Outline: 12/2

- Introduction to Animation
- Ray-tracing continued (for triangle meshes)
- Perspective-correct texture mapping
Traditional Cel Animation

- Hand-drawn images
- Layers of change:
  - Background
  - Characters
  - Limbs
  - Mouths
- No: Peter Pan
  - True concept of 3D (world coordinates)
  - Mesh modeling
  - Little dynamic lighting
  - Transformations (rotate, translate, scale)
Traditional Cel Animation

- 1989: Little Mermaid, last film to use hand-painted cel animation
Pixar’s first short film: Luxo Jr.

"Luxo Jr. sent shock waves through the entire industry – to all corners of computer and traditional animation. At that time, most traditional artists were afraid of the computer. They did not realize that the computer was merely a different tool in the artist's kit but instead perceived it as a type of automation that might endanger their jobs.

Luckily, this attitude changed dramatically in the early '80s with the use of personal computers in the home. The release of our Luxo Jr. ... reinforced this opinion turnaround within the professional community."

Luxo Jr. “squash and stretch”

Luxo Jr. 1986
Luxo Jr. spline interpolation
Polynomial vs. Spline Interpolation

8-degree polynomial

spline

spline vs. polynomial

From: 6.837 Fall 2001
1995: Toy Story

- First fully computer-animated full-length film

Toy Story 1995
Perspective Correct Texture Mapping