TP-5

slide 2: LookAt $((a_x, a_y, 0), (a_x, a_y, a_z), (0,1,0))$

$N = A_1 - A_2 = (0, 0, -a_2) \xrightarrow{\text{Norm}} (0, 0, -1)$

$U = Up \times N = \begin{vmatrix} \hat{x} & \hat{y} & \hat{z} \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{vmatrix} = (-1, 0, 0)$

$V = N \times U = \begin{vmatrix} \hat{x} & \hat{y} & \hat{z} \\ 0 & 0 & -1 \\ -1 & 0 & 0 \end{vmatrix} = (0, -1, 0)$

$-(A_0 \cdot U) = a_x \; ; \; -(A_0 \cdot V) = -a_y \; ; \; -(A_0 \cdot N) = 0$

$$M = \begin{pmatrix} -1 & 0 & 0 & a_x \\ 0 & 1 & 0 & -a_y \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

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slide 3: $M = \begin{pmatrix} 0 & 0 & -1 & -2 \\ 0 & -1 & 0 & 2 \\ -1 & 0 & 0 & -4 \\ 0 & 0 & 0 & 1 \end{pmatrix}$ $P = (0, 2, 2)$

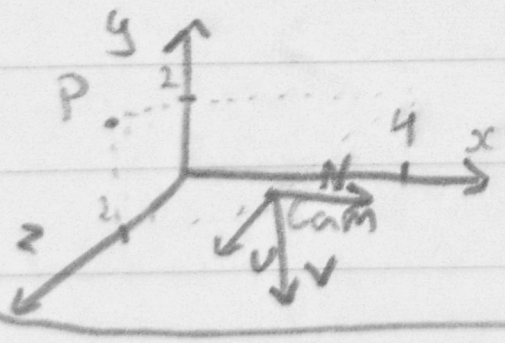
$\text{norm}(Cam - P) = (1, 0, 0) \Leftrightarrow Cam - P = (c, 0, 0) \Leftrightarrow$

$\Leftrightarrow Cam = (c, 2, 2)$

Sabemos que $-(Cam \cdot N) = -4$

$-(Cam \cdot N) = -4 \Leftrightarrow c = 4$, portanto: $Cam = (4, 2, 2)$

$U = (0, 0, 1)$; $V = (0, -1, 0)$, $N = (1, 0, 0)$



slide 4:

$M = M_2 M_1^{-1}$ pois, quando aplicado a um ponto P no referencial de Obs 1, ou seja: $M_1 P$, obtém-se:

$M M_1 P = M_2 M_1^{-1} M P = M_2 I P = M_2 P$