

Handheld Devices 3D Video Streaming Compression Algorithm



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PROPOSED EXECUTIVE SUMMARY

The field of three-dimensional display (3D) has become one of the fascinating research areas as the race of offering an improved viewing experience among broadcasters has increased in recent years. In the entertainment perspective, 3D viewing experience helps to significantly enhance the quality of television programs [1]. Obviously, among the main benefits of 3D features on televisions or other services include the ability to provide greater sense of depth [2, 3], enhance the perfection of sharpness [4], sense of presence [3] and naturalness [4]. All these characteristics are also important especially in telemedical system in which real-time emergency video transmission and recording are sometimes required [5].

A 3D viewing is achievable through various methods. Authors in [6] summarize three major approaches with the simplest are two-view systems which at any instant reproduce just two views, one for the left eye and one for the right eye. Next, a more advanced approach is the horizontal-parallax displays which produce multiple horizontal parallax views of scene, also known as a parallax panoramagram. Besides, the most complete display type consists of those that utilize full-parallax features which offer variations in the images seen by the viewer with both horizontal and vertical head movements.

Just like any digital video, 3D video sequences must be compressed in order to make it suitable for consumer domain applications [7]. However, regular compression methods implemented in modern video coding model such as H.264, MPEG-4 and MPEG-2 are not proficient in constructing sufficient compression while preserving the 3D clues. Luckily, an enormous amount of redundancies can be found in an integral video sequence in terms of motion and disparity. In recent years, a Three Dimensional Discrete Cosine Transform (3D-DCT) coding algorithm has been developed for compression of still 3D integral images [8-10]. The main benefit of using transform coding is that integral 3D images are inherently divided into small non-overlapping

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