





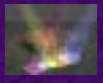

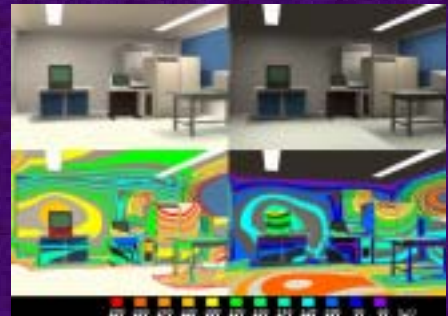


1: Illumination Model

many types of light sources & optical effects

linear  1982	area 	torus 	cylindrical 	sky light  1986
radiosity (diffuse) 	radiosity (specular) 	spot light (scattering) 	shafts of light (scattering) 	diffraction 

interreflection of light (Radiosity)



1985 (first image in the world)

Univ. of Tokyo

2: Rendering (Bezier clipping)

 Ray tracing SIG87
















 Scan line algorithm

 Curved Tubular Objects 1992

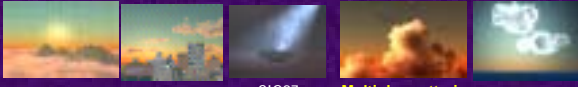
 Metaball EG87


 GPU-based Metaball EG08


3: Natural Phenomena (1991-)

Terrain	mountains, dunes, stones, sands			
Atmosphere	sky color (skylight) fog effects, shafts of light			
Water	waves, caustics water color, shafts of light			
Natural Light	sunlight path through atmosphere, skylight, lightning			
Volumetric objects/gas	clouds, smoke/gas snow			

Clouds/smoke

 SIG87 Multiple scattering SIG96

 Image-based PG98 Cell auto. SIG2000 CFD PG2001

 casa2006 sketch-based SIG2008

4: Visual impact

 montage sig86

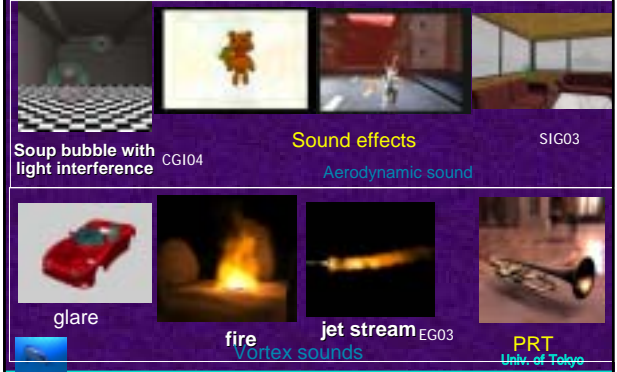
 Illuminated by sky light

 terrain model sig89

5: Interactive Rendering (1)



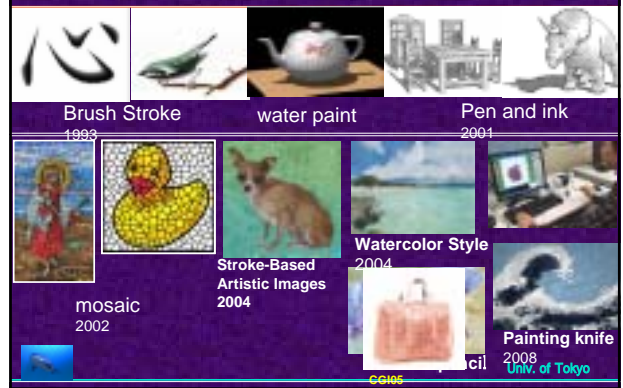
Interactive Rendering (2)



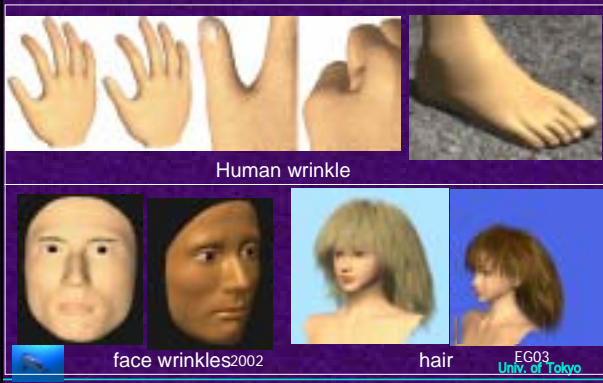
Interactive Rendering (3)



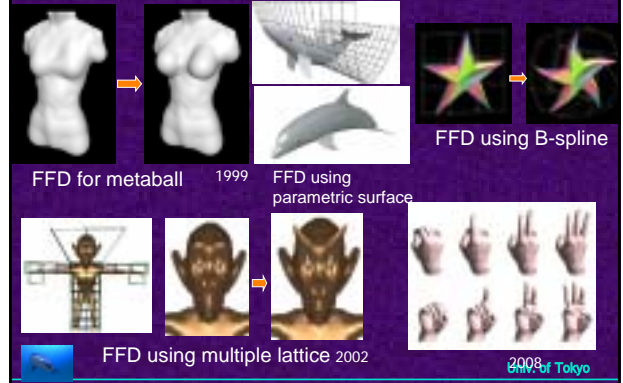
6: NPR



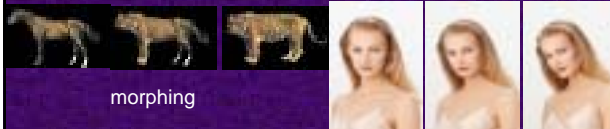
7: Human body



8: Deformation



9: 2D shape processing (8)



10: Lens simulation/Computational photography



Human Eye Depth of Field EG2007

