

On-Line Geometric Modeling Notes

BÉZIER PATCHES

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Overview

The representation of a surface that is most frequently used in computer graphics, was independently discovered by Pierre Bézier (pronounced Bez-ye), who was an engineer for Renault and Paul de Casteljau, who was an engineer for Citroën, both working for automobile companies in France. These engineers initially developed a curve representation scheme that is geometrical in construction, and based upon polynomial functions. They extended it to a surface patch methodology that has become the defacto standard for surface generation in computer graphics.

If you are a novice to this field it is suggested that you review the notes on Bézier Curves first, as the equations are easier to understand. Also the fundamental mathematical work on Bernstein Polynomials will be useful.

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- Definition and properties of the Bézier patch
 - Viewing the Bézier patch as a continuous set of Bézier curves.
 - Subdividing the Bézier patch.
 - A matrix formulation of the cubic Bézier patch , including subdivision methods by matrix multiplication .
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