Depth-enhanced Maximum Intensity Projection

Diaz, Jose; Vazquez, Pere-Pau

The two most common methods for the visualization of volumetric data are Direct Volume Rendering (DVR) and Maximum Intensity Projection (MIP). Direct Volume Rendering is superior to MIP in providing a larger amount of properly shaded details, because it employs a more complex shading model together with the use of user-defined transfer functions. However, the generation of adequate transfer functions is a laborious and time costly task, even for expert users. As a consequence, medical doctors often use MIP because it does not require the definition of complex transfer functions and because it gives good results on contrasted images. Unfortunately, MIP does not allow to perceive depth ordering and therefore spatial context is lost. In this paper we present a new approach to MIP rendering that uses depth and simple color blending to disambiguate the ordering of internal structures, while maintaining most of the details visible through MIP. It is usually faster than DVR and only requires the transfer function used by MIP rendering.

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