

Clipping



Jian Huang, CS594

This set of slides reference slides devised at Ohio State and MIT.

Viewing Pipeline Revisited

Object Space	World Space	Eye Space	Clipping Space	Canonical view volume	Screen Space
--------------	-------------	-----------	----------------	-----------------------	--------------

- Object space: coordinate where each component is defined
- World space: all components put together via affine transformation. (camera, lighting defined in this space)
- Eye space: camera at the origin, view direction coincides with the z axis. Hither and Yon perpendicular to the z axis
- Clipping space: All point is in homogeneous coordinate. Perspective division gets everything into 3D image space.
- 3D image space (Canonical view volume): a parallelepiped shape defined by $(-1:1, -1:1, 0, 1)$. Objects distorted.
- Screen space: x and y mapped to screen pixel coordinates

Why do clipping

- Clipping is a visibility preprocess. In real-world scenes clipping can remove a substantial percentage of the environment from consideration.
- Clipping offers an important optimization

