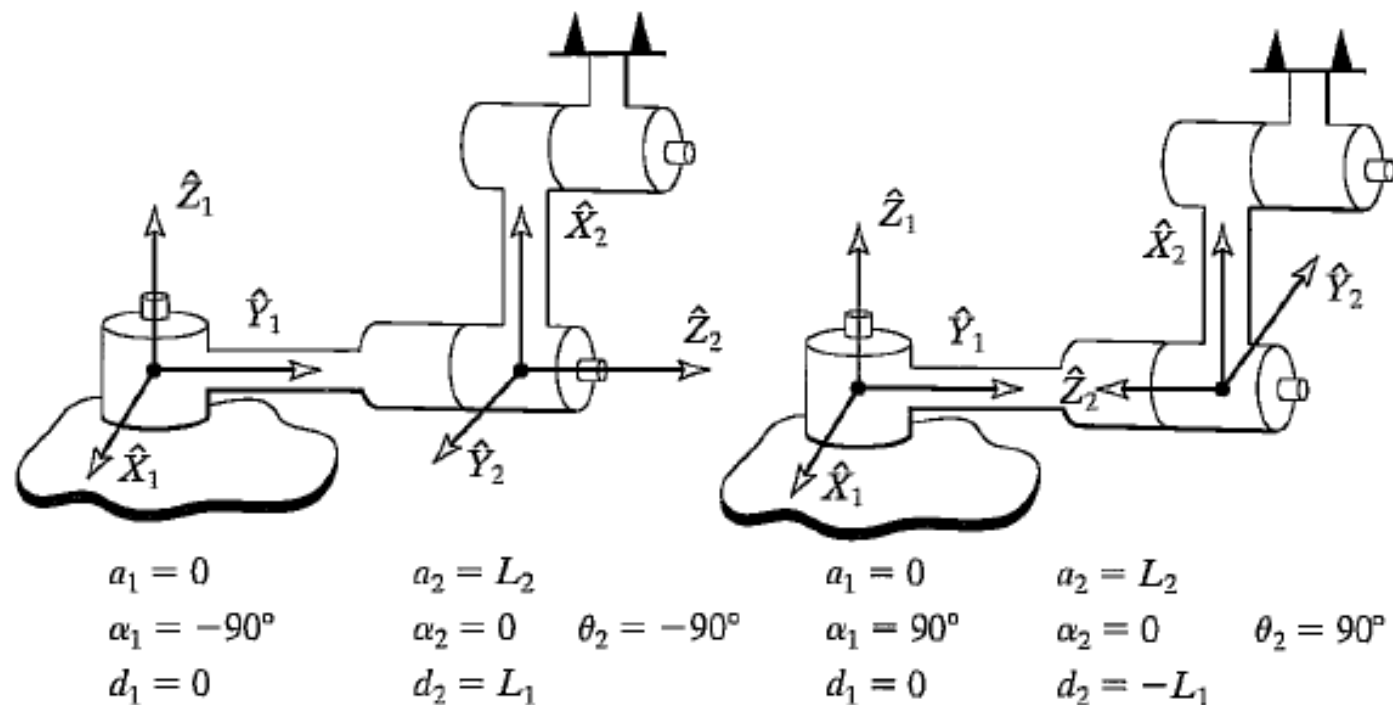
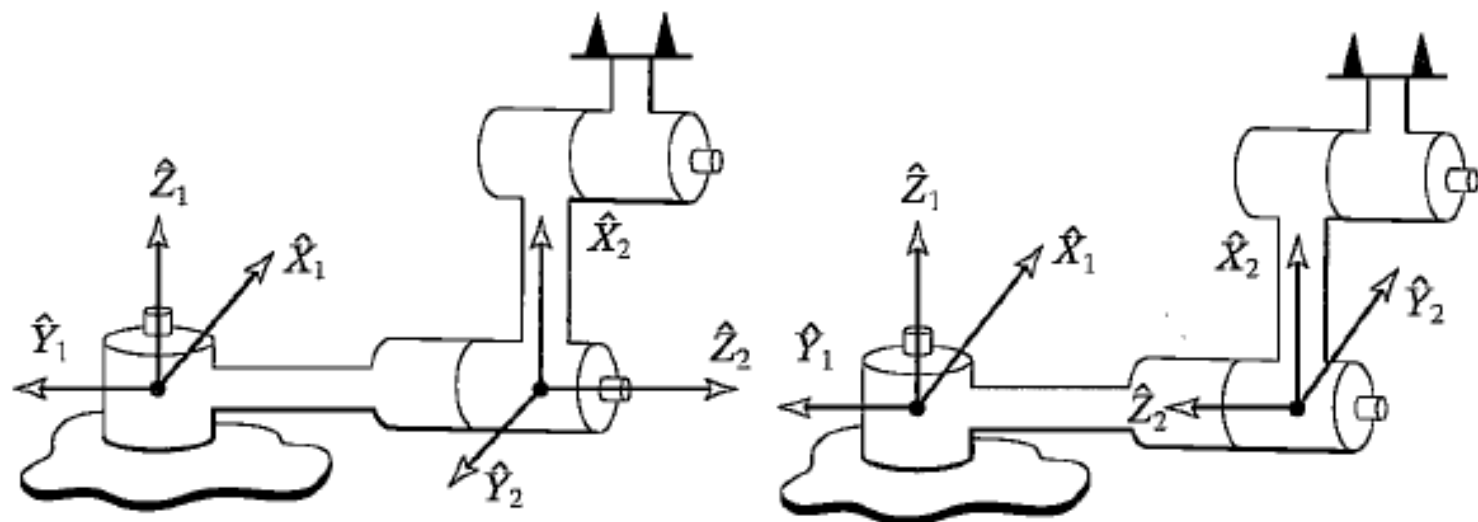


$a_i =$ the distance from \hat{Z}_i to \hat{Z}_{i+1} measured along \hat{X}_i ;
 $\alpha_i =$ the angle from \hat{Z}_i to \hat{Z}_{i+1} measured about \hat{X}_i ;
 $d_i =$ the distance from \hat{X}_{i-1} to \hat{X}_i measured along \hat{Z}_i ; and
 $\theta_i =$ the angle from \hat{X}_{i-1} to \hat{X}_i measured about \hat{Z}_i .



$a_i =$ the distance from \hat{Z}_i to \hat{Z}_{i+1} measured along \hat{X}_i ;
 $\alpha_i =$ the angle from \hat{Z}_i to \hat{Z}_{i+1} measured about \hat{X}_i ;
 $d_i =$ the distance from \hat{X}_{i-1} to \hat{X}_i measured along \hat{Z}_i ; and
 $\theta_i =$ the angle from \hat{X}_{i-1} to \hat{X}_i measured about \hat{Z}_i .



$a_1 = 0$	$a_2 = L_2$	
$\alpha_1 = 90^\circ$	$\alpha_2 = 0$	$\theta_2 = 90^\circ$
$d_1 = 0$	$d_2 = L_1$	

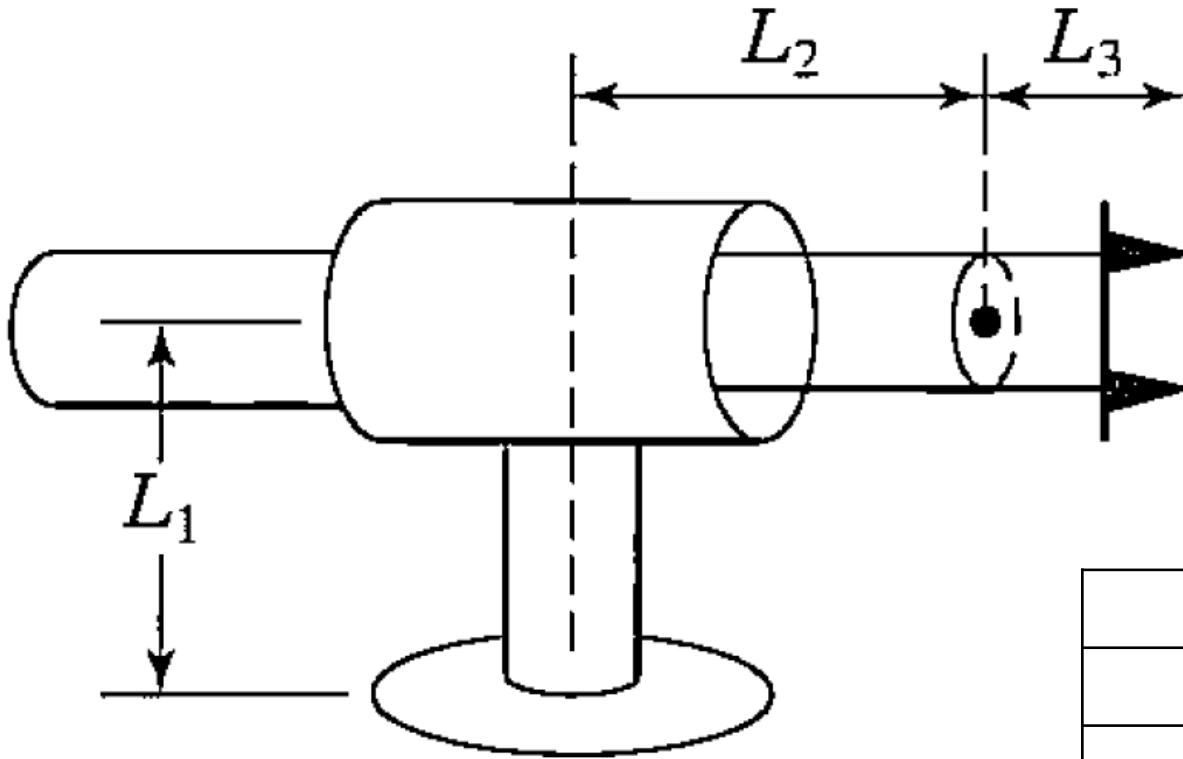
$a_1 = 0$	$a_2 = L_2$	
$\alpha_1 = -90^\circ$	$\alpha_2 = 0$	$\theta_2 = -90^\circ$
$d_1 = 0$	$d_2 = -L_1$	

$a_{i-1} =$ The distance from \hat{Z}_{i-1} to \hat{Z}_i measured along \hat{X}_{i-1} ;

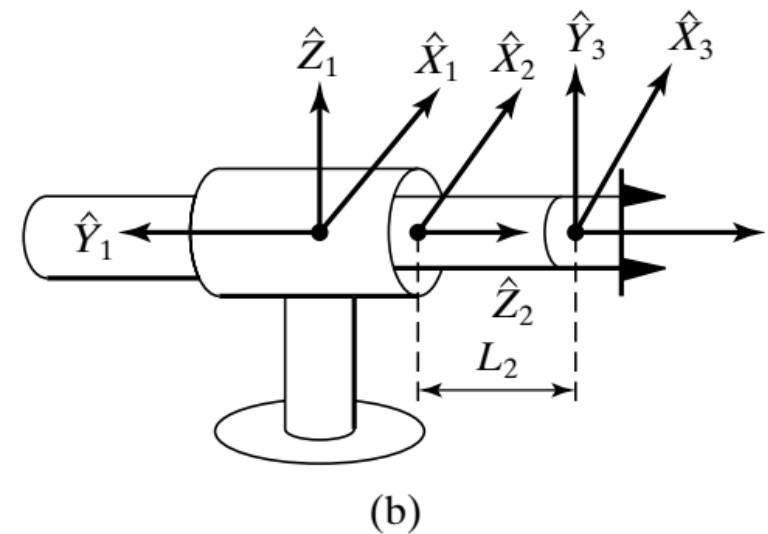
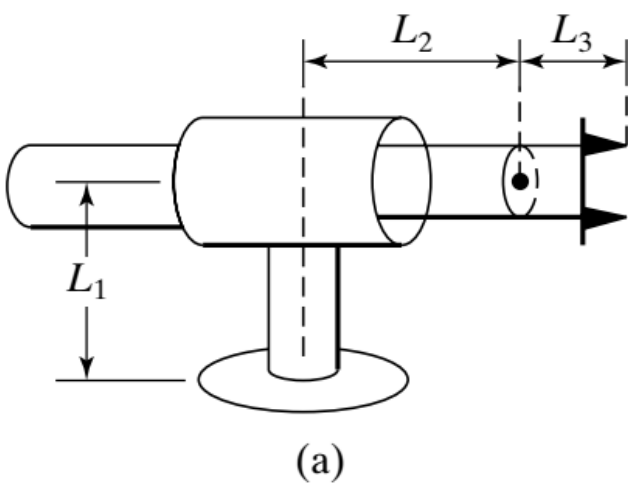
$\alpha_{i-1} =$ The angle from \hat{Z}_{i-1} to \hat{Z}_i measured along \hat{X}_{i-1} ;

$d_i =$ The distance from \hat{X}_{i-1} to X_i measured along \hat{Z}_i ;

$\theta_i =$ The angle from \hat{X}_{i-1} to X_i measured along \hat{Z}_i ;



i	α_{i-1}	a_{i-1}	d_i	θ_i
1	0	0	L1	θ_1
2	90	0	D2	0
3	0	0	L2	θ_3
4	0	0	L3	0



i	α_{i-1}	a_{i-1}	d_i	θ_i
1	0	0	0	θ_1
2	90°	0	d_2	0
3	0	0	L_2	θ_3



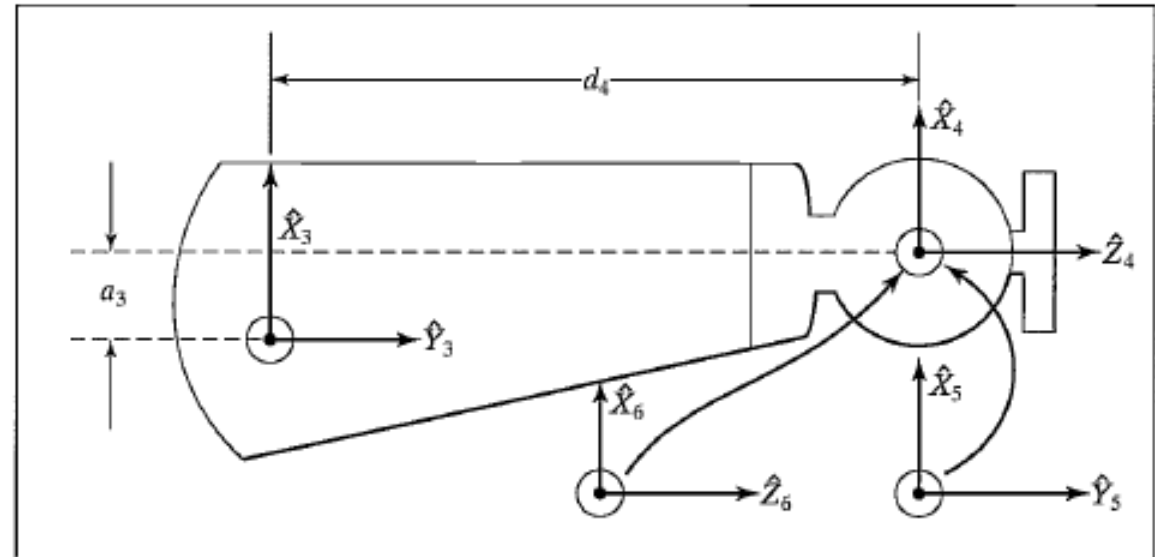
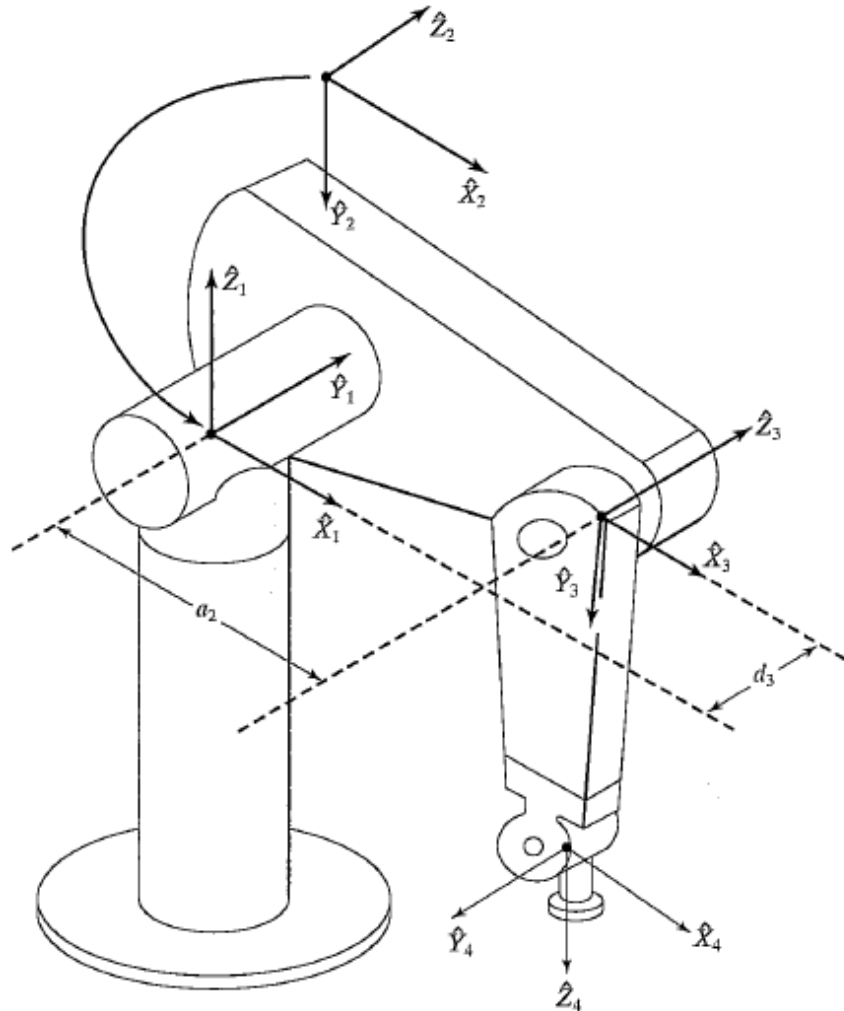
a_{i-1} = The distance from \hat{Z}_{i-1} to \hat{Z}_i measured along \hat{X}_{i-1} ;

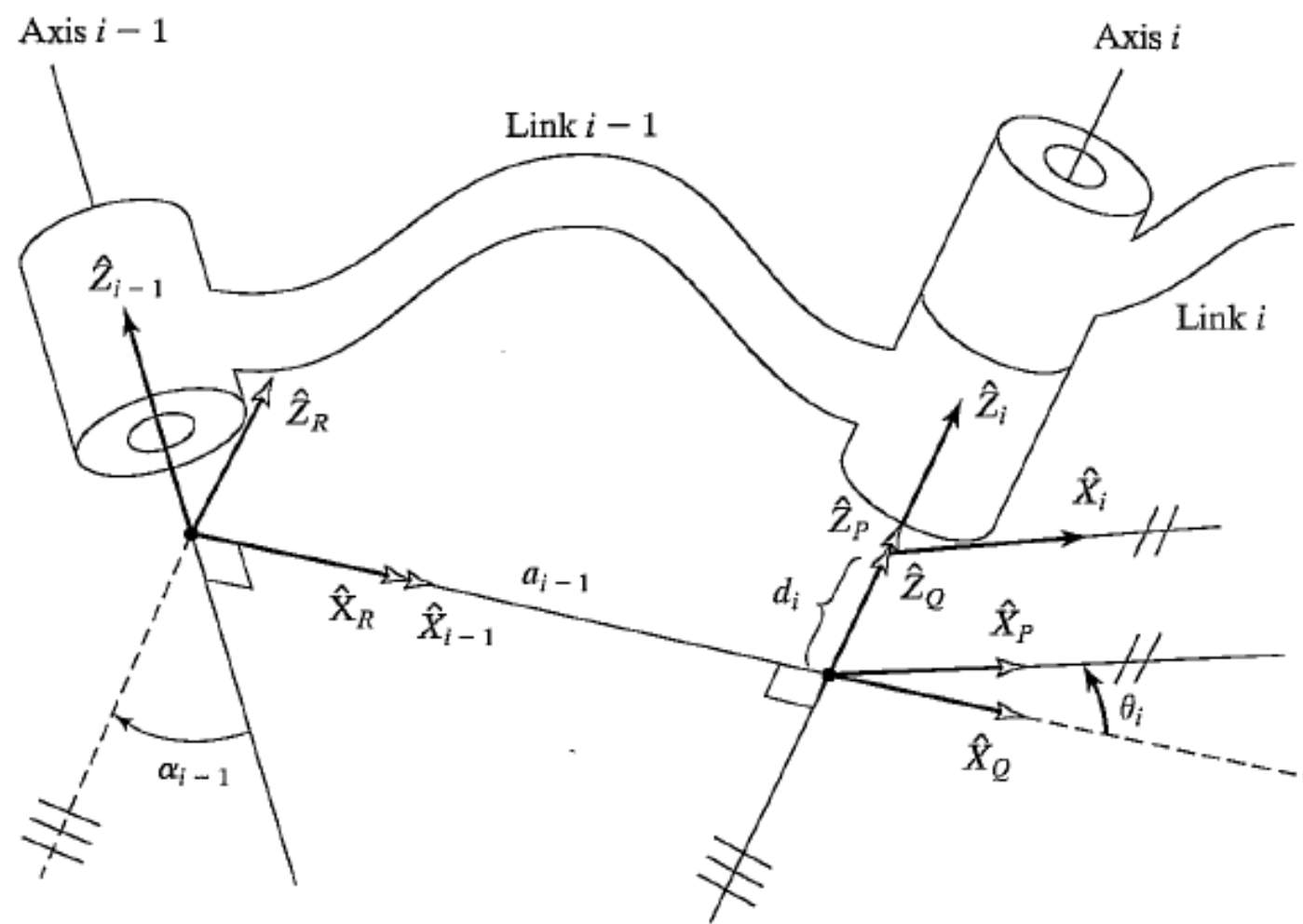
α_{i-1} = The angle from \hat{Z}_{i-1} to \hat{Z}_i measured along \hat{X}_{i-1} ;

d_i = The distance from \hat{X}_{i-1} to X_i measured along \hat{Z}_i ;

θ_i = The angle from \hat{X}_{i-1} to X_i measured along \hat{Z}_i ;

i	α_{i-1}	a_{i-1}	d_i	θ_i
1	0	0	0	θ_1
2	-90	0	0	θ_2
3	0	a_2	d_3	θ_3
4	-90	a_3	d_4	θ_4
5	90	0	0	θ_5
6	-90	0	0	θ_6

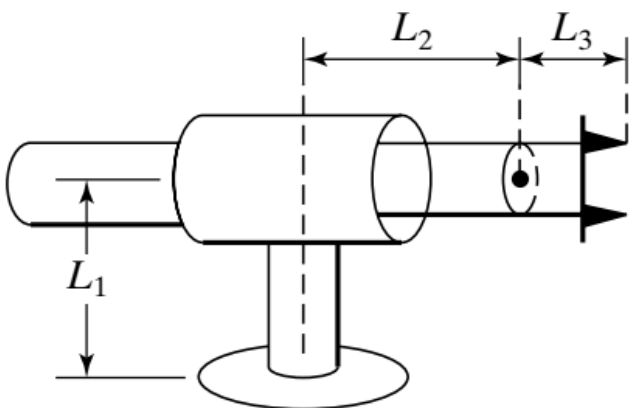




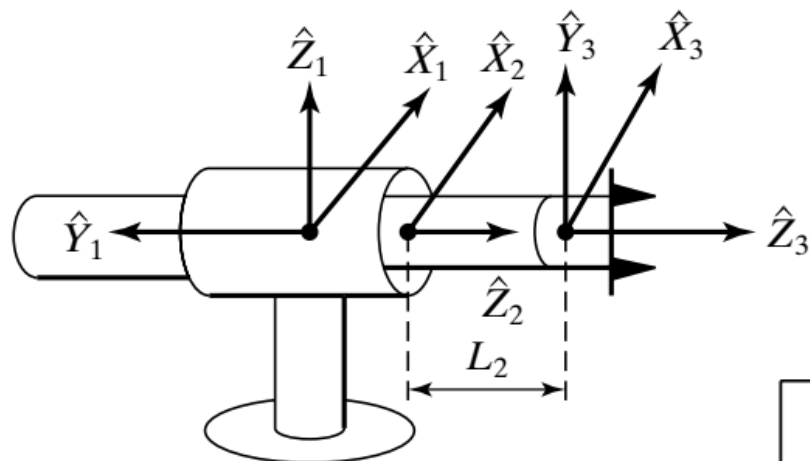
Transformation Matrix:

Link Twist	Link Length	Joint Angle	Joint Offset
$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & C\alpha_{i-1} & -S\alpha_{i-1} & 0 \\ 0 & S\alpha_{i-1} & C\alpha_{i-1} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$	$\begin{bmatrix} 1 & 0 & 0 & a_{i-1} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$	$\begin{bmatrix} C\theta_i & -S\theta_i & 0 & 0 \\ S\theta_i & C\theta_i & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & d_i \\ 0 & 0 & 0 & 1 \end{bmatrix}$

$${}^{i-1}_iT = \begin{bmatrix} c\theta_i & -s\theta_i & 0 & a_{i-1} \\ s\theta_i c\alpha_{i-1} & c\theta_i c\alpha_{i-1} & -s\alpha_{i-1} & -s\alpha_{i-1}d_i \\ s\theta_i s\alpha_{i-1} & c\theta_i s\alpha_{i-1} & c\alpha_{i-1} & c\alpha_{i-1}d_i \\ 0 & 0 & 0 & 1 \end{bmatrix}.$$



(a)



(b)

$${}^{i-1}_iT = \begin{bmatrix} c\theta_i & -s\theta_i & 0 & a_{i-1} \\ s\theta_i c\alpha_{i-1} & c\theta_i c\alpha_{i-1} & -s\alpha_{i-1} & -s\alpha_{i-1}d_i \\ s\theta_i s\alpha_{i-1} & c\theta_i s\alpha_{i-1} & c\alpha_{i-1} & c\alpha_{i-1}d_i \\ 0 & 0 & 0 & 1 \end{bmatrix}.$$

i	α_{i-1}	a_{i-1}	d_i	θ_i
1	0	0	0	θ_1
2	90°	0	d_2	0
3	0	0	L_2	θ_3