

三維多邊形物件的修補方法

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摘 要

三維幾何物件常用的表示法是網格表示法。然而由於原始設計網格結構的問題，許多現存演算法在處理網格結構的時候，會面臨到許多困難。在這方面的研究中，我們使用切割演算法來移除拓撲奇異性，並且套用三角化演算法來產生一個修補平面填補破洞。同時我們發現三角化演算法會產生新的拓撲問題。因此，我們提出新的方法去解決上述的問題。實驗結果已經展現所以出的方法的確可以移除潛在的拓撲問題。


Fixing 3D Polygonal Models

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ABSTRACT

The logo of National Chiao Tung University is a circular emblem. It features a gear-like outer border. Inside the circle, there is a stylized representation of a building or a bridge structure. At the bottom of the emblem, the year '1896' is inscribed.

Mesh representation is a common choice for representing 3-D geometric models. However, due to the original design problems of mesh structure, many existing algorithms devised for creating mesh structures are facing challenges when processing these mesh models. In this work, we make use of cutting algorithm to remove topological singularities and then apply triangulation algorithm to generate patches to fill the holes. We find the existing cutting algorithms fused with a hole-filling algorithm with generate new topological problems. Therefore, we propose a new method to solve the above mentioned problem. Experiment results have shown that the proposed solution is indeed valid in removing potential topological problems.