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2.1.7. Description of transformations in the display pipeline; Object space to world space transformation; World space to eye space transformation; Perspective matrix multiply; Perspective divide Image to screen space mapping 2.1.8. Error considerations; Accumulated round-off error; Orthonormalization; Considerations of scale; 2.2. Orientation representation; 2.2.1. Fixed-angle representation; 2.2.2. Euler angle representation; 2.2.3. Angle and axis representation; 2.2.4. Quaternion representation; Basic quaternion math; Representing rotations using quaternions; Rotating vectors using quaternions; 2.2.5. Exponential map representation; 2.3. Summary; References; Chapter 3: Interpolating Values; 3.1. Interpolation; 3.1.1. The appropriate function; Interpolation versus approximation Complexity Continuity; Global versus local control; 3.1.2. Summary; 3.2. Controlling the motion of a point along a curve; 3.2.1. Computing arc length; The analytic approach to computing arc length; Estimating arc length by forward differencing; Adaptive approach; Estimating the arc length integral numerically; Adaptive Gaussian integration; Find a point that is a given distance along a curve; 3.2.2. Speed control; 3.2.3. Ease-in/ease-out; Sine interpolation; Using sinusoidal pieces for acceleration and deceleration; Single cubic polynomial ease-in/ease-out...
Constant acceleration: parabolic ease-in/ease-out

Sommario/riassunto

Driven by demand from the entertainment industry for better and more realistic animation, technology continues to evolve and improve. The algorithms and techniques behind this technology are the foundation of this comprehensive book, which is written to teach you the fundamentals of animation programming. In this third edition, the most current techniques are covered along with the theory and high-level computation that have earned the book a reputation as the best technically-oriented animation resource. Key topics such as fluids, hair, and crowd animation have been expanded, and...