Combination of Interior and Exterior Shape Descriptors for 3D Model Retrieval

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Abstract

In this paper, a 3D model retrieval system will be proposed based on the combination of interior and exterior 3D shape information. The shell grid descriptor (SGD) and 3D Angular Radial Transformation (3D-ART) are used for extracting the interior shape information. Two projection descriptors, ART-based elevation descriptor (AED) and principal plane descriptor (PPD) are adopted as the 3D exterior features. Finally, the two interior features, SGD and 3D-ART, as well as two exterior features, AED and PPD, are combined in an attempt to improve retrieval result. Experimental results show that the proposed method is superior to other descriptors.

Keyword：3D model retrieval, 3D Angular Radial Transformation, shell grid descriptor, ART-based elevation descriptor, principal plane descriptor