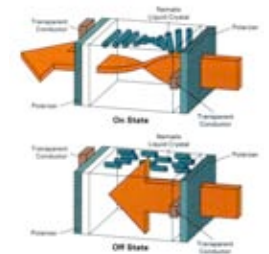
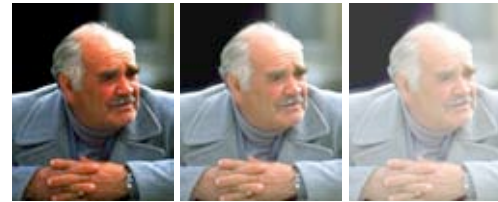
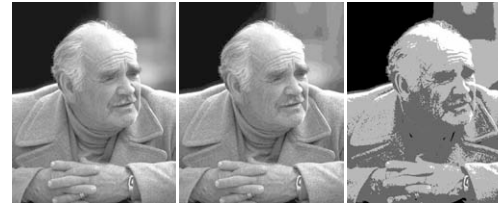


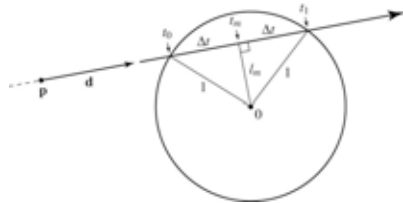
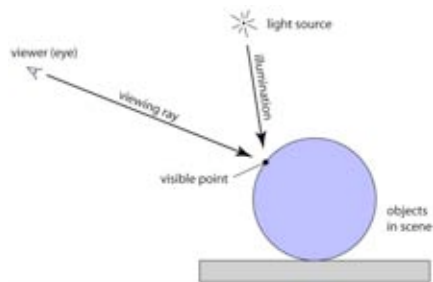
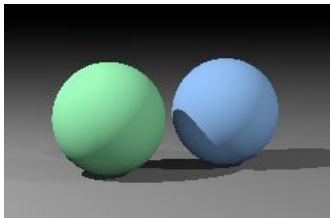
Wrap-up

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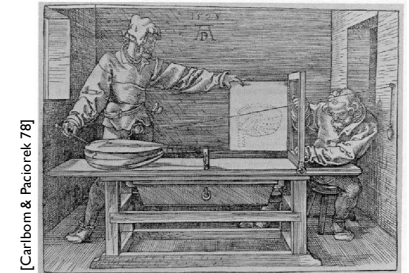
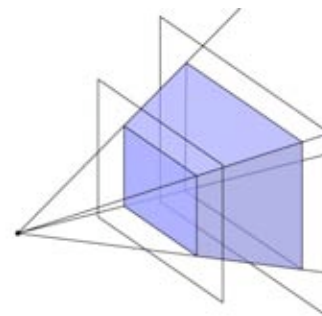
Images



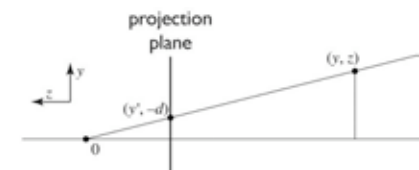
Ray tracing



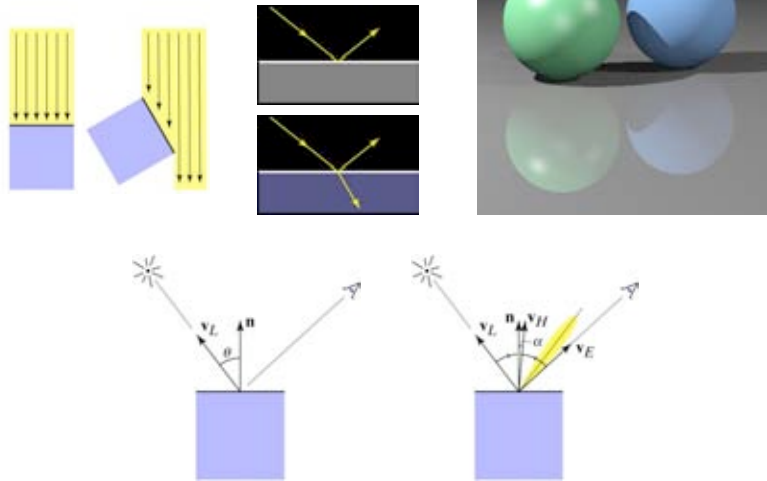
Viewing



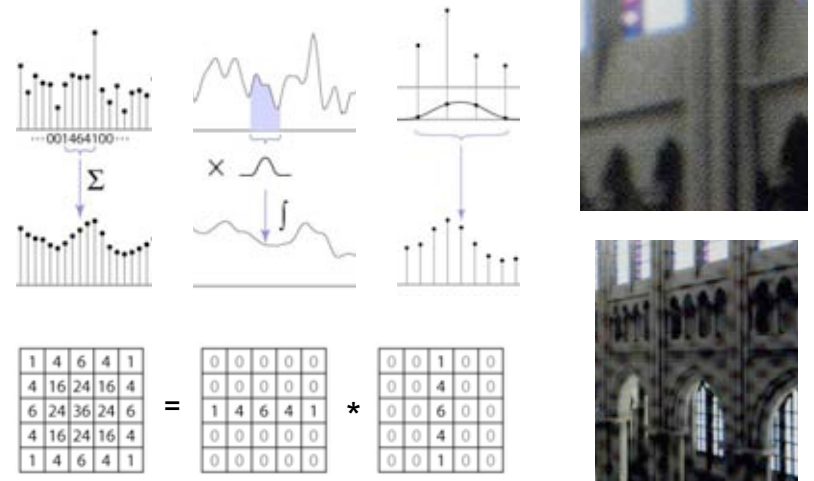
[Carlton & Paciorek 78]



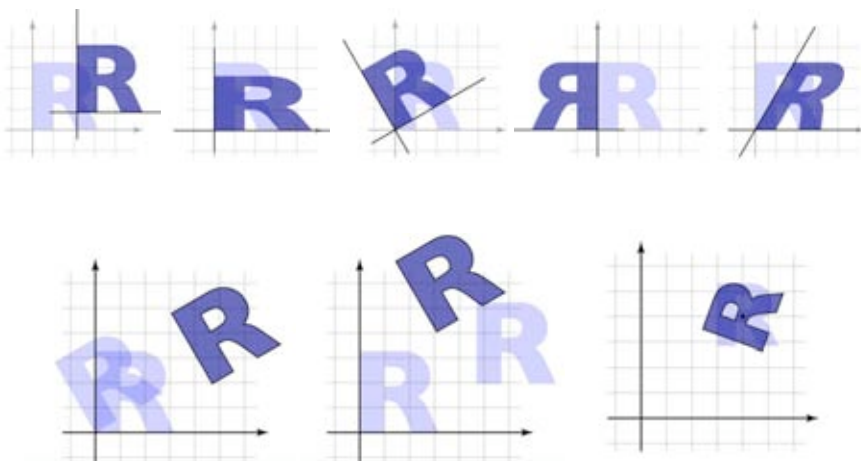
Shading



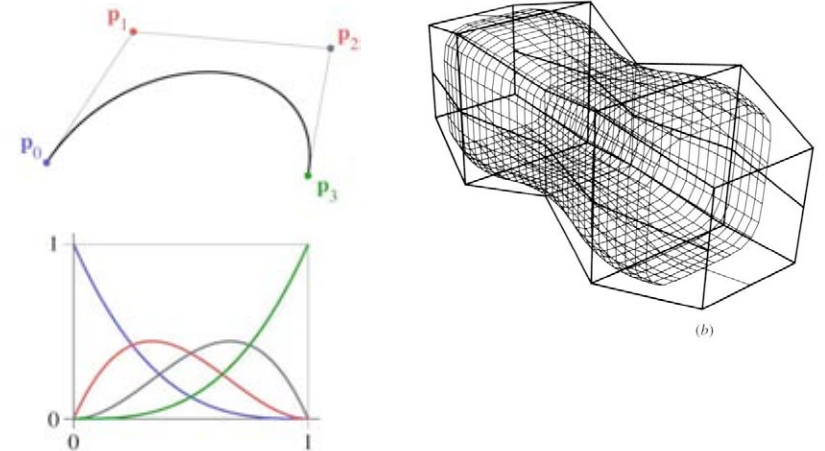
Sampling & Filtering



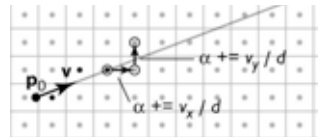
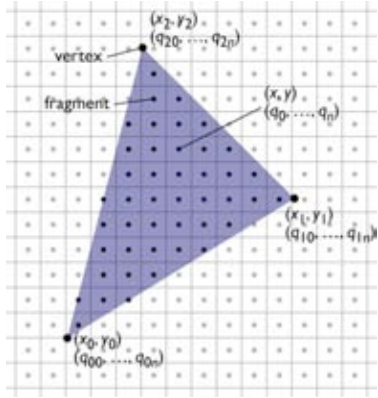
Affine transformations



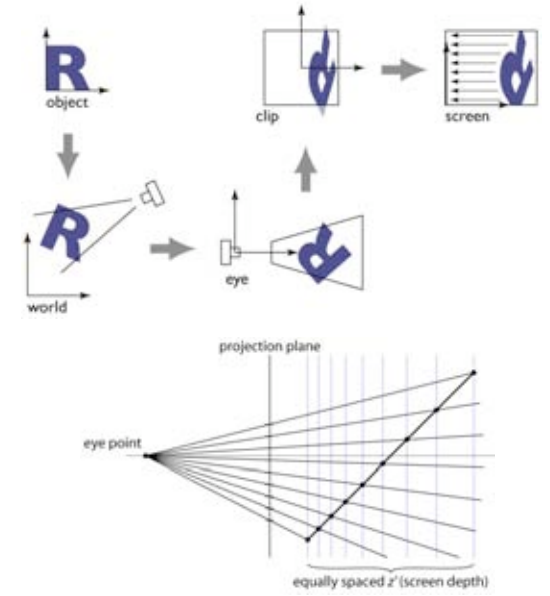
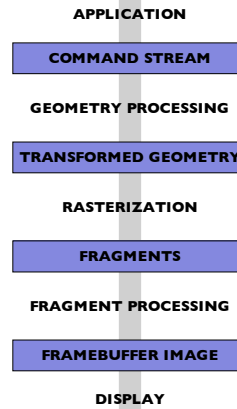
Splines



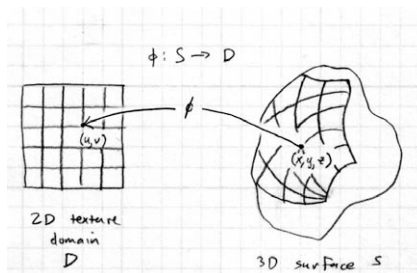
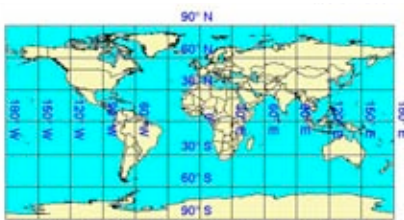
Rasterization



Pipeline

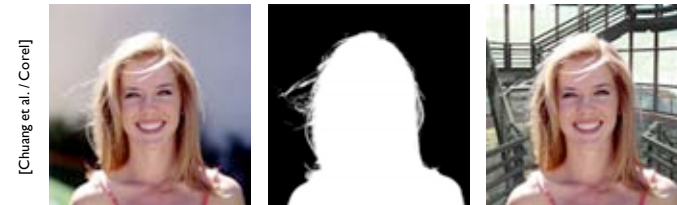
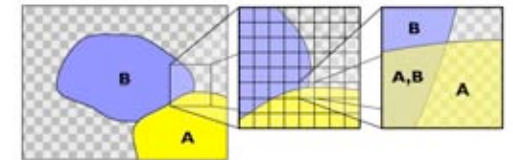


Texture mapping



[map: Peter H. Dana]

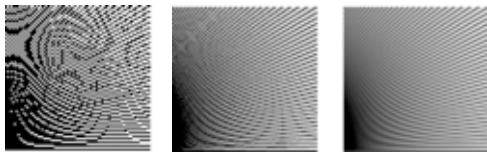
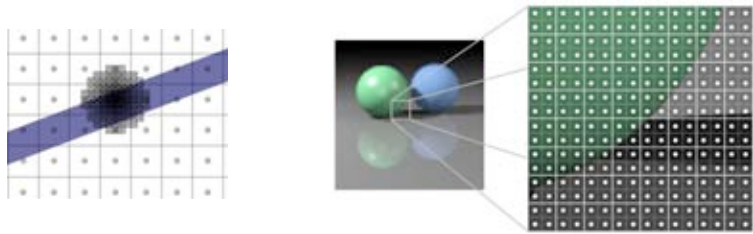
Compositing



[Chuang et al. / Corel]



Antialiasing

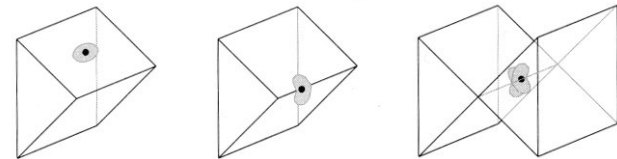
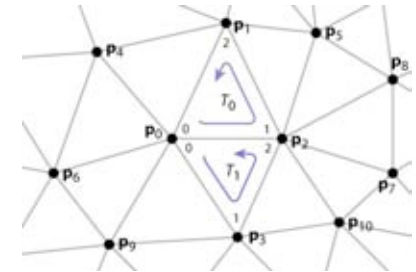


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Triangle Meshes

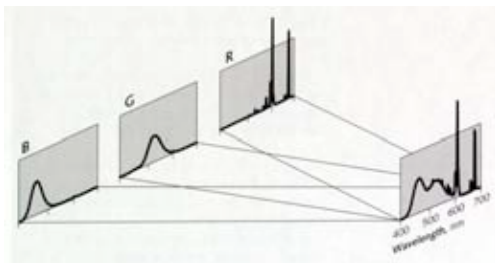
```
verts[0] X0, Y0, Z0
verts[1] X1, Y1, Z1
verts[2] X2, Y2, Z2
verts[3] X3, Y3, Z3
      |
tInd[0] 0, 2, 1
tInd[1] 0, 3, 2
      |
```



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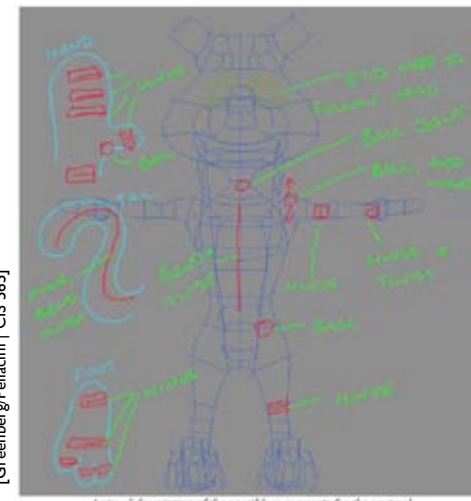
Color Science



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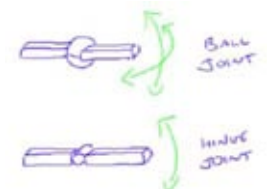
Animation



[Greenberg/Pellacini | CIS 565]

A visual description of the possible movements for the squirrel

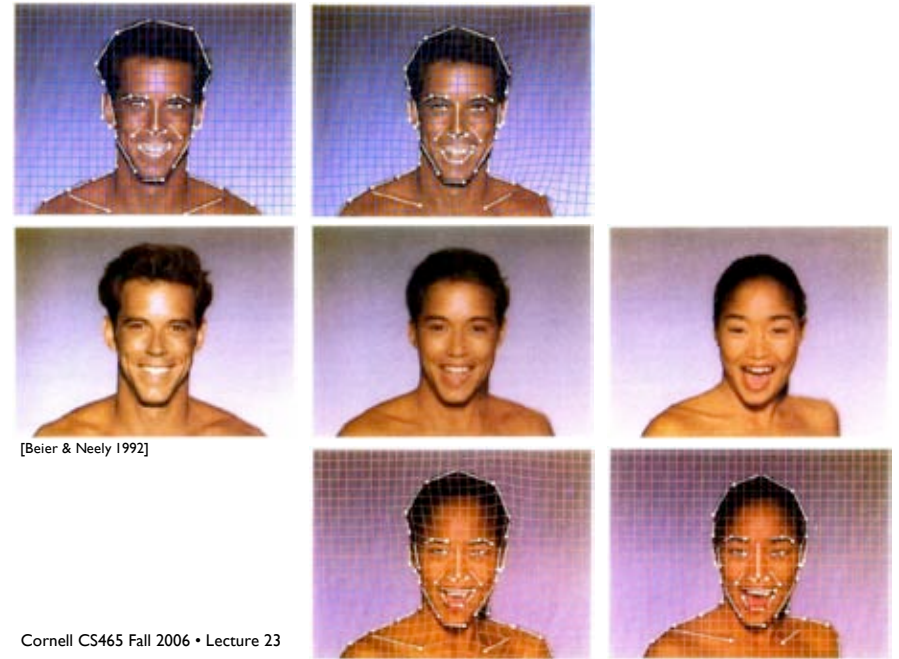
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- Images
- Resampling & filtering
- Ray tracing
- Shading
- Transformations
- Viewing
- Splines
- Pipeline & Rasterization
- Texture mapping
- Compositing
- Color
- Animation

———— image warping
 ————— morphing



[Beier & Neely 1992]

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———— global illumination
 Monte Carlo
 other numerical methods



Henrik Wann Jensen

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————— physics-based reflection
advanced reflection models



[Jensen et al. SIGGRAPH 12001]

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————— geometric computer vision
image-based rendering

- Images
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- Animation

————— NURBS
subdivision surfaces

Geri's Game

- Pixar short film to test subdivision in production
 - Catmull-Clark (quad mesh) surfaces
 - complex geometry
 - extensive use of creases
 - subdivision surfaces to support cloth dynamics



[DeRose et al. SIGGRAPH | 1998]

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 - Color
 - Animation
- graphics hardware
GPU programming
game graphics
advanced s/w pipelines



id Software—Quake 4 (screenshot: Planet Quake)

- Images
 - Resampling & filtering
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 - Shading
 - Transformations
 - Viewing
 - Splines
 - Pipeline & Rasterization
 - Texture mapping
 - Compositing
 - Color
 - Animation
- fancier compositing



Figure 1 A water goblet, digitally composited onto background images, preserving the effects of refraction.

[Zongker et al. SIGGRAPH 1999]

- Images
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- Animation

color management
digital imaging/photography

- Images
- Resampling & filtering
- Ray tracing
- Shading
- Transformations
- Viewing
- Splines
- Pipeline & Rasterization
- Texture mapping
- Compositing
- Color
- Animation

Feature animation
Visual effects
Games