

# Transformer

## Ground Truth #1

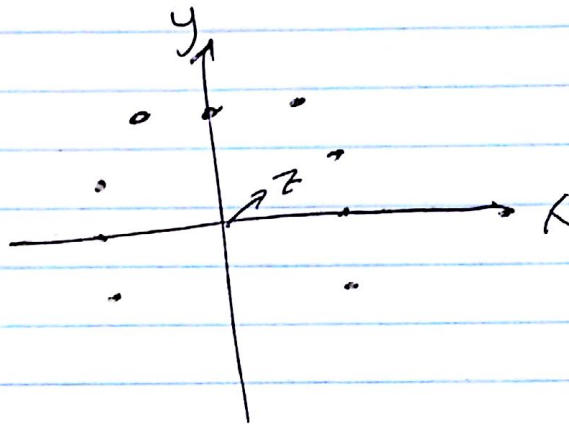
Peter Lyons

Results in Report.

identity matrix

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

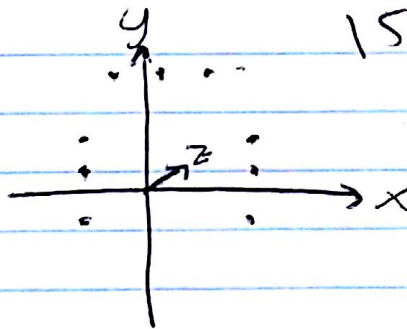
expected rotation  $0^\circ$



Ground Truth #2 - ~~Translation~~ Translation  $x, y, z$

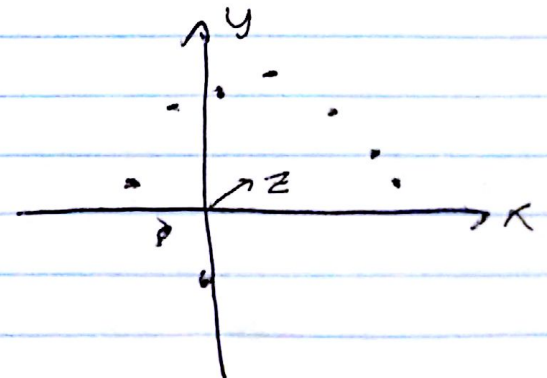
$$\begin{bmatrix} 1 & 0 & 0 & 10 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 15 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

expected: 10mm in  $x$   
5mm in  $y$   
15mm in  $z$



Ground Truth #3 - 10 degree rotation, all axis

$$\begin{bmatrix} 0.9848 & -0.1710 & 0.1736 & 0 \\ 0.2007 & 0.9646 & -0.1710 & 0 \\ -0.1383 & 0.2007 & 0.9698 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$



expected, 10 degree translation in  $x, y, z$

*Milroy*

# Simulator Ground Truth

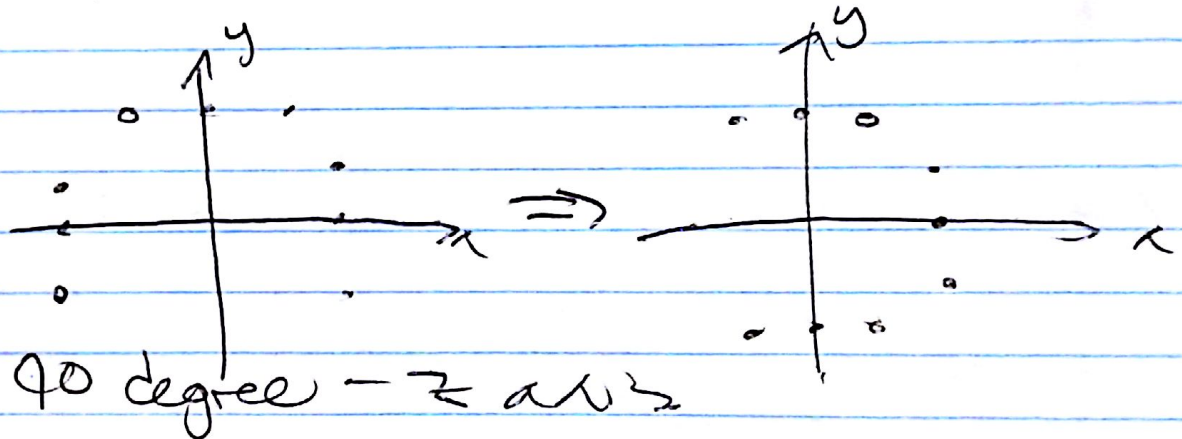
Peter Lyons

#1: All results are in report file.

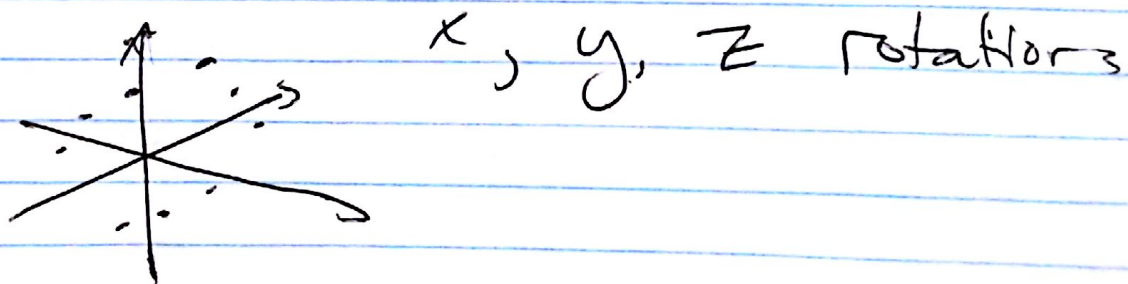
identity matrix - can the program accurately construct a fiducial cage and find the plane for the corresponding CT-coordinates.

#1.5 - Translation - in  $x, y, z$  axis.

#2: rotation in 1 axis



#3: rotation - all axes.



examples and compared outputs in Simulator\_Test.m