



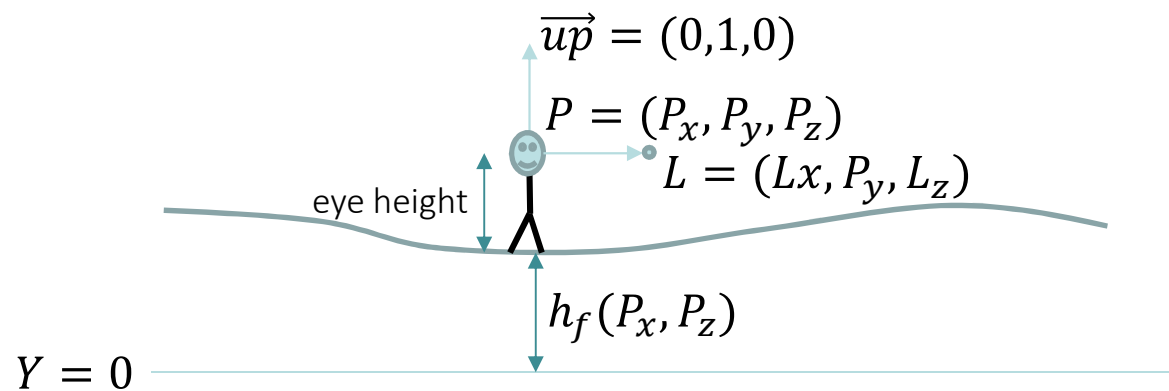
Camera Control

First person camera on a terrain



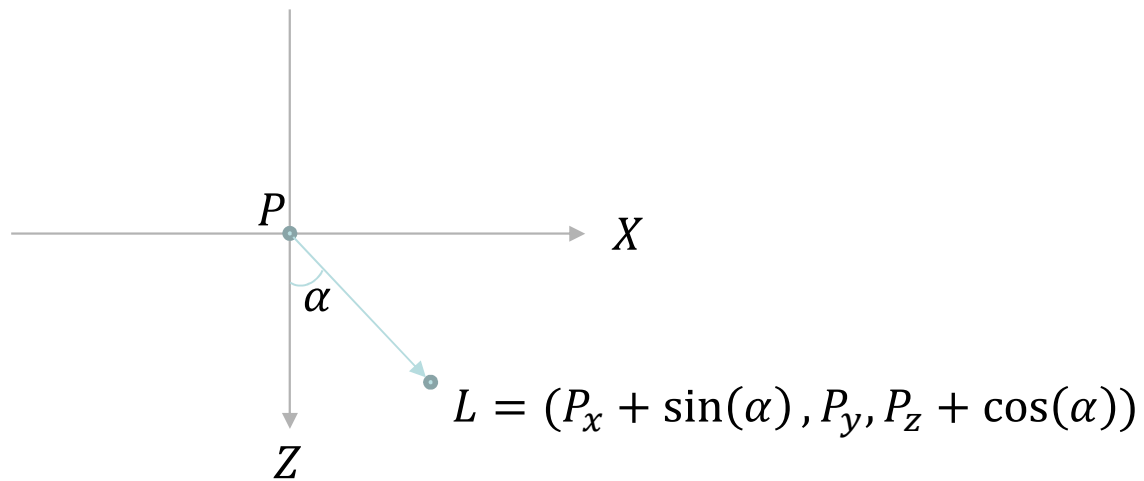
Camera Placement

- Consider `gluLookAt` parameters:
 - P : camera position; L : “look at” point; \vec{up} : up vector
- The P_y value of the camera position is taken directly from the terrain height + the height of the “user” eyes.
 - Use function `hf(x, z)` $P_y = \text{eye height} + hf(P_x, P_z)$
- Assume that the user is always looking in an horizontal direction. $L_y = P_y$





Camera Orientation





Forward/Backward Motion



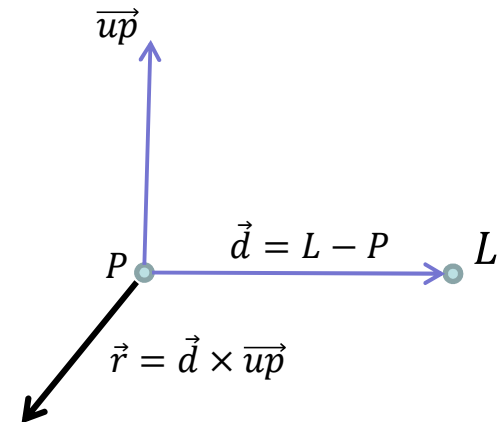
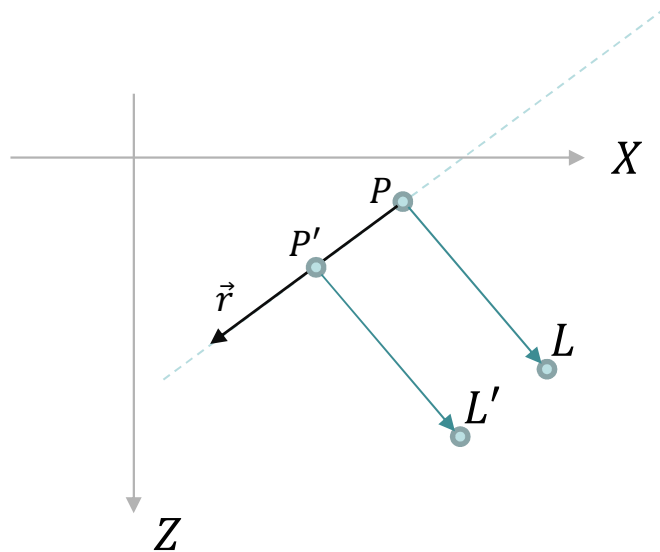
$$\vec{d} = L - P = (L_x - P_x, 0, L_z - P_z)$$

$$P' = P + k\vec{d}$$

$$L' = L + k\vec{d}$$



Camera Lateral Motion



$$P' = P + k\vec{r}$$
$$L' = L + k\vec{r}$$



Assignment

- Complete last week's lesson;
- Add first person camera to the project.