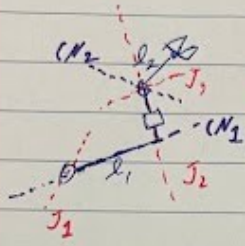
Z_i along J_{i+1}
X_i along CN_i

1.



N = 3

joint axes

common normals

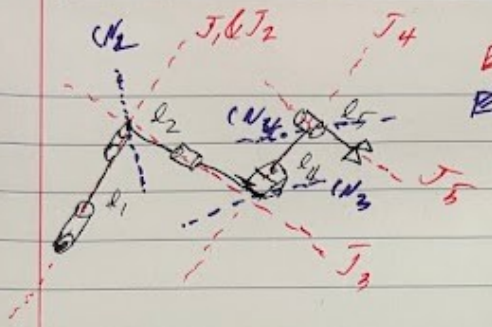
i	θ_i	α_i	a_i	d_i
1	q_1	$\pi/2$	d_1	0
2	0	$-\pi/2$	0	q_2
3	q_3	0	0	d_2

$$H_1^0 = \begin{bmatrix} \cos q_1 & -\sin q_1 & 0 & 0 \\ \sin q_1 & \cos q_1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 & d_1 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_2^1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & q_2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_3^2 = \begin{bmatrix} \cos q_1 & -\sin q_1 & 0 & 0 \\ \sin q_1 & \cos q_1 & 0 & 0 \\ 0 & 0 & 1 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_3^0 = H_1^0 H_2^1 H_3^2$$

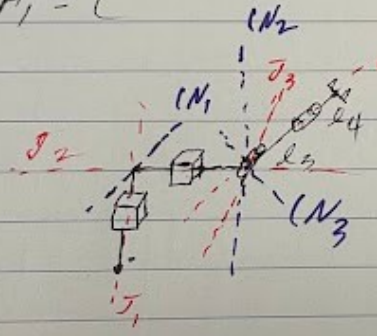


☐J
☒N

$N = 5$

	θ_i	α_i	a_i	d_i
1	q_1	0	0	l_1
2	q_2	$-\frac{\pi}{2}$	l_2	0
3	q_3	$\frac{\pi}{2}$	0	0
4	0	$-\frac{\pi}{2}$	0	q_4
5	q_5	0	0	l_5

$H_1^0 =$



	θ_i	α_i	a_i	d_i
1	0	$-\frac{\pi}{2}$	0	q_1
2	~~$-\frac{\pi}{2}$~~	$\frac{\pi}{2}$	0	q_2
3	q_3	0	l_3	0
4	q_4	0	0	l_4