

Understanding 4x4 Matrices

- Consider a 4x4 matrix:

$$\begin{pmatrix} m_0 & m_4 & m_8 & m_{12} \\ m_1 & m_5 & m_9 & m_{13} \\ m_2 & m_6 & m_{10} & m_{14} \\ m_3 & m_7 & m_{11} & m_{15} \end{pmatrix}$$

This 3x3 portion of the matrix contains the “rotation” and “scaling” components of the matrix

Understanding 4x4 Matrices

- Consider a 4x4 matrix:

$$\begin{pmatrix} m_0 & m_4 & m_8 & m_{12} \\ m_1 & m_5 & m_9 & m_{13} \\ m_2 & m_6 & m_{10} & m_{14} \\ m_3 & m_7 & m_{11} & m_{15} \end{pmatrix}$$

This 1x3 portion of the matrix contains the “translation” component of the matrix

Understanding 4x4 Matrices

- Consider a 4x4 matrix:

$$\begin{pmatrix} m_0 & m_4 & m_8 & m_{12} \\ m_1 & m_5 & m_9 & m_{13} \\ m_2 & m_6 & m_{10} & m_{14} \\ m_3 & m_7 & m_{11} & m_{15} \end{pmatrix}$$

This 4x1 portion of the matrix contains the “projection” component of the matrix.

(We will talk about this in more detail later)