



Stereoscopic Analyzer STAN

Perfect Stereo 3D Production in Real-time

The Stereoscopic Analyzer STAN is a system for production of perfect stereo 3D. STAN combines real-time image analysis with intelligent automated tools. An intuitive graphical user interface assists camera operators and production staff in shooting technically correct stereo for all 3D genres including live events.

Specifications

- Real-time correction of geometric and colorimetric distortions
- Visualization tool for evaluating stereo quality
- Adaptation of disparity range to captured scene with respect to available depth budget
- Automatic control of optimal interaxial distance
- Adaptation of convergence plane using horizontal image translation (HIT) in real-time for live broadcast



Hybrid 3D

The powerful Stereo 3D Production Workflow

A system based on Trifocal Depth Capture is providing a way towards reliable depth maps with only minimal additional effort on set compared to 2D. During post-production dense depth maps are estimated allowing rendering additional virtual views with an individual virtual camera baseline optimally adjusted for the planned screening scenario.

Specifications

- Workflow on-set similar to 2D due to fixed camera set-up
- All creative 3D decisions can be made during post
- No dependency on target screen size
- Flexible rendering of second view during post-production
- Future proofed for autostereoscopic displays
- After Effects plug-in suite for trifocal post-production available



Stereo-to-Multiview Conversion

AFX Suite for 3D autostereoscopic Content Creation

Glasses-free 3D using autostereoscopic displays is the next revolution in digital signage. Existing S3D content can now also be used for glasses-free screens. Fraunhofer HHI provides an easy-to-use Adobe After Effects plug-in solution for high-quality 3D content conversion from live-action stereo footage to multiview suitable for most glasses-free displays.

Specifications

- Fully automatic or manually guided stereo-to-multiview conversion
- Conveniently available as Adobe AFX plug-in suite
- Use of existing stereoscopic 3D content to drive autostereoscopic multiview displays
- Support of 3D Digital Signage without glasses
- Future proofed for new 3D multiview video formats
- Easy adjustment of depth parameters (IO, HIT, etc.) to achieve optimal 3D viewing comfort



Real-time Stereo-to-Multiview Conversion

IP core and FPGA Reference Implementation for Depth Estimation

Glasses-free 3D will be the future of 3D home entertainment. To display stereoscopic 3D content on multiview displays a 3D format conversion is required. Depth estimation – the heart of stereo-to-multiview conversion – is now available as a pure hardwired IP core suited for FPGA and ASIC implementation. For evaluation purposes a reference FPGA implementation is available.

Specifications

- Hardware IP Core available
- Pure hardwired implementation, no processor core needed
- Suited for various FPGA architectures and ASIC technologies
- HD/UltraHD real-time capable FPGA reference implementation on state of the art FPGAs featuring HDMI video I/O
- Low latency processing (3 frames)
- Power efficient low system clock requirements
- Available as VHDL or technology specific IP core including C-reference models and test benches for verification

The Fraunhofer HHI Team – Competence for 3D Content Creation

The Fraunhofer Heinrich Hertz Institute research groups „Immersive Media & 3D-Video“ and „Embedded Systems“ are the one-stop address for 3D content creation. Algorithms, software and hardware to process multiple video streams are combined to develop new solutions for 2D, 3D and beyond.

- Setup, calibration and capture of multi-view video systems
- Real-time 2D and 3D video analysis and depth estimation
- Rendering of content for stereo, autostereo and immersive multi-projection systems
- Co-design of hardware, software and the overall system architecture
- Architecture approaches are addressed from hardware accelerated coprocessors up to many-core platforms

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**Depth Based
3D Production
Technologies**