

CS552: Computer Graphics
Home Assignment (3D Transformation)

1. Find a transformation $A_{\mathbf{V}}$ which aligns a given vector \mathbf{V} with the vector \mathbf{K} along the positive \mathbf{z} axis. Draw the necessary diagrams.
2. Find a transformation $A_{\mathbf{V},\mathbf{N}}$ which aligns a vector \mathbf{V} with a vector \mathbf{N} . You may use the results of problem 1.
3. Find the transformation for mirror reflection with respect to a given plane represented by a normal vector \mathbf{N} and a reference point $P_0(x_0, y_0, z_0)$. You may assume the unit vector along the coordinate axis as \mathbf{I} , \mathbf{J} and \mathbf{K} .