Case ID:M04-056P

Published: 1/25/2011

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JPEG2000 Encoding with Perceptual Distortion Control

Many different graphic file formats are used for storing graphics: JPEG, TIF, GIF, etc. Highly desirable characteristic for all still digital image compression formats are quality and compression size. JPEG 2000 was developed as an open, ISO compliant technology that improved upon the JPEG file format. With the increased use in digital imaging technology there has been a need to improve digital image compression formats.

Researchers at Arizona State University and NASA have developed a new encoding algorithm that enables image quality controls for JPEG 2000 encoding. The approach works with the JPEG2000 baseline or any wavelet based compression encoding to reach a desired perceptual quality. This method not only allows for a smoother image but it allows for generation of consistent quality images at a lower bit rate than traditional JPEG2000 encoding.

Potential Applications

Markets that include digital compression formats are growing rapidly. The industry is constantly searching for ways to improve still image compression to accommodate the many applications which make use of digital imaging. The following applications need high end image compression formats with functionality including perceptual distortion control:

- Medical Imaging Devices
- High end digital Scanners
- Document Imaging Devices

Benefits and Advantages

- Image Quality ? overall Image quality is improved
- Compression ? improved coding time
- Visual Test ? users found image to be of higher quality