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The Weierstrass Approximation Theorem; 6.10 Formulas for Bernstein Polynomials; 6.11 Implementation; 6.12 Problems; Chapter 7. Polynomial Curve Constructions; 7.1 Aitken's Algorithm; 7.2 Lagrange Polynomials; 7.3 The Vandermonde Approach; 7.4 Limits of Lagrange Interpolation; 7.5 Cubic Hermite Interpolation; 7.6 Quintic Hermite Interpolation; 7.7 Point-Normal Interpolation; 7.8 Least Squares Approximation; 7.9 Smoothing Equations; 7.10 Designing with Bezier Curves; 7.11 The Newton Form and Forward Differencing; 7.12 Implementation; 7.13 Problems; Chapter 8. B-Spline Curves; 8.1 Motivation; 8.2 B-Spline Segments; 8.3 B-Spline Curves; 8.4 Knot Insertion; 8.5 Degree Elevation; 8.6 Greville Abscissae; 8.7 Smoothness; 8.8 B-Splines; 8.9 B-Spline Basics; 8.10 Implementation; 8.11 Problems; Chapter 9. Constructing Spline Curves; 9.1 Greville Interpolation; 9.2 Least Squares Approximation; 9.3 Modifying B-Spline Curves; 9.4 C2 Cubic Spline Interpolation; 9.5 More End Conditions; 9.6 Finding a Knot Sequence; 9.7 The Minimum Property; 9.8 C1 Piecewise Cubic Interpolation; 9.9 Implementation; 9.10 Problems; Chapter 10. W. Boehm: Differential Geometry I; 10.1 Parametric Curves and Arc Length; 10.2 The Frenet Frame; 10.3 Moving the Frame; 10.4 The Osculating Circle; 10.5 Nonparametric Curves; 10.6 Composite Curves; Chapter 11. Geometric Continuity; 11.1 Motivation; 11.2 The Direct Formulation; 11.3 The \mathcal{C}^1 and \mathcal{C}^2 Formulations; 11.4 C2 Cubic Splines; 11.5 Interpolating C2 Cubic Splines; 11.6 Higher-Order Geometric Continuity; 11.7 Implementation; 11.8 Problems; Chapter 12. Conic Sections; 12.1 Projective Maps of the Real Line; 12.2 Conics as Rational Quadratics; 12.3 A de Casteljau Algorithm; 12.4 Derivatives

Sommario/riassunto

This fifth edition has been fully updated to cover the many advances made in CAGD and curve and surface theory since 1997, when the fourth edition appeared. Material has been restructured into theory and applications chapters. The theory material has been streamlined using the blossoming approach; the applications material includes least squares techniques in addition to the traditional interpolation methods. In all other respects, it is, thankfully, the same. This means you get the informal, friendly style and unique approach that has made *Curves and Surfaces for CAGD: A Practical G*
