

HDR TEXTURE MAPPING IN REAL TIME USING THE LATEST NVIDIA GRAPHICS CARD - GEFORCE - 9800 GT

UTPAL MISTRY AND UPENA DALAL

Abstract

In this paper we are discussing the issue of real time texture mapping using the latest graphics hardware from Nvidia graphics card **9800 GT** released in year **2010**. We present a novel yet faster technique of representing **HDRTM** (High Dynamic Range Texture Mapping). In the real world dynamic range is so far exceeded that the range is represent-able in 8-bit per-channel texture maps. The High-Dynamic Range provides features like improved reliability and articulateness for interactive visualization of image-based models. In this technique which we are using in this paper is allowed for real time rendering of scenes [1] with arbitrary dynamic range, limited only by available texture memory of the Nvidia Graphics card. In our technique, high-dynamic range textures are decomposed into sets of 8-bit textures. To reassemble these 8-bit textures we use this graphics hardware and its GPUs, programmable multi texturing system or use multi pass technique and frame buffer image processing. The exposure level of the texture to be adjusted continuously and arbitrarily at the time of rendering[1], correctly accounting for the gamma curve and dynamic range restrictions of the display device all this function are done properly using the feature of graphics support. Further, for any given exposure only two 8-bit textures must be resident in texture memory simultaneously. We demonstrate several applications, including high-dynamic range panoramic viewing with simulated auto-exposure, real-time radiance environment mapping in a microscopic imaging, and simulated Fresnel reflection.

Keywords : High Dynamic Range Texture Mapping , Nvidia Graphics card GEFORCE 9800 GT, HDR Rendering , Multi Exposure Image processing , High Dynamic range Panorama, microscopic HDR Image processing,