CS181a: Computer Animation

Z Sweedyk
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CS181a: Computer Animations

• Technology I & II
• History
• Art

Technology I: Principles

• Modeling
• Movement
• Character Animation

Modeling

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

Project 1: Subdivision Surfaces

Movement

• Path Animation
• Keyframe Animation
• Deformations
• Morphing
• Kinematics & Inverse Kinematics
• Etc.
Project 2: Keyframe Animation

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

Project 3: Kinematics/Character Animation

Technology II: Application
Maya Tutorials
- Intro
- Polygons
- NURBS
- Animation
- Rendering
- Particle Systems
- Deformations
- Rigid Bodies
- Character Setup
- Painting
- MEL

Maya Projects
- Maya Spaceship
- Maya Alien

Project 4

up to you
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B.C.
(Before Camera)

2000 BC
Thaumatrope
(Roget 1828)

Phanakistoscope
(Plateau 1832)

Motion Pictures
(early 1890's)

Lumiere
Brothers

Edison et al
Kodak

Special Effects
(1890's)

The Vanishing Lady (1896 Meliere)

Animation
(1906)

Humorous Phases of Funny Faces
(Blackton)

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)
• Krazy-Kat series (1916 Searl)
• Policy and Pie (1918 LaCava)
B.D. Characters

- Felix the Cat (Messmer)
- Gertie the Dinosaur (McKay)
- Little Nemo (McKay)

Disney

- Alice’s Wonderland (1923)
- Steamboat Willie (1928)
- Skeleton Dance - Silly Symphonies (1928-1939)

Disney: Color

- Flowers and Trees (1932)

Disney: First big success

- Three Little Pigs (1933)

Warner Brothers (1930’s)

- Looney Tunes
- Merrie Melodies

Warner Brothers
MGM: Happy Harmonies (1930's)

Disney: Feature Films

Television (1960)

1960-1964

1965-1969

2001: a space odyssey

Yellow Submarine

1970-1974

Fritz the Cat

Heavy Metal

Tora Tora Tora
Computer Animation

1971 Foldes, NFB of Canada

1975-1979
Star Wars
Star Trek
King Kong
Close Encounters
Superman
Alien

1980-1984
The Empire Strikes Back
Blade Runner
TRON
E.T.
Growth
Vol Libre
Still Life Etude

1985-1989
Brilliance
Luxo Jr.
Akira
The Abyss
Who Framed Robert Rabbit
Red's Dream

1990-1994
Doom
TII
Jurassic Park
The Mask
Liquid Selves
Aladdin
The Lion King
Forrest Gump
Coca Cola Polar Bears
Primordial Dance

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

Disney’s Principles of Animation: Today
- Squash & Stretch
- Follow Through & Overlapping Action

Squash and Stretch
- Organic objects deform when they move
- Maintain volume

Overlapping Action
- Components of Organic objects move at different rates

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