

CS181a: Computer Animation

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1.23.02

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CS181a: Computer Animations

- Technology I & II
- History
- Art

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Technology I: Principles

- Modeling
- Movement
- Character Animation

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Modeling

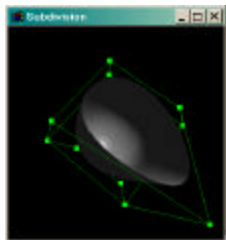
- Curves: Bezier, B-Spline
- Surfaces: NURBS, Subdivision
- Procedural modeling: Particle systems, Fractals, etc.

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Project 1: Subdivision Surfaces



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Movement

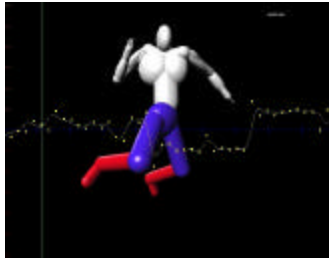
- Path Animation
- Keyframe Animation
- Deformations
- Morphing
- Kinematics & Inverse Kinematics
- Etc.

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Project 2: Keyframe Animation



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Character Animation

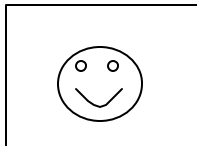
- Skeletons
- Skinning
- Hierarchical Modeling
- Reaching
- Walking
- Facial Animation

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Project 3: Kinematics/Character Animation



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Technology II: Application Maya Tutorials

- Intro
- Polygons
- NURBS
- Animation
- Rendering
- Particle Systems
- Deformations
- Rigid Bodies
- Character Setup
- Painting
- MEL

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Maya Projects

- Maya Spaceship
- Maya Alien

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Project 4

UP TO YOU

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B.C.
(Before Camera)

Thaumatrope
(Roget 1828)



2000 BC

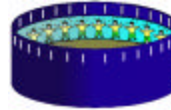


Photo print sits at the bottom. The rotation of motion will make you think that there is only one photo, and that the scene is happening.



Zoetrope

Phenakistiscope

(Desvignes 1860)

(Plateau 1832)

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Motion Pictures (early 1890's)



Lumiere
Brothers



Edison et al.
Kodak

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Special Effects (1890's)



The Vanishing Lady (1896 Meliere)

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Animation (1906)



Humorous Phases of Funny Faces
(Blackton)

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B.D. 1900-1921 (Before Disney)

- Keeping Up with the Jones (1915 Gaumont)
- He Resolves Not to Smoke (1915 Carlson)
- Bobby Bump Starts a Lodge (1916 Bray)
- Crazy-Kat series (1916 Searl)
- Policy and Pie (1918 LaCava)

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B.D. Characters



Felix the Cat
(Messmer)

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Gertie the Dinosaur
(McKay)



Little Nemo

(McKay)

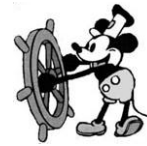
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Disney



Alice's Wonderland
(1923)

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Steamboat Willie
(1929)

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Skeleton Dance - Silly Symphonies
(1928-1939)

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Disney: Color



Flowers and Trees
(1932)

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Disney: First big success



Three Little Pigs
(1933)

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Warner Brothers (1930's)



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Warner Brothers



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MGM: Happy Harmonies (1930's)



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Disney: Feature Films



Snow White (1937)

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Pinocchio (1940)

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Fantasia (1940)

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Television (1960)



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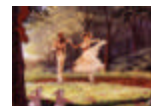
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1960-1964

The Jetsons



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Mary Poppins



101 Dalmatians

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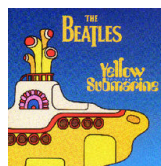
1965-1969



Fantastic Voyage



2001: a space odyssey



Yellow Submarine

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1970-1974



Fritz the Cat



Heavy Metal



Tora Tora Tora

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Computer Animation



1971 Folders, NFB of Canada

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1975-1979

Star Wars Star Trek
King Kong
Close Encounters
Superman Alien

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1980-1984

The Empire Strikes Back Blade Runner
TRON E.T. Growth
Still Life Etude Vol Libre

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1985-1989

Brilliance Luxo Jr.
Akira The Abyss
Who Framed Robert Rabbit Red's Dream

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1990-1994

TII Doom Jurassic Park
The Mask Liquid Selves Aladdin
The Lion King Forrest Gump
Coca Cola Polar Bears Primordial Dance

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History



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Disney's Principles of Animation

- Squash & Stretch
- Anticipation
- Staging
- Straight Ahead Action & Pose to Pose
- Follow Through & Overlapping Action
- Slow In & Out
- Arcs
- Secondary Action
- Timing
- Exaggeration
- Solid Drawing
- Appeal

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Disney's Principles of Animation: Today

- Squash & Stretch
- Follow Through & Overlapping Action

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Squash and Stretch

- Organic objects deform when they move
- Maintain volume



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Overlapping Action

- Components of Organic objects move at different rates



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Films

- Silly Symphonies
- Snow White
- Luxo Jr.
- Space Camp

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