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IEEE Recommended Practice for Three-Dimensional (3D) Medical Modeling

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IEEE Std 3333.2.1™-2015

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Abstract: The generation and practical use of medical three-dimensional (3D) modeling for diagnostics and therapeutic applications is described in this standard. Volume rendering and surface rendering techniques for 3D reconstruction from two-dimensional (2D) medical images and a texturing method of 3D medical data for realistic visualization are included.

Keywords: IEEE 3333.2.1™, material properties, medical 3D decimation, medical 3D format, medical 3D reconstruction, medical 3D segmentation, standard for medical 3D, texture mapping.

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At the time this IEEE recommended practice was completed, the 3D Based Medical Applications Working Group had the following membership:

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Introduction

This introduction is not part of IEEE Std 3333.2.1™-2015, IEEE Recommended Practice for Three-Dimensional (3D) Medical Modeling.

Medical images from hospitals consist of a 2D dataset and provide human body information as a slice. The human body has morphological structures in 3D space. To recognize real human organs, the body should be reconstructed using 2D slices to obtain its precise position and shape. In real clinical situations, doctors expend a great deal of time and effort to learn this reconstruction process. With medical 3D data, we will obtain more information about the human body, as well as more objective data from the simulation, which may contribute to more successful treatment and surgery plans.

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