PROGRESSIVE VIEW−DEPENDENT TRANSMISSION OF 3D MODELS OVER LOSSY NETWORKS (ThuAmOR12)

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Abstract :

In this paper, we present an interactive view−dependent technique for streaming progressively encoded 3D models over lossy networks. The 3D model data is represented and encoded with progressive octree particles. TCP/IP protocol assures reliable transmission but does not well suit to real−time interactive graphics streaming over lossy networks with limited bandwidth. Though being unreliable, UDP provides faster transmission. Thus we adapt a hybrid dynamic transmission scheme which uses TCP only to transmit some minimal information needed for the basic shape structure and which transmits the appearance attributes of visible surface points with UDP. A significant reduction in the amount of data transmitted to realize a possible interactive client−server scenario is achieved for graphics streaming over a lossy network with almost no noticeable degradation in the visual quality. This is thanks to the view−dependency and loss recovery support of the proposed technique. Simulation results demonstrate the efficiency of the interactive streaming technique and the visual quality achieved.

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