

Using Mathematica, we find that:

$$T_{\mathbf{06}} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & p_{\mathbf{06}}^x \\ c_{21} & c_{22} & c_{23} & p_{\mathbf{06}}^y \\ c_{31} & c_{32} & c_{33} & p_{\mathbf{06}}^z \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

where,

$$\begin{aligned} c_{11} &= -s(\theta_1)(c(\theta_5)c(\theta_6)s(\theta_4) + c(\theta_4)s(\theta_6)) - c(\theta_1)(c(\theta_6)s(\theta_2)s(\theta_5) + c(\theta_2)(s(\theta_4)s(\theta_6) - c(\theta_4)c(\theta_5)c(\theta_6))) \\ c_{12} &= (c(\theta_5)s(\theta_1)s(\theta_4) + c(\theta_1)(s(\theta_2)s(\theta_5) - c(\theta_2)c(\theta_4)c(\theta_5)))s(\theta_6) - c(\theta_6)(c(\theta_4)s(\theta_1) + c(\theta_1)c(\theta_2)s(\theta_4)) \\ c_{13} &= s(\theta_1)s(\theta_4)s(\theta_5) - c(\theta_1)(c(\theta_5)s(\theta_2) + c(\theta_2)c(\theta_4)s(\theta_5)) \\ c_{21} &= -c(\theta_6)s(\theta_1)s(\theta_2)s(\theta_5) + c(\theta_1)(c(\theta_5)c(\theta_6)s(\theta_4) + c(\theta_4)s(\theta_6)) + c(\theta_2)s(\theta_1)(c(\theta_4)c(\theta_5)c(\theta_6) - s(\theta_4)s(\theta_6)) \\ c_{22} &= c(\theta_1)(c(\theta_4)c(\theta_6) - c(\theta_5)s(\theta_4)s(\theta_6)) + s(\theta_1)(s(\theta_2)s(\theta_5)s(\theta_6) - c(\theta_2)(c(\theta_6)s(\theta_4) + c(\theta_4)c(\theta_5)s(\theta_6))) \\ c_{23} &= -c(\theta_5)s(\theta_1)s(\theta_2) - (c(\theta_2)c(\theta_4)s(\theta_1) + c(\theta_1)s(\theta_4))s(\theta_5) \\ c_{31} &= c(\theta_4)c(\theta_5)c(\theta_6)s(\theta_2) - s(\theta_4)s(\theta_6)s(\theta_2) + c(\theta_2)c(\theta_6)s(\theta_5) \\ c_{32} &= -c(\theta_6)s(\theta_2)s(\theta_4) - (c(\theta_4)c(\theta_5)s(\theta_2) + c(\theta_2)s(\theta_5))s(\theta_6) \\ c_{33} &= c(\theta_2)c(\theta_5) - c(\theta_4)s(\theta_2)s(\theta_5) \\ p_{\mathbf{06}}^x &= d6s(\theta_1)s(\theta_4)s(\theta_5) - c(\theta_1)((d3 + d4 + d6c(\theta_5))s(\theta_2) + d6c(\theta_2)c(\theta_4)s(\theta_5)) \\ p_{\mathbf{06}}^y &= -(d3 + d4 + d6c(\theta_5))s(\theta_1)s(\theta_2) - d6(c(\theta_2)c(\theta_4)s(\theta_1) + c(\theta_1)s(\theta_4))s(\theta_5) \\ p_{\mathbf{06}}^z &= d1 + c(\theta_2)(d3 + d4 + d6c(\theta_5)) - d6c(\theta_4)s(\theta_2)s(\theta_5) \end{aligned}$$