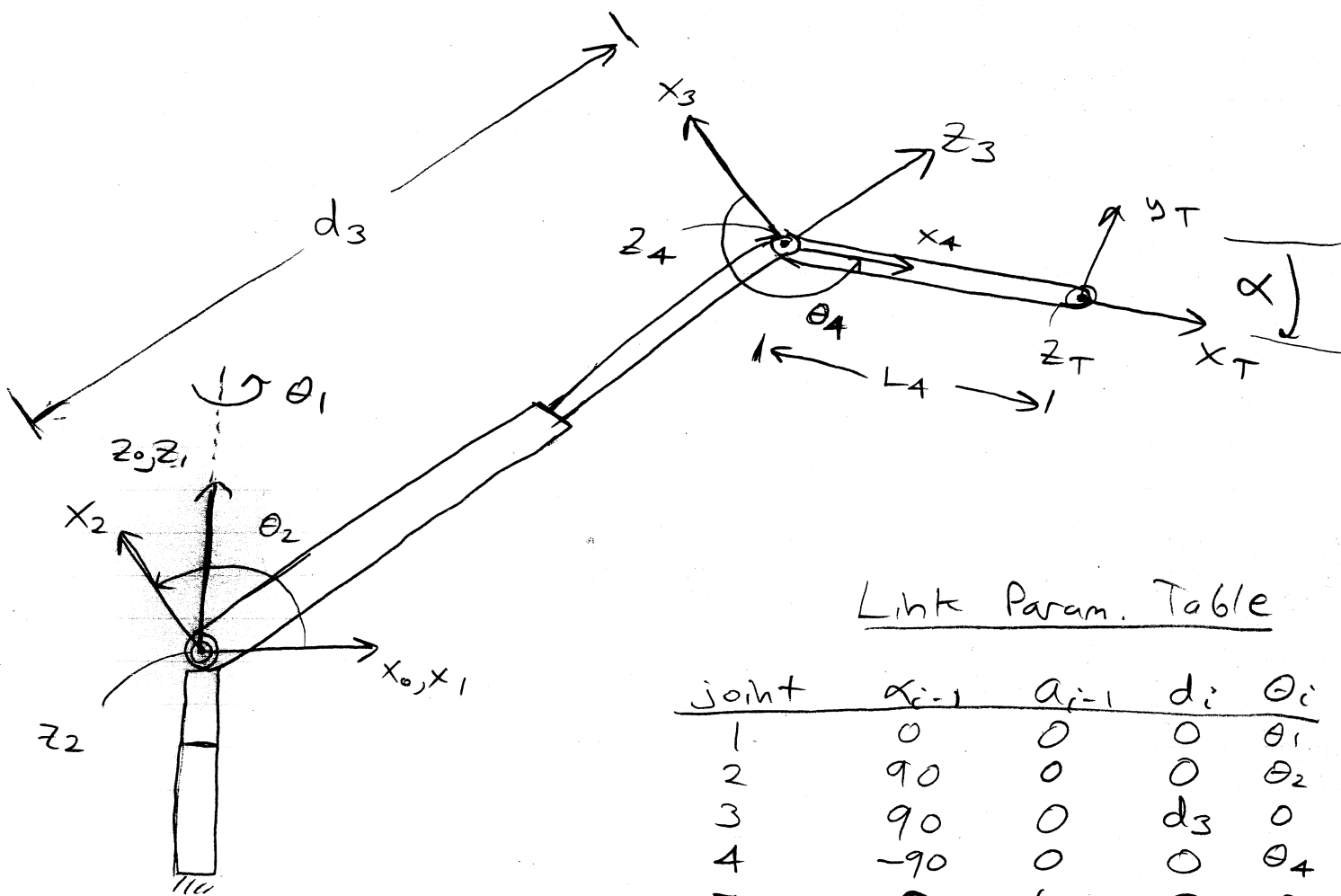


R-RPR Manipulator

Reverse Position Analysis



Link Param. Table

Joint	α_{i-1}	a_{i-1}	d_i	θ_i
1	0	0	0	θ_1
2	90	0	0	θ_2
3	90	0	d_3	0
4	-90	0	0	θ_4
T	0	L_4	0	0

Forward Position Analysis Results

$$\begin{aligned}
 \textcircled{1} = \begin{matrix} 0 \\ T \end{matrix} &= \textcircled{0} \begin{matrix} 1 \\ T \end{matrix} \begin{matrix} 2 \\ T \end{matrix} \begin{matrix} 3 \\ T \end{matrix} \begin{matrix} 4 \\ T \end{matrix} \begin{matrix} T \\ T \end{matrix} = \begin{bmatrix} c_{\theta_1} c_{\theta_2+\theta_4} & -c_{\theta_1} s_{\theta_2+\theta_4} & s_{\theta_1} (L_4 c_{\theta_2+\theta_4} + d_3 c_{\theta_2} s_{\theta_2}) \\ s_{\theta_1} c_{\theta_2+\theta_4} & -s_{\theta_1} s_{\theta_2+\theta_4} & -c_{\theta_1} (L_4 s_{\theta_2+\theta_4} + d_3 s_{\theta_2} s_{\theta_2}) \\ s_{\theta_2+\theta_4} & c_{\theta_2+\theta_4} & 0 (L_4 s_{\theta_2+\theta_4} - d_3 c_{\theta_2}) \\ 0 & 0 & 0 & 1 \end{bmatrix}
 \end{aligned}$$