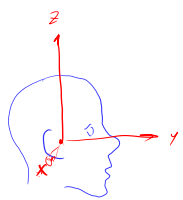
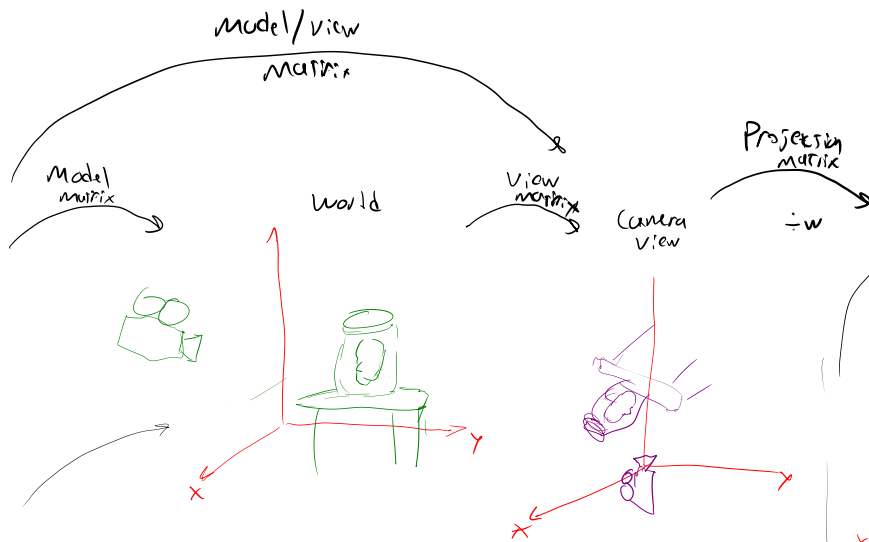


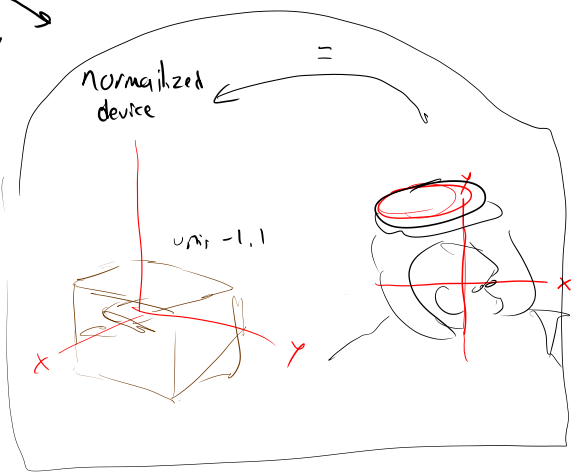
Coordinate Systems



Local Object



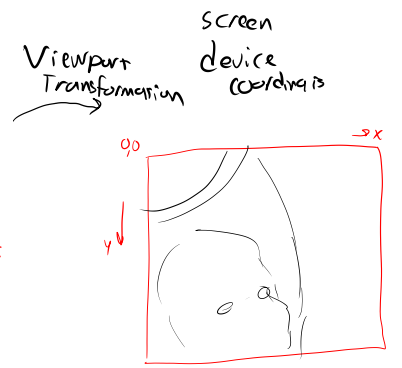
Projection matrix
 $\div w$



$$\begin{pmatrix} x_n \\ -1, 1 \end{pmatrix} \rightarrow \begin{pmatrix} x_s \\ 0, w \end{pmatrix}$$

width of screen

$$x_s = (x_n + 1) \frac{w}{2}$$



Gouraud
Phong

Lambert - diffuse
Oren-Nayar
minnaert

Sub-surface
scattering

Phong - specular
Blinn-Phong
Cook-Torrance

ambient
occlusion

Georaud
- linear color diff

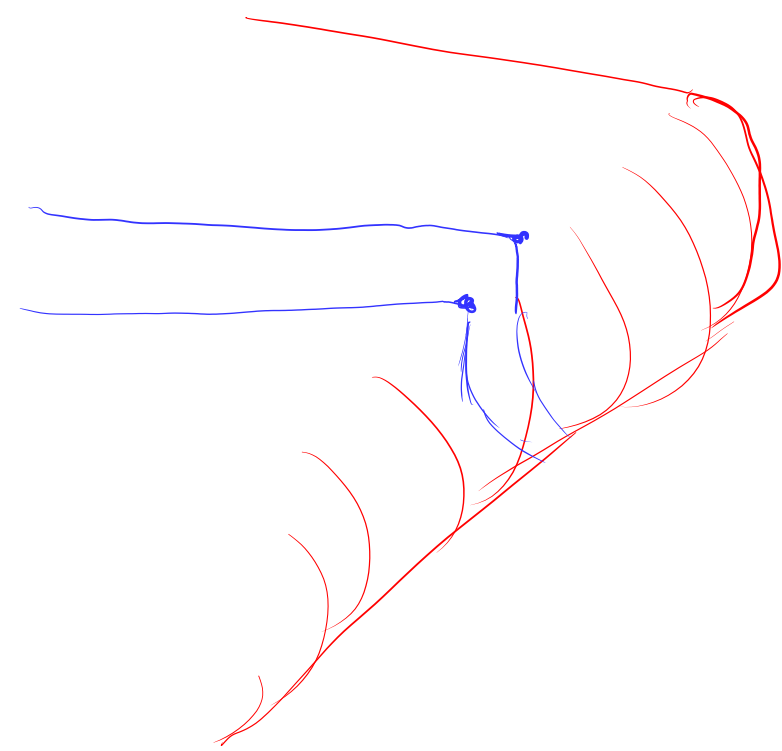
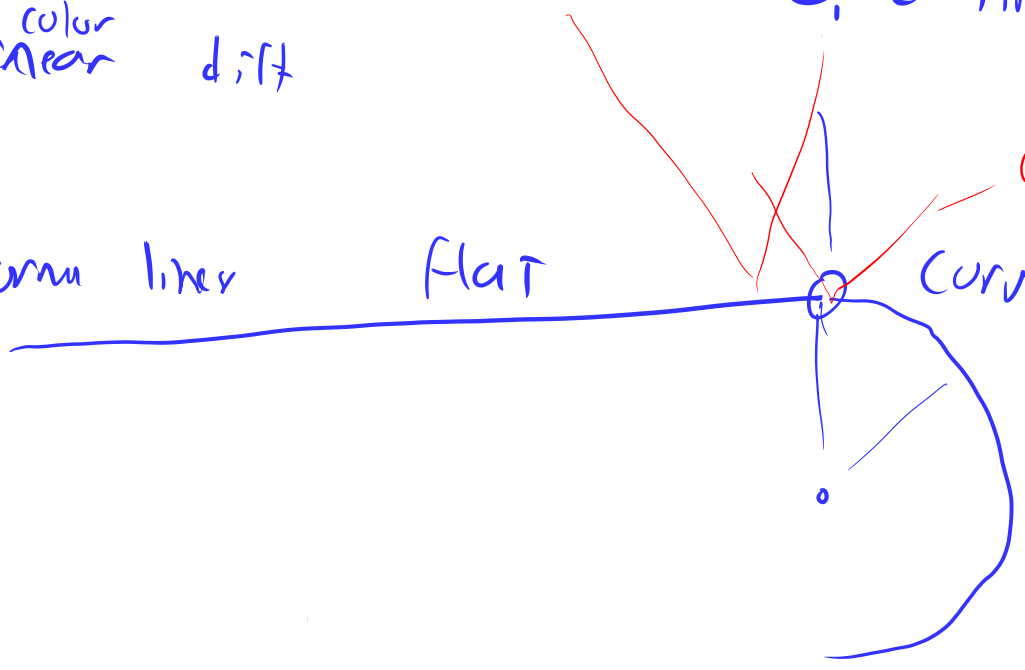
Phong
- normal lines

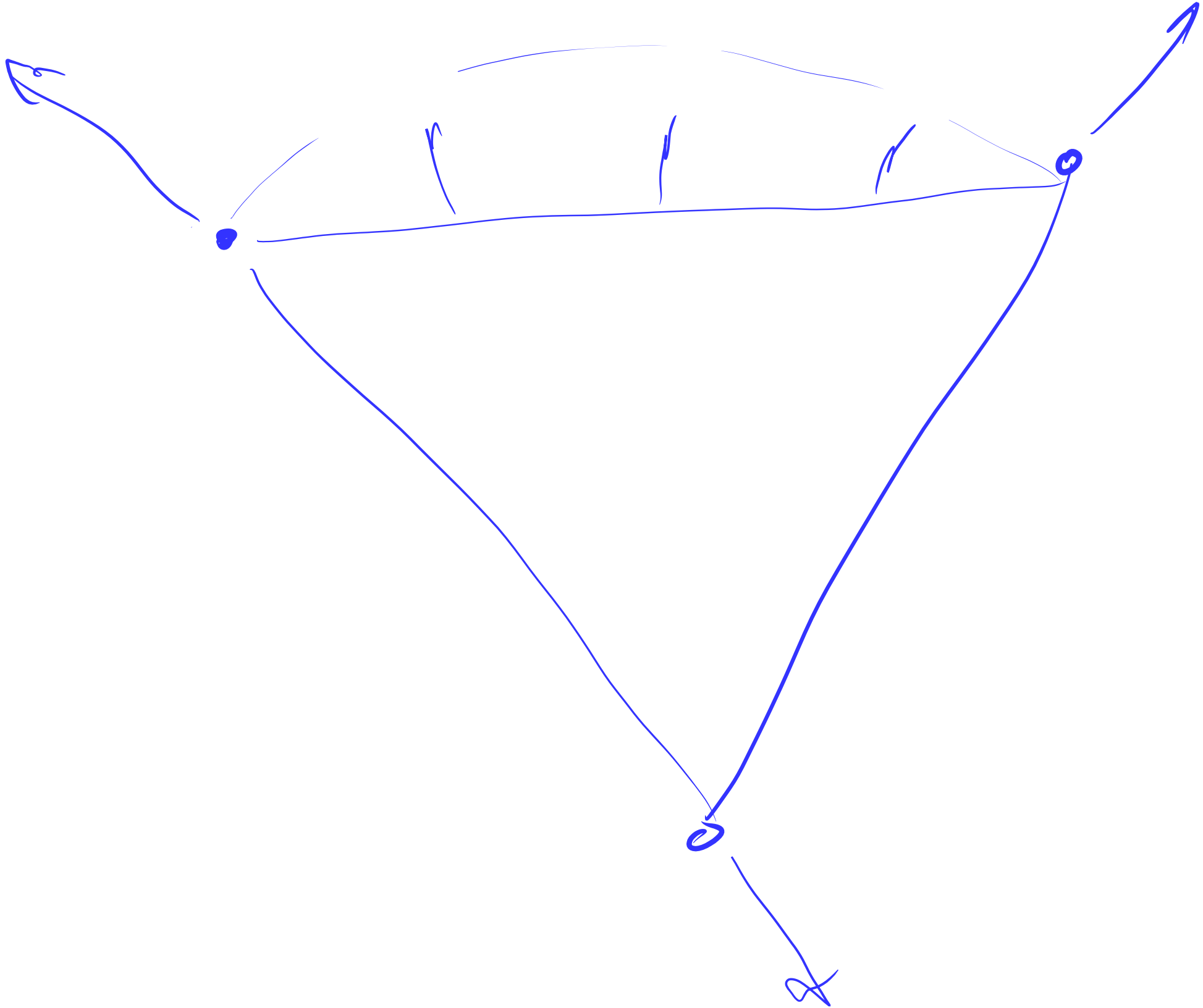
C_1 continuous

C_0

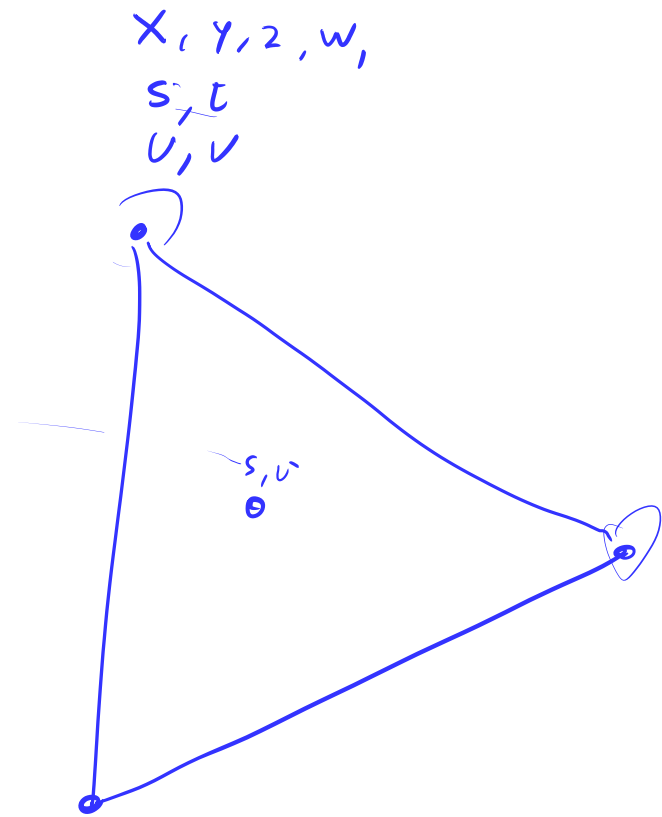
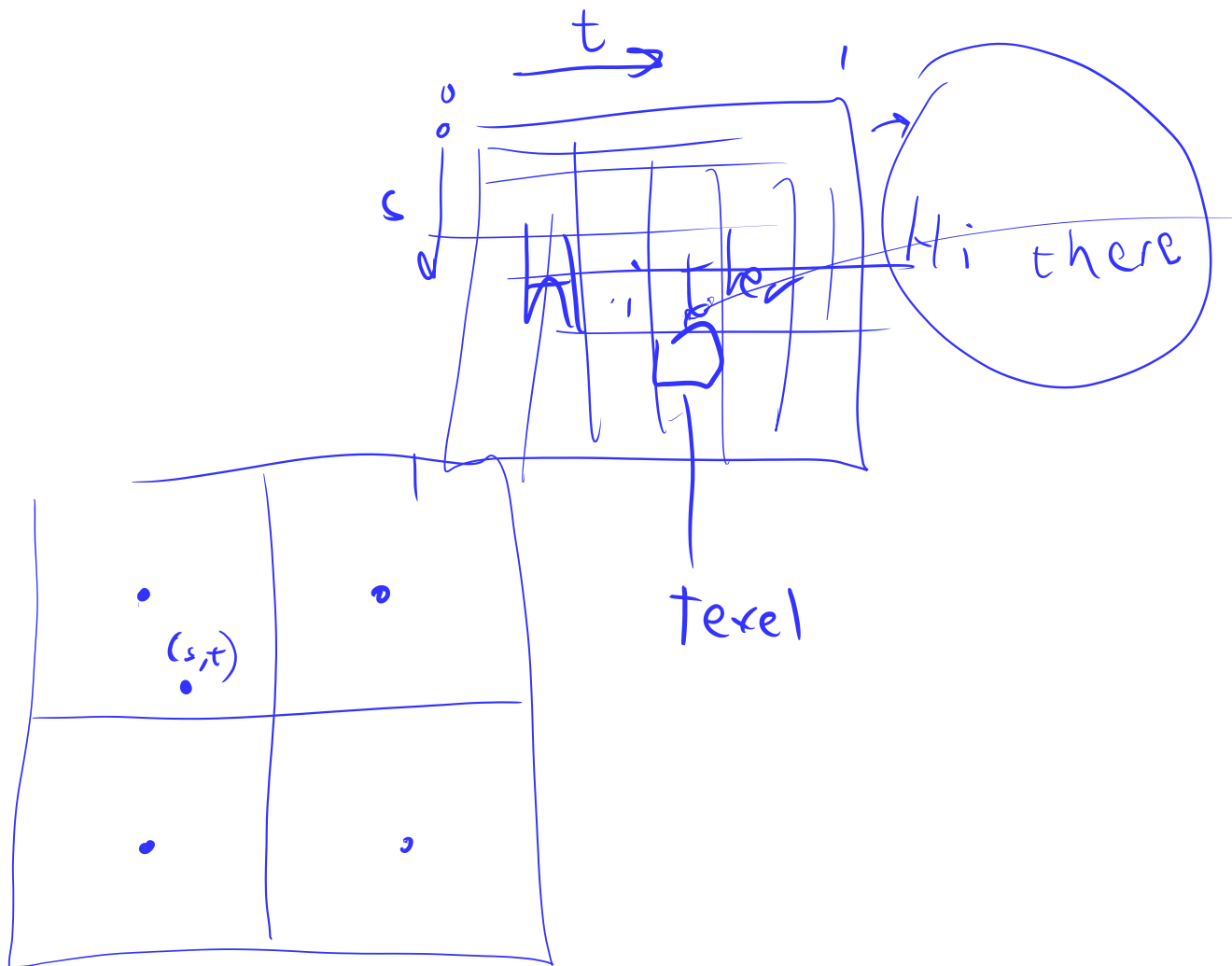
Flat

Curved





Texture mapping



Mip map

Set of tex at diff scale

Pick one based on (distance $++$)

Texture

- r, g, b

- normal

— bump map

$\phi \approx 20^\circ$

