

研究、探讨

函数分段有理三次Bézier插值

何振华^{1,2}, 梁锡坤¹

1.杭州师范大学 信息科学与工程学院, 杭州 310018

2.杭州广播电视大学 信息电子系, 杭州 310012

收稿日期 2008-3-26 修回日期 2008-6-16 网络版发布日期 2009-6-9 接受日期

摘要 根据函数的几何性质, 对函数进行适当分段。定义了函数的分段三角形凸包, 提出了一种控制顶点和权因子的确定方案。详细地讨论了函数的分段有理三次Bézier插值算法, 定义了一种便于计算的新型误差。插值函数保持了原始函数的重要几何性质, 如单调性、凹凸性、 G^1 连续性。最后以数值实验结果表明了算法的有效性和可行性, 该算法提供了函数近似表示的一条有效途径。

关键词 [函数分段](#) [有理三次Bézier插值](#) [控制顶点](#) [权因子](#) [误差](#)

分类号

Segment rational cubic Bézier interpolation to functions

HE Zhen-hua^{1,2}, LIANG Xi-kun¹

1.School of Information and Engineering, Hangzhou Normal University, Hangzhou 310018, China

2.Department of Information and Electricity, Hangzhou Radio & TV University, Hangzhou 310012, China

Abstract

Based on the geometric features of functions, the proper segmentation of function is given, and then the meaning of the triangle convex hull of function segments is given. A scheme of control points and weights determination is provided. The algorithm of segment rational cubic Bézier interpolation of non-linear functions is discussed in details, a new kind of error is defined so as to simplify the computation. The interpolation keeps many important geometric features of the original function such as convexity, monotonicity and G^1 continuity. The feasibility and validity of the algorithm is demonstrated by the numerical experiment. The algorithm provides an efficient approach to approximate parameterization of functions.

Key words [segment of functions](#) [rational cubic Bézier interpolation](#) [control point](#) [weights](#) [error](#)

DOI: 10.3778/j.issn.1002-8331.2009.17.016

通讯作者 何振华 hezhenh1981@163.com

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