

学术探讨

曲线插值约束的LOOP细分曲面

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收稿日期 修回日期 网络版发布日期 2007-10-29 接受日期

摘要 提出基于Loop细分方法的曲线插值方法,不需要修改细分规则,只需以插值曲线的控制多边形为中心多边形,向其两侧构造对称三角网格带,该对称三角网格带将收敛于插值曲线。因此,包含有该三角网格带的多面体网格的极限曲面将经过插值曲线。若要插值多条相交曲线只需在交点处构造全对称三角网格。运用该方法可在三角网格生成的细分曲面中插值多达六条的相交曲线。

关键词 [曲线插值](#) [细分曲面](#) [Loop细分](#)

分类号

Loop subdivision surfaces with curve interpolation constraints

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Abstract

We propose a method that needn't modify subdivision rules for using symmetric strip-shaped mesh to generate Loop subdivision surfaces with curve interpolation constraints.The symmetric strip-shaped mesh is constructed by designing symmetric triangles for both sides of the control polygon of interpolated curve.This control polygon is referred as central polygon.We can prove that the symmetric strip-shaped mesh can converge to the interpolated curve.So the limited surface of the given mesh with the symmetric strip-shaped mesh will contain interpolated curve.If the interpolated curves intersect at point v,we can design a full symmetric triangle mesh at point v.The method proposed in this paper will interpolate intersecting curves in the given mesh.The numbers of intersecting curves are up to six.

Key words [curve interpolation constrains](#) [subdivision surfaces](#) [Loop subdivision](#)

DOI:

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