäger, Mathias Wien, Philipp Kosse

Depth Map Coding Based on an Optimal Hierarchical Region Representation

Marc Maceira, Josep Ramon Morros, Javier Ruiz-Hidalgo

Analysis of Pixel-Mapping Rounding on Geometric Distortion as a Prediction for View Synthesis Distortion

Pablo Carballeira, Julián Cabrera, Erhan Ekmekcioglu, Fernando Jaureguizar, Narciso García

Frame Loss Concealment for 3D Video Decoders Based on Disparity-Compensated Motion Field

João Carreira, Pedro Assunção, Nuno Rodrigues, Sérgio Faria

Poster Session 1: 3D Video Capture, Visualization, QoE and Applications

Feature Detection and Matching towards Augmented Reality Applications on Mobile Devices

Erhan Gundogdu, Aydin Alatan

Denosing Infrared Structured Light DIBR Signals Using 3D Morphological Operators

Simone Milani, Eliana Frigerio, Marco Marcon, Stefano Tubaro

Interactive Video Segmentation Supported by Multiple Modalities, with an Application for Depth Maps

Jeroen Van Baar, Paul Beardsley, Marc Pollefeys, Markus Gross

Visual Comfort Measurement for 2D/3D Converted Stereo Video Sequence

Ji-Hoon Choi, Jong-Ok Kim

Facial 3D Mesh Merging for Humanoid Reconstruction

Rafael Pagés, Francisco Morán

A Novel Interpolation Method for 3D View Synthesis

Vincenzo Paradiso, Maurizio Lucenteforte, Marco Grangetto

Transform Domain Similarity Measures in Stereo Matching

Olli Suominen, Atanas Gotchev, Miska Hannuksela

Global-Background Based View Synthesis Approach for Multi-View Video

Haixu Liu, Xueming Li, Kunbin Chen

Regular Track 2: Coding of Other 3D Video Formats

Efficient Stereo Video Encoding for Mobile Applications Using the 3D+F Codec

Fabio Maninchedda, Marc Pollefeys, Alain Fogel

Cross-Asymmetric Mixed-Resolution 3D Video Compression

Payman Aflaki, Miska Hannuksela, Maryam Homayouni, Moncef Gabbouj

R-D Optimized Auxiliary Information for Inpainting-Based View Synthesis

Ismael Daribo, Thomas Maugey, Gene Cheung, Pascal Frossard

Compression of Residual Layers of Layered Depth Video Using Hierarchical Block Truncation Coding

Krishna Rao Vijayanagar, Joohee Kim

Adaptive Arithmetic Coder for Point Cloud Compression

Ismael Daribo, Ryo Furukawa, Ryusuke Sagawa, Hiroshi Kawasaki

Optimizing Frame Structure with Real-time Computation for Interactive Multi-View Video Streaming

Yu Gao, Gene Cheung, Jie Liang, Andre Kaup

Special Session 3: 3D Content Analysis

User Assisted Stereo Image Segmentation

H. Emrah Tasli, Aydin Alatan

Scene Geometric Recognition From Monocular Image

Yixian Liu, Ebroul Izquierdo

Exploiting Disparity Information in Visual Object Tracking

Olga Zoidi, Nikos Nikolaidis, Ioannis Pitas

Enhancing 3D Face Recognition Using Soft Biometrics

Anastasios Drosou, Nikolaos Porfyriou, Dimitrios Tzovaras

3D Mesh Video Retrieval: A Survey

Antonios Danelakis, Theoharis Theoharis, Ioannis Pratikakis

Prediction of Visual Fatigue from Spatiotemporal Characteristics in Stereoscopic Video

Heeseok Oh, Sanghoon Lee

Regular Track 3: 3D Video Capture, Visualization and QoE

Reliability of 2D Quality Assessment Methods for Synthesized Views Evaluation in Stereoscopic Viewing Conditions

Emilie Bosc, Romuald Pepion, Patrick Le Callet, Muriel Pressigout, Luce Morin

PROMEDS: an Adaptive Robust Fundamental Matrix Estimation Approach

Alberto Irurueta, Josep Ramon Morros

Incremental Depth Upscaling Using an Edge Weighted Optimization Concept

Sebastian Schwarz, Mårten Sjöström, Roger Olsson

Hybrid View-Synthesizing Approach for Multi-View Applications

Iliya Koreshev, Mahsa Pourazad, Panos Nasiopoulos

Automatic Stereoscopic 3D Video Reframing

Lino Coria, Di Xu, Panos Nasiopoulos

Quality Assessment of a Stereo Pair Formed from Decoded and Synthesized Views Using Objective Metrics

Philippe Hanhart, Touradj Ebrahimi

Poster Session 2: 3D Video Coding and Transmission

A Hybrid Representation for Multi-View Images

Mehrdad Panahpour Tehrani, Akio Ishikawa, Masahiro Kawakita, Naomi Inoue, Toshiaki Fujii

Progressive Edge-Preserving Depth Maps Coding Based on Sparse Representation

Dorsaf Sebai, Faten Chaieb, Faouzi Ghorbel

Bit-Rate Allocation Between Texture and Depth: Influence of Data Sequence Characteristics

Emilie Bosc, Paul Riou, Muriel Pressigout, Luce Morin

Denoising of Volumetric Depth Confidence for View Rendering

Srinivas Parthasarathy, Emilie Baudin, Akul Chopra, Pravin Rana, Markus Flierl

The Use of Audio-Visual Description Profile in 3D Video Content Description

Nicholas Vretos, Nikos Nikolaidis, Ioannis Pitas

Evaluating Multi-View Plus Depth Coding Solutions for 3D Video Scenarios

Dhiraj Shah, João Ascenso, Catarina Brites, Fernando Pereira

Color Plus Depth 3-D Video Transmission with Hierarchical 16-QAM

Khalid Alajel, Wei Xiang

Regular Track 4: 3D Video Applications

Live Capture, Rectification, and Streaming of Stereoscopic Internet Video for Casual Users

Michael Bishop, Hyojin Kim, Viswanathan Swaminathan

Implementation and Optimization of Software Depth Estimation for ARM

Tse Kai Heng, Yuji Kawashima, Tatsuro Fujisawa, Makoto Oshikiri, Goki Yaskuda, Takahiro Tanaka, Kaoru Matsuoka, Yoshihiro Kikuchi

Automatically Optimizing Stereo Camera System Based on 3D Cinematography Principles

Kun-Lung Tseng, Wei-Jia Huang, An-Chun Luo, Wei-Hao Huang, Yin-Chun Yeh, Wen-Chao Chen

How Do Users Select Stereoscopic 3D Content?

Haiyue Yuan, Janko Calic, Ahmet Kondoz

Enhanced Light Efficiency for Slim Light-Strip Array Backlight on Autostereoscopic Display

Wei Ting Yen, Fu Hao Chen, Chao-Hsu Tsai

Direct 3D-Collaboration with Face2Face - Implementation Details and Application Concepts

Philipp Mock, Jörg Edelmann, Andreas Schilling, Wolfgang Strasser