ABSTRACT

In this paper, we will discuss about the High-Dynamic-Range Imaging technique that produce the image with proper illumination and also a tone mapping technique suitable for it. In contrast to traditional method which work in RGB color space our proposed Luminance Chrominance Gradient High-Dynamic-Range imaging method works in YUV (luminance-chrominance) space. The main motive to use YUV space is to get more efficient and also to avoid color-distortion generating from three different color channels. We introduced a camera responsive function for luminance channel so that we can find out the HDR luminance map. On the other hand, for chrominance channels we introduced weighting function in relation with saturation level. Our technique produces more natural tone-mapped images with more information.

Once the luminance, chrominance and gradient values are extracted from the image and merged into a HDR image using LCGHDR technique, based on logarithmic of luminance value and a scaling factor, a tone mapping technique should be applied to approximates the appearance of HDR image on general LDR (low dynamic range) displays like general CRT, LCD monitors and devices. In local tone mapping there is a detail loss, artifact and higher computation time in existing tone mapping techniques. To increase the image quality and to increase the performance of tone mapping is the main idea of the research. Improved Bitonic Tone Mapping (IBTM) is a new technique proposed for efficient tone mapping. In this method edges have high weights than flat surfaces and a weight factor is added to bitonic filter. When compared to different tone mapping algorithms like Reinhard, Drago, Exposure and Gamma, Local adoption etc., it can be proved that from the proposed technique we can

1. preserve the quality of image.
2. reduce time taken to generate a quality HDR image.

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