

Describing Polynomial Curves

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Abstract

Bezier curves make up the basis for many geometric models. This simple recursive interpolation model for a smooth curves has many useful properties. Geometric modelers use it extensively because by the manipulation of a few control points a curve or surface could represent complex yet smooth shapes. Originally developed for the auto industry, now in many graphic drawing programs the way to draw curves is exactly or based on the Bezier curve.

I will discuss the simple beauty of Bezier curves and some elegant extensions to more complex models. We will compare them to curves from Lagrange interpolation and formally define a way in which they are superior. As time permits I will illustrate and prove beautiful properties of Bezier curves and show the marvelous technique of blossoming.