

Modified Bernstein operator and new generalizations of Bézier curves

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Bernstein polynomials and Bézier curves play an important role in Computer Aided Geometric Design. Several generalizations of Bézier curves have been introduced in recent years. Aside from the natural generalizations represented by rational Bézier and B-spline curves, further generalizations have been investigated: among these, Polya polynomials [1, 2], q -Bézier curves [4], Bézier curves based on umbral calculus [5].

In this work we propose further results about generalized Bernstein operator which guarantees the second-order approximation property [3]. Specifically, a wider class of second-order operators is introduced, depending on a real parameter h .

Moreover we define and study a novel generalization of Bézier curves, based on such a new approach, showing numerical and graphical results.

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References

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