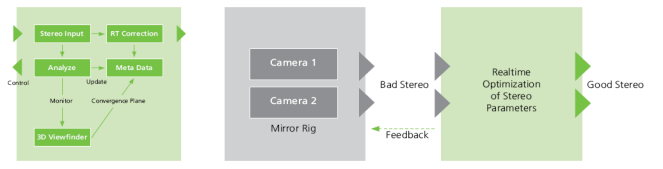
# Real-time Analysis and Correction of Stereoscopic HDTV Sequences

**Frederik Zilly, Peter Eisert, Peter Kauff**
**Fraunhofer Institute for Telecommunications, Berlin, Germany**

## Challenge and Scenario

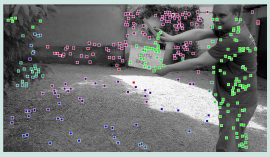
- Choosing inter-axial distance
- Camera alignment avoiding vertical disparities
- Match Colour Temperatures




## Approach

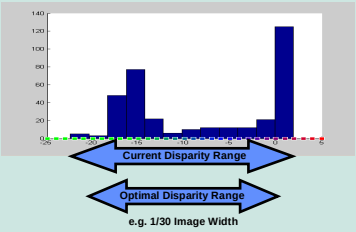
- Detect Point correspondences using Feature Detector
- Estimate Fundamental Matrix F
- Apply epipolar constraint and calculate extrinsic parameters
- Calculate rectifying homographies

## Scene Depth Analysis



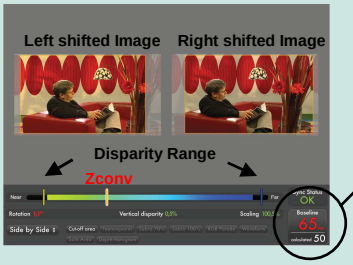
Scene Points

Disparity Histogram




e.g. 1/30 Image Width

Visualization





Motor control

Current Baseline

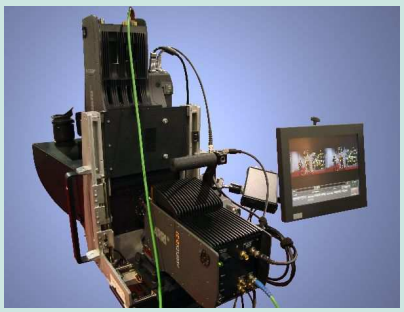
Optimal Baseline

$$B_{opt} = B_{curr} \frac{D_{opt}}{D_{curr}}$$

Baseline Calculation

## STAN in action

- Automatic control of optimal stereo baseline
- Adaptation of disparity range to captured scene
- Real-time correction of geo- and colorimetric distortions
- No keystone, colour 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 eye-strain, headache and visual fatigue



STAN with two ARRI D-21 cameras

## Acknowledgements

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KUK FILMPRODUKTION

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