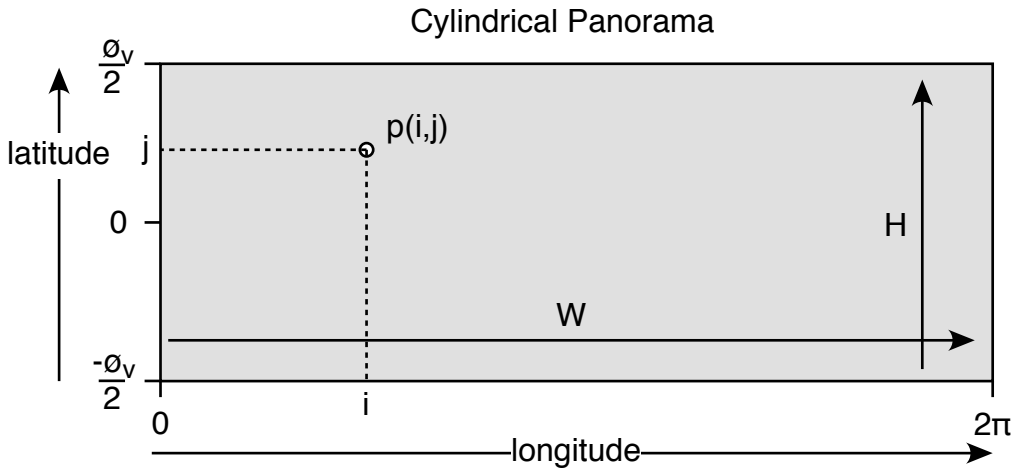
Mathematics for Omnidirectional Stereoscopic Cylindrical Panorama



$$H = W \tan(\frac{\phi_v}{2}) / \pi$$

$$\text{longitude} = i\ 2\ \pi / W$$

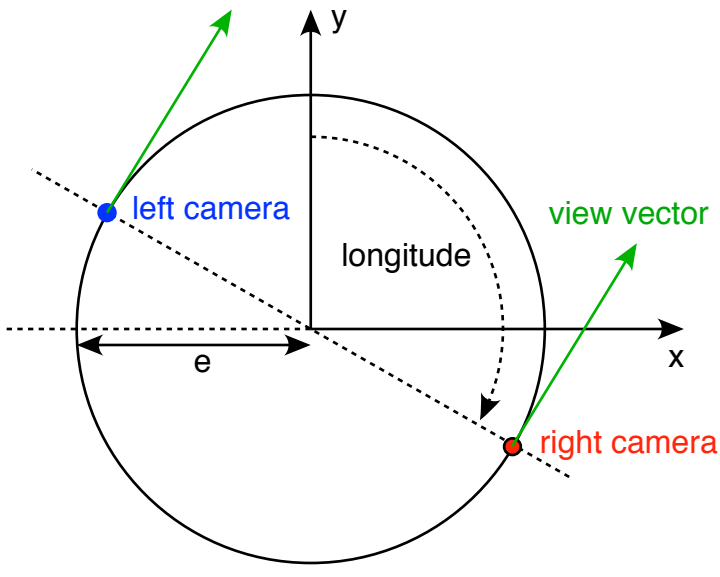
$$\text{latitude} = \text{atan}[\ (j - \frac{H}{2})\ \tan(\frac{\phi_v}{2})\ /\ (\frac{H}{2})\ ]$$

Camera position	Left eye	Right eye
	$x = e \sin(\text{longitude})$	$x = e \sin(\text{longitude} + \pi)$
	$y = e \cos(\text{longitude})$	$y = e \cos(\text{longitude} + \pi)$
	$z = 0$	$z = 0$

View vector, perpendicular to circle

$$x = \cos(\text{longitude})$$
$$y = -\sin(\text{longitude})$$
$$z = (j - \frac{H}{2})\ \tan(\frac{\phi_v}{2})\ /\ (\frac{H}{2})$$

Top view



Side view