Announcements:
Both A1 and Quiz 1 have been graded.
Available freshly today.

Text book: Ch 10

Review of the Graphics Pipeline:

High-level view:

Functional view:

Today: Projection
Approximate a "real" camera

- position and orient the camera
- projection (from 3D to 2D)
  - lens, iris
- field of view, in all 3 dimensions (FOV)

Aside: Pinhole camera

Modern cameras have lenses.
This means only a limited depth is in focus.

We'll ignore real lens effects.
Can set a lot of mileage assuming pinhole

Orthographic projection, with simplified FOV

\[ \text{Camera or Eye frame} \]

Convention: Camera looks in the \( -z_e \) direction.

FOV approximated as an axis-aligned box in eye-worlds.
"Normalize" this box to lie in a cube of unit (half) size i.e. \((-1,1) \times (-1,1) \times (-1,1)\)

Demo: use of THREE.OrthographicCamera