Summary of: Interactive Skeleton Techniques for Enhancing Motion Dynamics in Key Frame Animation

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Uses a “stick figure” like skeleton with an image mapped onto it

Allows the animator improved control over motion dynamics in key frame animation

Increases fluidity of animation while decreasing the time spent drawing key frames
- Each frame is individually drawn
- 1 to 1 matching between strokes in adjacent frames
- Limited time control through tapers
- No spatial motion control
Rotational Control and Motion Paths
- Limited application and complexity
- Discontinuities at key frames

Skeleton Only Morphing
- High distortion
- Discontinuities at key frames

Skeleton Technique With Key Frames
- Complex motion with less work
- No discontinuities
• Image is mapped to a polygonal mesh
• Lines in image remain continuous under distortion
• Central “bone” line is manipulated while the surrounding polygons cling to it
One key frame image (a) is mapped to a skeleton (b) and another image (c) to its skeleton (d).

The line along the origin of the W axis is the bone, the line that is manipulated throughout the animation.
a) Starting and ending frames
b) Interpolated skeletal position
c) Interpolated skeletal positions after frame 5 is modified
d) Skeletal positions after frame 9 is modified
e) Preview with boundaries
f) Final linearly interpolated skeletons

g, h) Skeleton frames with curve smoothing

i) Resulting images using the second starting key frame

j) Resulting images using the first starting key frame
The combination of animation with interpolated skeletons and traditional key frames results in output images with no discontinuities and smooth motion control.