

North East SolidWorks User Conference

Motion Manager Basics

Matt Graves

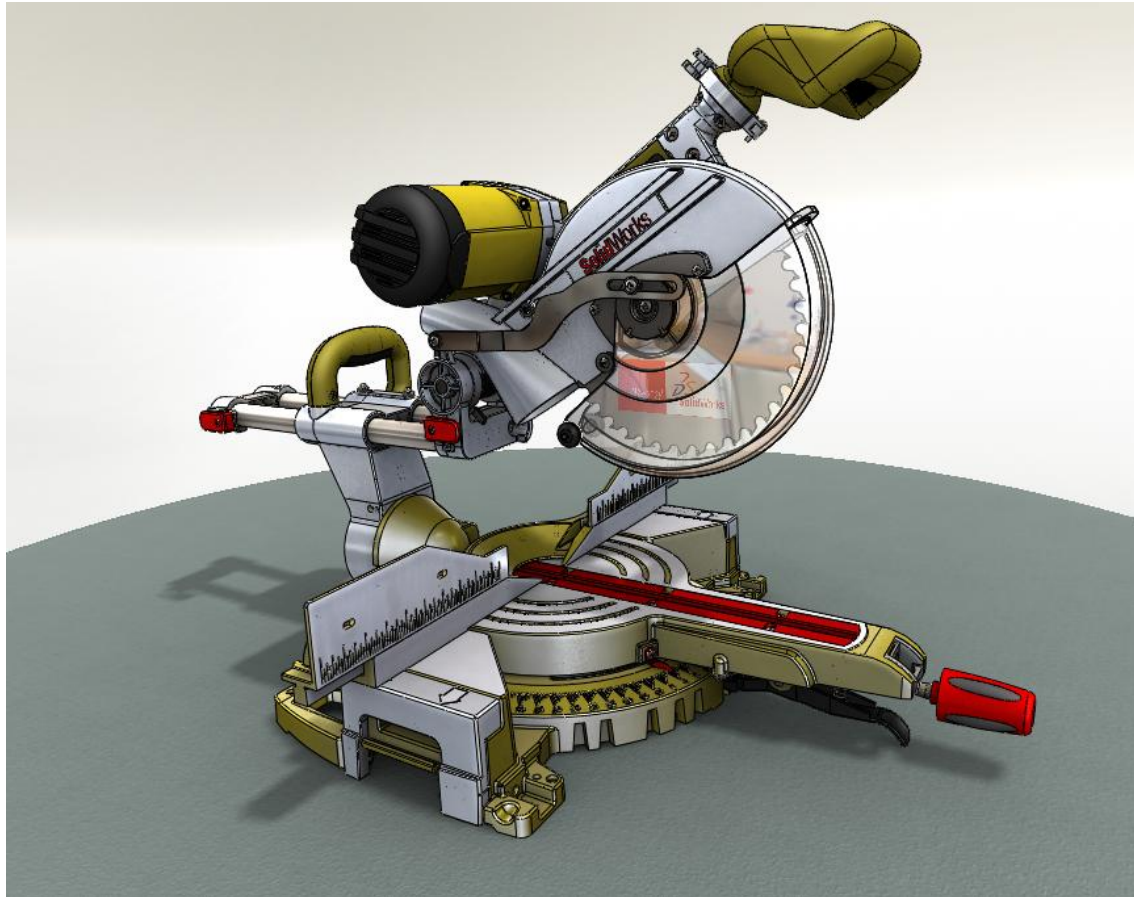
CSWPE

CADD Edge Inc.

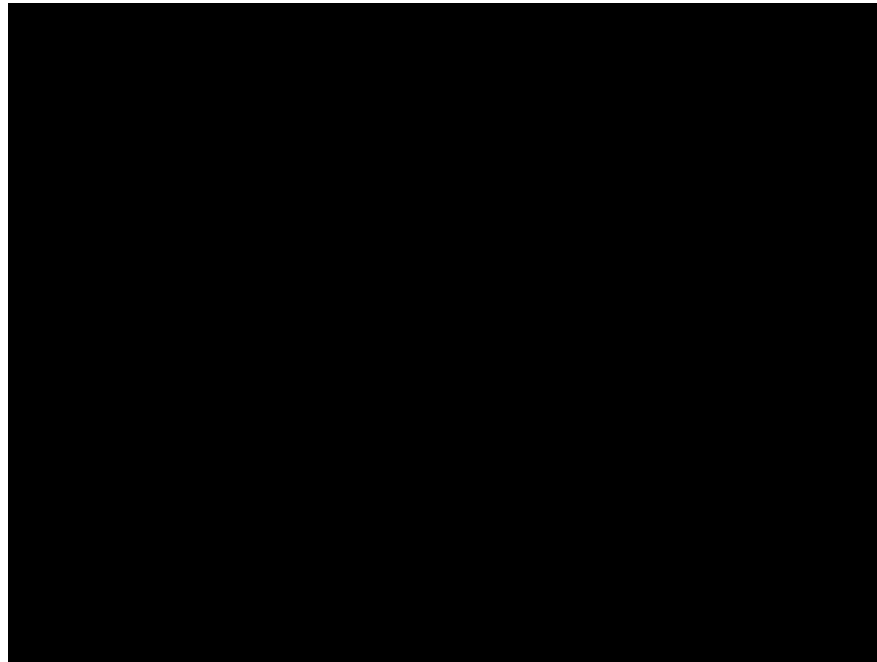
- About me
 - CADD Edge Employee and SolidWorks user since 1997
 - BA Industrial Design
 - CSWPE
 - Mechanical Designer for CADD Edge's Design Services group.

- Motion Manager – What it is:
 - Animation
 - Adding motion to SW assemblies (and to a limited degree, parts) to convey function, order of assembly, product “look”, etc.
 - Taking advantage of existing constraints to capture component relationships.
 - Ability to change the camera, lighting, and color of components.
 - Basic Motion - Creating simple physical models using gravity, motors, springs and collision.

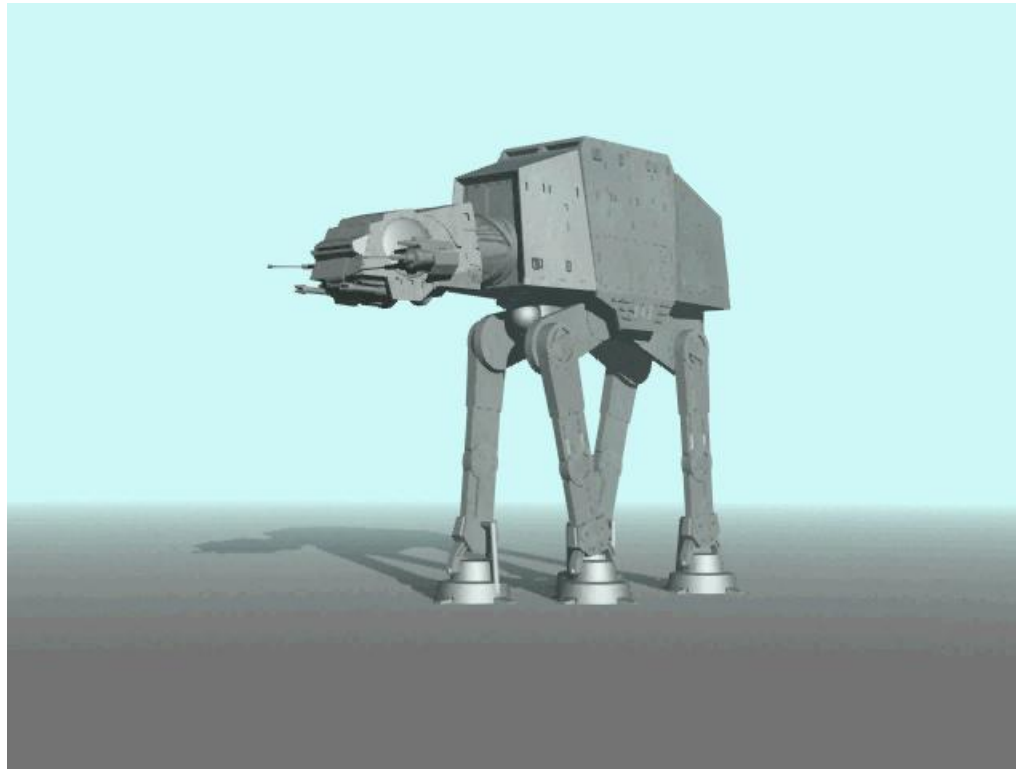
- Motion Manager – What it is:



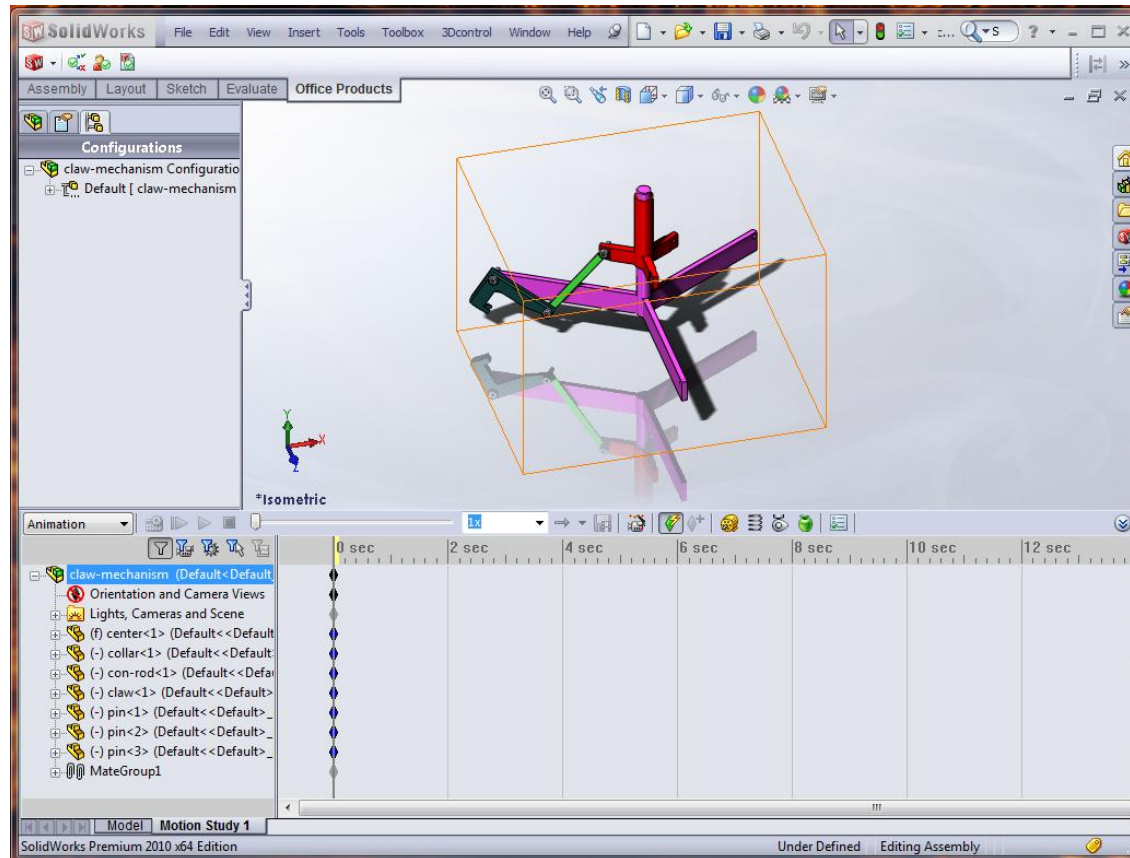
- Motion Manager – What it's not:



... but that won't stop you from trying.



- Where the Magic Happens – Motion Manager Tab



- Key Frames
 - Define conditions for an “actor” at a particular point on the timeline.
 - Computer interpolates (fills in) between key frames.
 - Copy, paste, reverse

- Key Frames Control
 - Component
 - Position – Free Move, mate, motor
 - Appearance – Hide/Show, color, transparency
 - Explode Position
 - Display Type – Shaded, Shaded w/HLR, HLR, HLV, WF

- Key Frames Control
 - Component
 - View

- Key Frames Control
 - Component
 - View
 - Mate
 - Suppress/Unsuppress
 - Value – distance, angle, etc.

- Key Frames Control
 - Component
 - View
 - Mate
 - Light
 - On/Off
 - Position
 - Brightness
 - Color

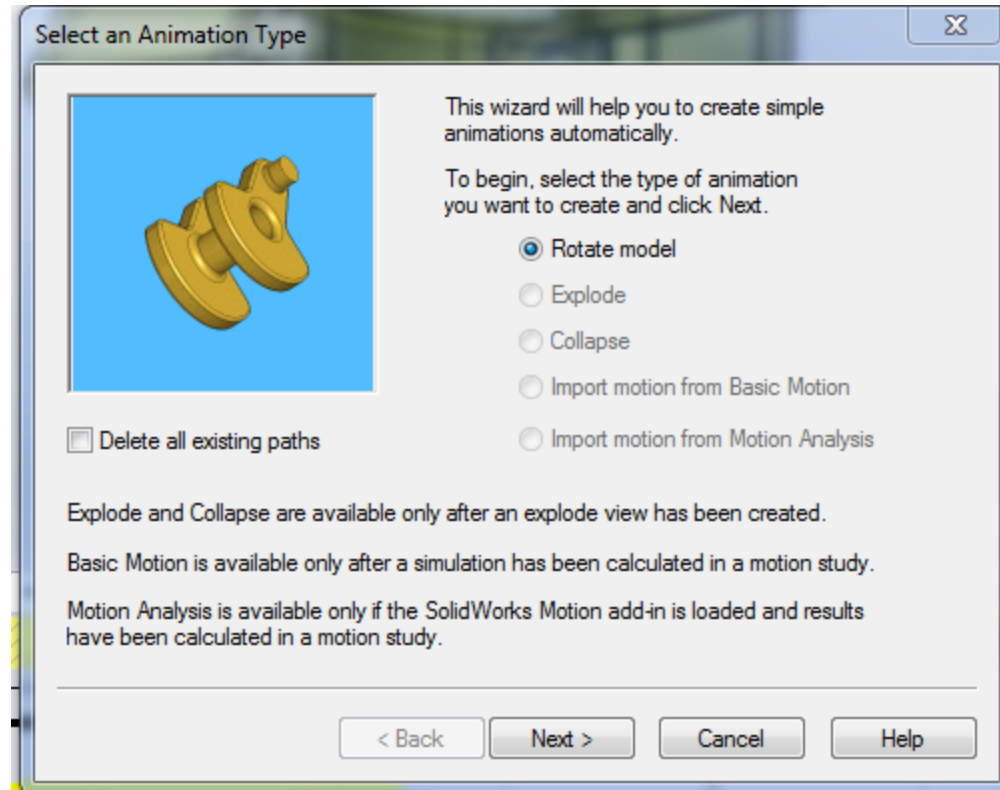


- Key Frames Control
 - Component
 - View
 - Mate
 - Light
 - Camera
 - Position/Target
 - Focus/DoF



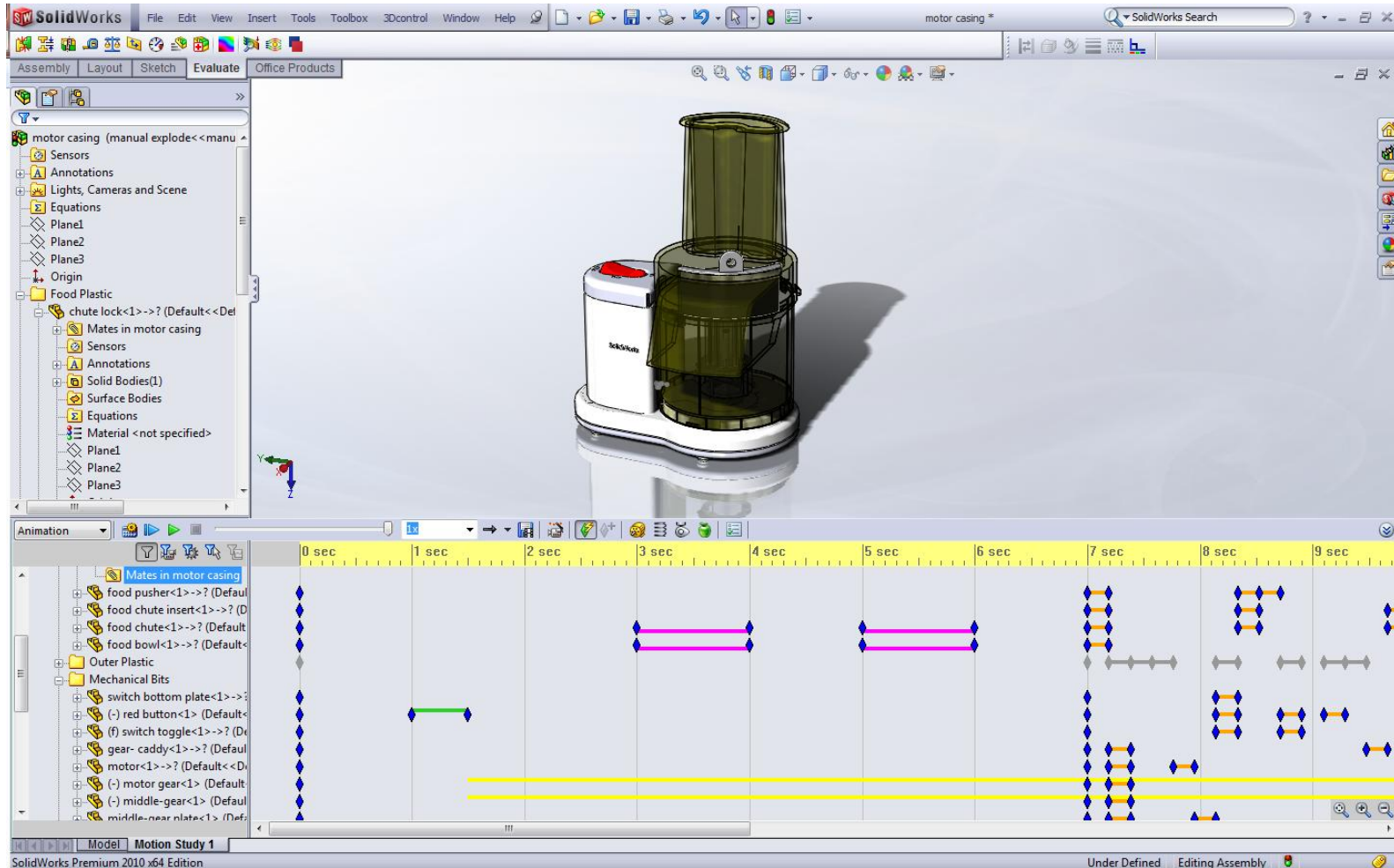
- Key Frames Control
 - Component
 - View
 - Mate
 - Light
 - Camera
 - Motors
 - On/Off
 - Direction
 - Speed

- Quick and Dirty – Animation Wizard
 - Explode
 - Collapse
 - Rotate



- Time savers – planning ahead
 - Story Board/Time Line
 - Saved views
 - Distance and Angle Mates
 - Configurations
 - Key frames DO NOT capture configurations.
 - Create configurations to get parts into position.
 - Create a new motion study and copy/paste starting key frames.

- Putting it all together



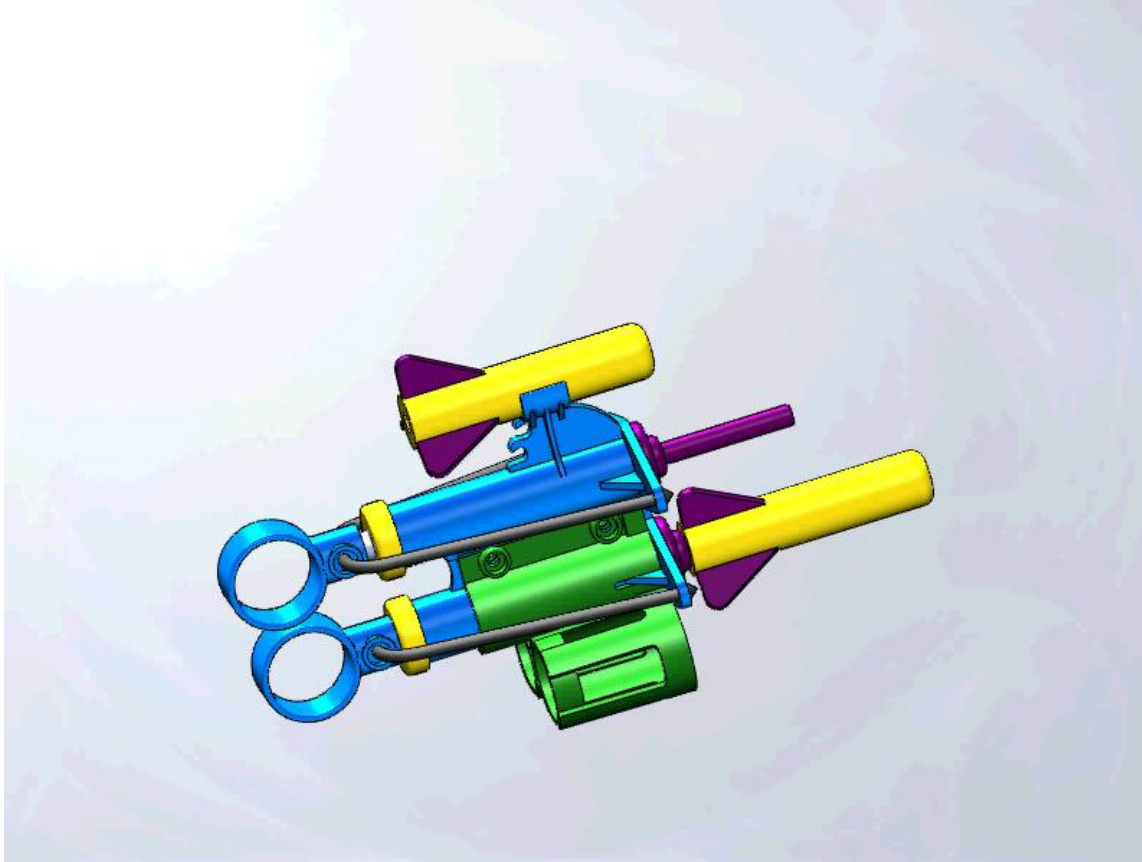
- Putting it all together



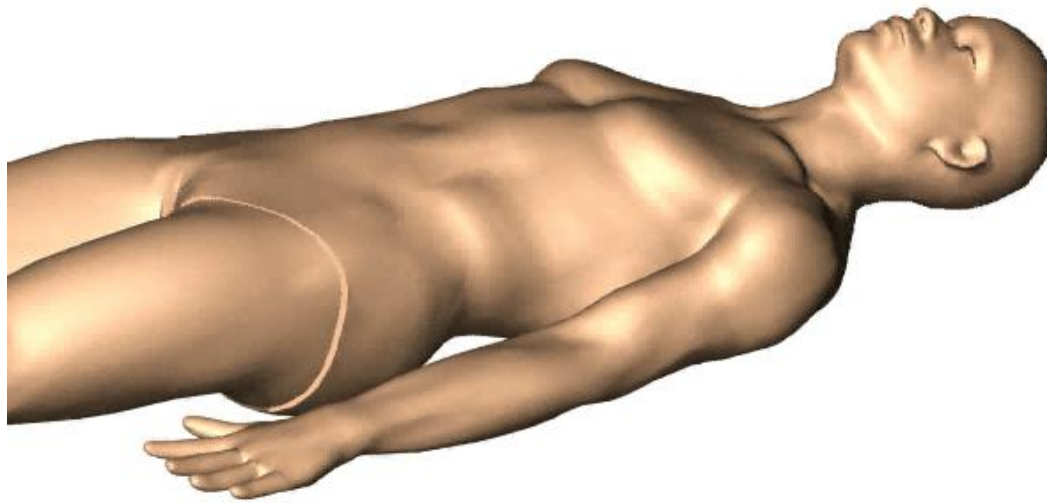
- Mishandle with Care – Twist, Bend, and Mutilate



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- Mishandle with Care – Twist, Bend, and Mutilate



- Slight of hand
 - Assembly and in context features update as the animation runs.
 - Hide/Show different instances of same part
 - In different configuration
 - Mated to next part of animation

- Basic Motion – Simple Physical Simulation...



... or not



... or not



- Basic Motion – Simple Physical Simulation
 - Gravity
 - Contact/Collision
 - Motors
 - Springs
- Limited
 - No forces
 - Global (non-user specified) Dampening
 - No Coefficient of: Friction, Restitution, etc.

- Output
 - Save as AVI
 - SolidWorks View – Real View or Shaded
 - PhotoWorks Buffer
 - Experiment with Codices/Compression.

- Questions?
- Thank you!