

Perfect Stereo 3D in Real-Time

Stereoscopic Analyzer (STAN) –
a system for the production
of stereo 3D



The Stereoscopic Analyzer STAN is a system for the production of perfect stereo 3D. Developed by the Fraunhofer Heinrich Hertz Institute, Berlin, in cooperation with KUK Film Production, Munich, STAN's combination of hardware and software captures and analyses stereo pictures, enabling them to be processed in real-time. STAN combines real-time image analysis with intelligent automated tools and intuitive graphical user interfaces to assist camera operators and production staff in shooting the right stereo content for 3D post-production and 3D live events.

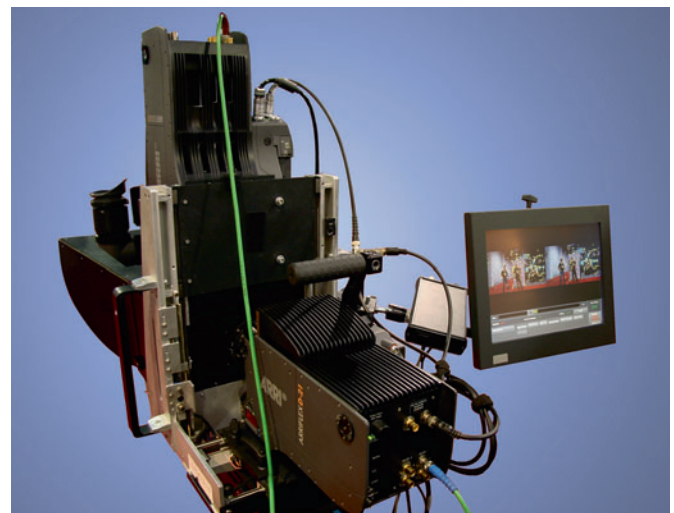
Challenges

Shooting quality film material or live shots in 3D is a huge challenge because many parameters like the stereo baseline, color, geometry or camera distance from the object change from scene to scene. STAN supports camera operators and production staff in setting the decisive stereo parameters.

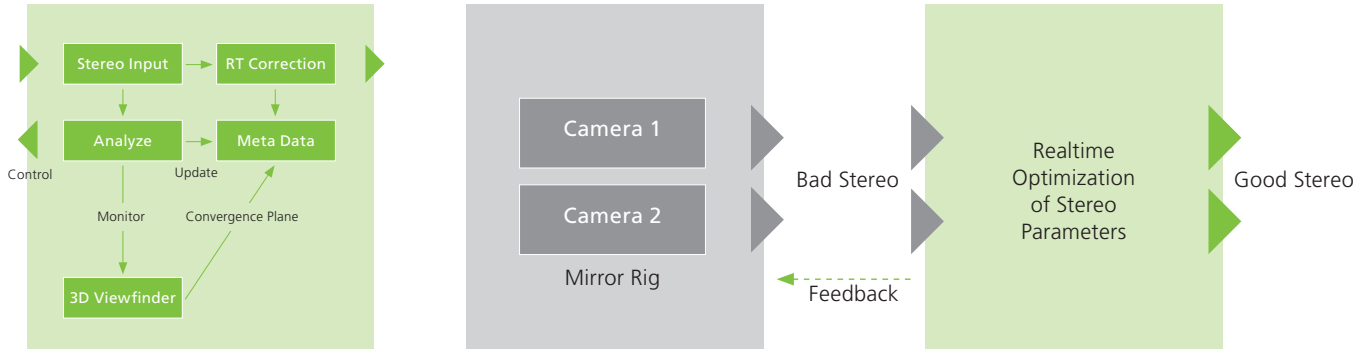
Technical Background

STAN captures and analyses stereo images in real-time. Corresponding feature points in the scene are matched automatically to determine the given disparity range, and to compute stereo calibration data. Using actuators, the stereo baseline and other mechanical parameters of the stereo rig can be adjusted automatically so that the specified disparity range is not exceeded and the stereo images are almost rectified. Furthermore, residual distortions in color and stereo

geometry can be corrected using real-time color matching and rectification. STAN uses a touch screen for intuitive user interaction. Various viewing tools like crop/opacity overlay, side-by-side, checkerboard or anaglyphic stereo can be selected to analyze the stereo quality while other tools like RGB parade, signal waveforms or color histograms assist control of color quality. Real-time estimation of dense pixel-by-pixel disparity maps can be used to visualize the depth structure of the scene. Basic stereo parameters like convergence planes can be adjusted manually and the results watched simultaneously on the screen. Related shift-crop-scale processing is done on-the-fly.



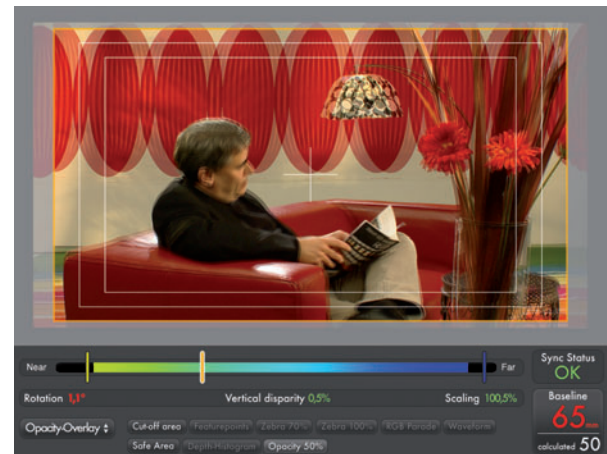
STAN attached to a mirror rig with two ARRI FLEX D-21



The STAN makes your stereo production workflow easy and robust

Benefits

- Automatic control of optimal stereo-baseline (interaxial distance)
- Adaptation of disparity range to captured scene
- Real-time correction of geo and colorimetric distortions
- No keystones, color mismatches and vertical disparities
- Delivery of operative metadata for 3D post-production
- On-site calculation of scene depth
- Visualization tool for evaluating stereo quality
- Avoidance of eyestrain, headache and visual fatigue



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