SHANXI UNIQUE TECHNOLOGY CO.,LTD.

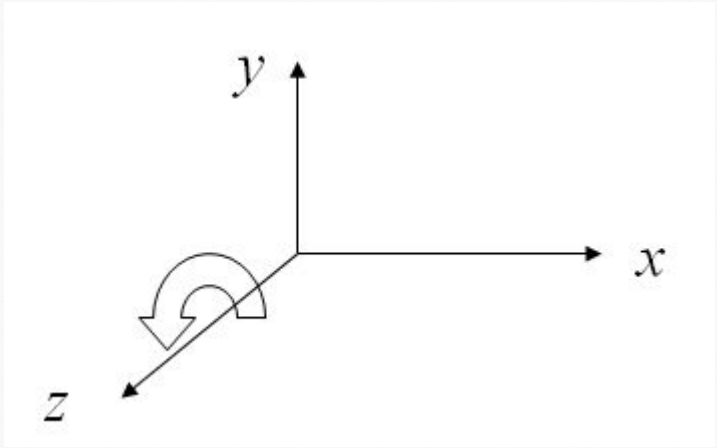
优逸客
SHANXI UNIQUE TECHNOLOGY

css3三维矩阵

三维矩阵

三维旋转矩阵推导:

（1）绕Z轴旋转 x' = xcost - ysint
y' = xsint + ycost
z' = z



$$(x'\ y'\ z'\ 1)=(x\ y\ z\ 1)\begin{bmatrix}\cos\gamma & \sin\gamma & 0 & 0\\ -\sin\gamma & \cos\gamma & 0 & 0\\ 0 & 0 & 1 & 0\\ 0 & 0 & 0 & 1\end{bmatrix}$$

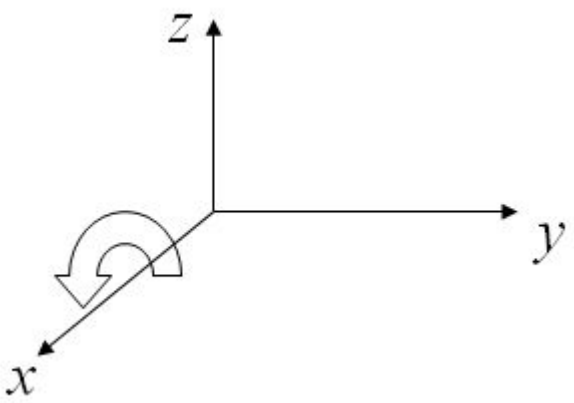
绕 z 轴旋转

三维矩阵

三维旋转矩阵推导:

(2)绕X轴旋转

y' = ycost - zsint
z' = ysint + zcost
x' = x



$$(x'\ y'\ z'\ 1)=(x\ y\ z\ 1)\begin{bmatrix}1 & 0 & 0 & 0\\ 0 & \cos\alpha & \sin\alpha & 0\\ 0 & -\sin\alpha & \cos\alpha & 0\\ 0 & 0 & 0 & 1\end{bmatrix}$$

绕 x 轴旋转

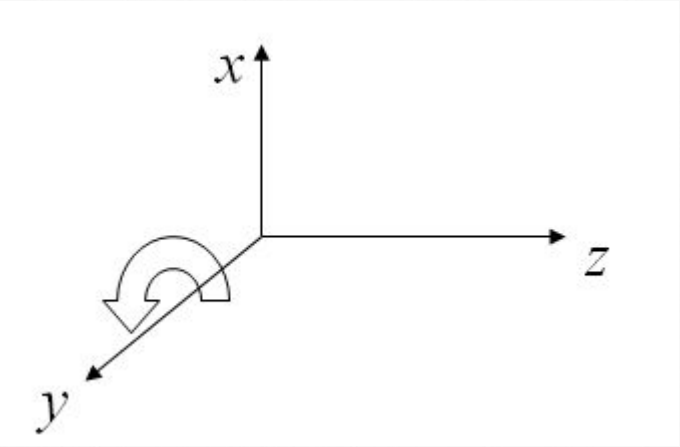
三维矩阵

三维旋转矩阵推导:

(3) 绕Y轴旋转 z' = zcost - xsint

x' = zsint + xcost

y' = y



$$(x'\ y'\ z'\ 1)=(x\ y\ z\ 1)\begin{bmatrix}\cos\beta & 0 & -\sin\beta & 0\\ 0 & 1 & 0 & 0\\ \sin\beta & 0 & \cos\beta & 0\\ 0 & 0 & 0 & 1\end{bmatrix}$$

绕 y 轴旋转

三维矩阵

三维旋转矩阵推导:

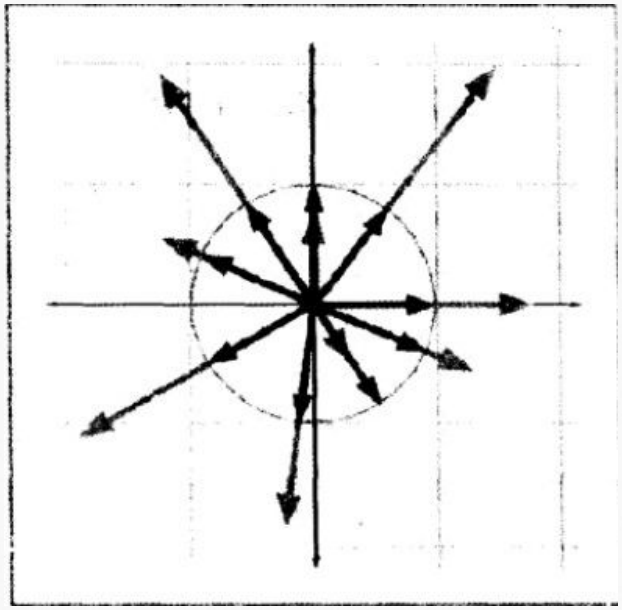
(3) 绕任意轴旋转

$$\begin{bmatrix} a^2+(1-a^2)cos\theta & ab(1-cos\theta)+csin\theta & ac(1-cos\theta)-bsin\theta & 0 \\ ab(1-cos\theta)-csin\theta & b^2+(1-b^2)cos\theta & bc(1-cos\theta)+asin\theta & 0 \\ ac(1-cos\theta)+bsin\theta & bc(1-cos\theta)-asin\theta & c^2+(1-c^2)cos\theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

单位向量

单位向量也叫做标准化向量

单位向量=当前轴向量/向量模



谢谢观看...

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