A METHODOLOGY FOR VISUALLY LOSSLESS JPEG2000 COMPRESSION OF MONOCHROME STEREO IMAGES

ABSTRACT

A methodology for visually lossless compression of monochrome stereoscopic 3D images is proposed. Visibility thresholds are measured for quantization distortion in JPEG2000. These thresholds are found to be functions of not only spatial frequency, but also of wavelet coefficient variance, as well as the gray level in both the left and right images. To avoid a daunting number of measurements during subjective experiments, a model for visibility thresholds is developed. The left image and right image of a stereo pair are then compressed jointly using the visibility thresholds obtained from the proposed model to ensure that quantization errors in each image are imperceptible to both eyes. This methodology is then demonstrated via a particular 3D stereoscopic display system with an associated viewing condition. The resulting images are visually lossless when displayed individually as 2D images, and also when displayed in stereoscopic 3D mode.

EXISTING SYSTEM

3D imaging has been applied in diverse fields such as aerial stereo photography, stereoscopic surgery, and digital cinema. Accordingly, it has received considerable attention over the last few decades.

DRAWBACK OF EXISTING SYSTEM

- Polarized glasses enable only the correct image to pass through to each eye. For active display technologies, active shutter glasses are synchronized to the display.
The left and right lenses of these glasses switch to an ON state and a DARK state alternately to allow only the correct signals to be passed through to each eye.

Since two 2D images together form a stereoscopic 3D pair, the amount of data for an uncompressed stereo image is doubled compared to that for an uncompressed 2D image.

**PROPOSED SYSTEM**

In proposed system, a system which employs active shutter glasses, based on liquid crystal technology. Since two 2D images together form a stereoscopic 3D pair, the amount of data for an uncompressed stereo image is doubled compared to that for an uncompressed 2D image. Thus efficient compression techniques are of paramount importance. In proposed system considers visually lossless compression of stereoscopic 3D images.

**ADVANTAGE OF PROPOSED SYSTEM**

- Images of a stereoscopic visually lossless manner to compress the left and right.
- Images of a stereo pair independently.
- Easily identify significant differences between the original and compressed.
- Stereo pairs when viewed side-by-side in 3D mode.
- Visually lossless.
- Compression of stereoscopic 3D images.
SYSTEM SPECIFICATION

Hardware Requirements

- System: Pentium IV 2.4 GHz
- Hard Disk: 40 GB
- Floppy Drive: 1.44 Mb
- Monitor: 15 VGA Colour
- Mouse: Logitech
- Ram: 512 Mb

Software Requirements

- Operating system: Windows XP
- Technology Used: Microsoft .NET
- Backend Used: SQL Server