Algorithms for Shape Preserving Local Approximation with Automatic Selection of Tension Parameters

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Abstract

This paper describes the problem of shape preserving approximation for data with specified tolerances. Using the tool of generalized B-splines (GB-splines for short), simple one- and three-point algorithms of shape preserving local approximation with automatic choice of the tension parameters are developed. In the two-dimensional case, tensor products of one-dimensional splines are employed. The results of numerical calculations are given.

Keywords: Interval data; GB-splines; Shape preserving local approximation; Automatic selection of tension parameters; Tensor product surfaces.

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