



Edelstein \mathcal{A} - \mathbb{R}^2 -Valued Fractal Function-Approximation, Positivity and Minkowski Dimension

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Abstract

The construction of an Edelstein \mathcal{A} - \mathbb{R}^2 -valued fractal function is proposed in this work. It is demonstrated that any continuous \mathbb{R}^2 -valued function can be approximated using an Edelstein \mathcal{A} - \mathbb{R}^2 -valued fractal function through the appropriate selection of parameters. Conditions ensuring the preservation of positivity of the underlying function are established, and a bound for the upper Minkowski dimension of the resulting Edelstein \mathcal{A} - \mathbb{R}^2 -valued fractal function is obtained.

Keywords: Edelstein contraction, fractal interpolation function, approximation, iterated function systems, upper Minkowski dimension, \mathbb{R}^2 -valued fractal functions.