

Interactive Display of Isosurfaces with Global Illumination

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Abstract

In many applications, volumetric datasets are examined by displaying *isosurfaces*, surfaces where the data, or some function of the data, takes on a given value. Interactive applications typically use local lighting models to render such surfaces. This work introduces a method to precompute or lazily compute global illumination to improve interactive isosurface renderings. The precomputed illumination resides in a separate volume and includes direct light, shadows, and interreflections. Using this volume, interactive globally illuminated renderings of isosurfaces become feasible while still allowing dynamic manipulation of viewpoint and isovalue.