

Milestone 2 Report

Menna Wahba

Ahd Elsharkawy
Tarek Sherif

Rahma Ahmed
Youssef Amro

Omar Magdy

October 22, 2025

1 DH Convention

1.1 X-Z Frames

We drew X-Z frames over 2 different views as follows :

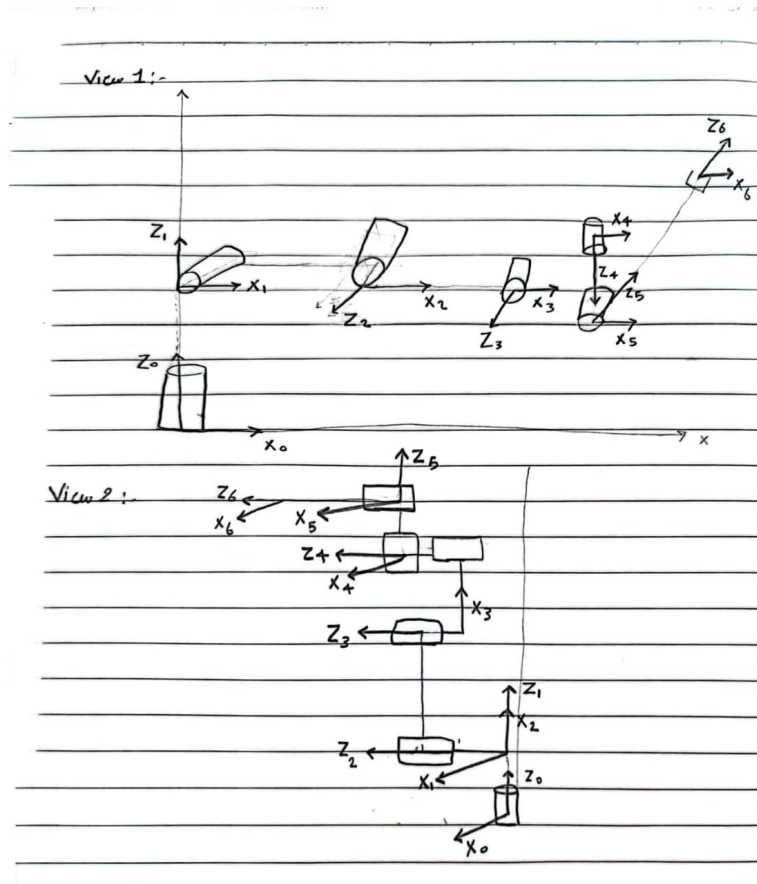


Figure 1: X-Z frames over 2 different views

Joint i	q_i	d_i	a_i	α_i [rad]
1	q_1	L1	0	$+\frac{\pi}{2}$
2	q_2	0	L2	0
3	q_3	0	L3	0
4	q_4	L4	0	$+\frac{\pi}{2}$
5	q_5	L5	0	$-\frac{\pi}{2}$
6	q_6	L6	0	0

1.1.1 DH-parameters Table

1.2 Forward Kinematics

for our forward kinematics values we noticed that the x and y are reversed from the frames we used for table parameters and therefore multiplied them by -1. We tried multiple angles, 3 examples of which are :

1. no rotation

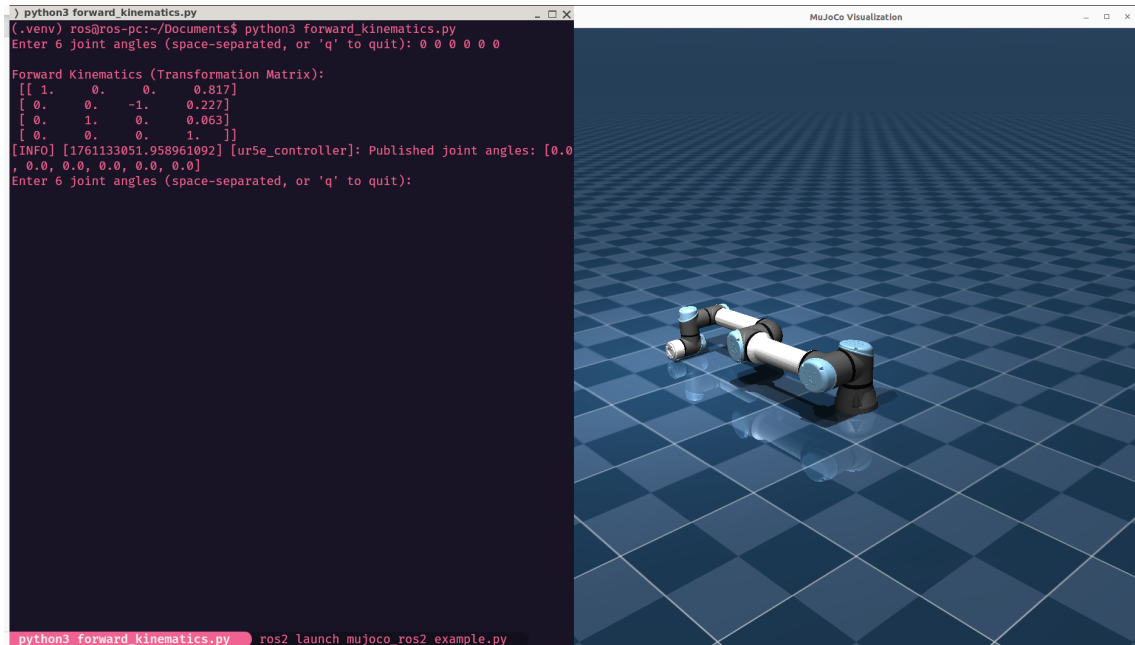


Figure 2: no rotation

2. -90° in x

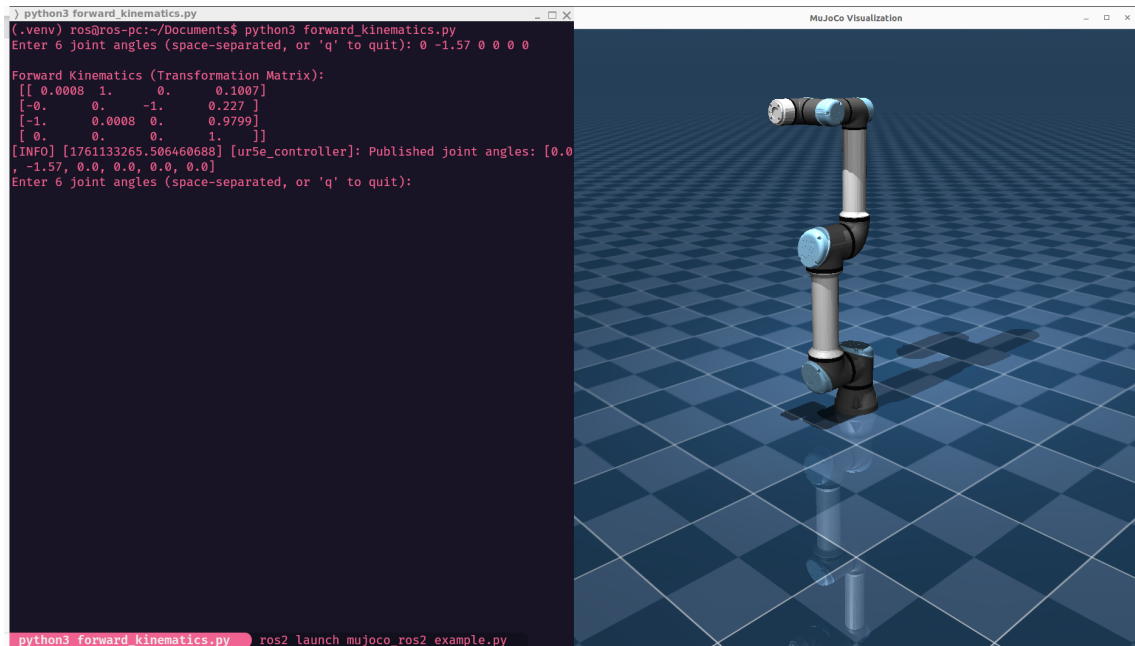


Figure 3: -90° rotation in x

3. 90° in z

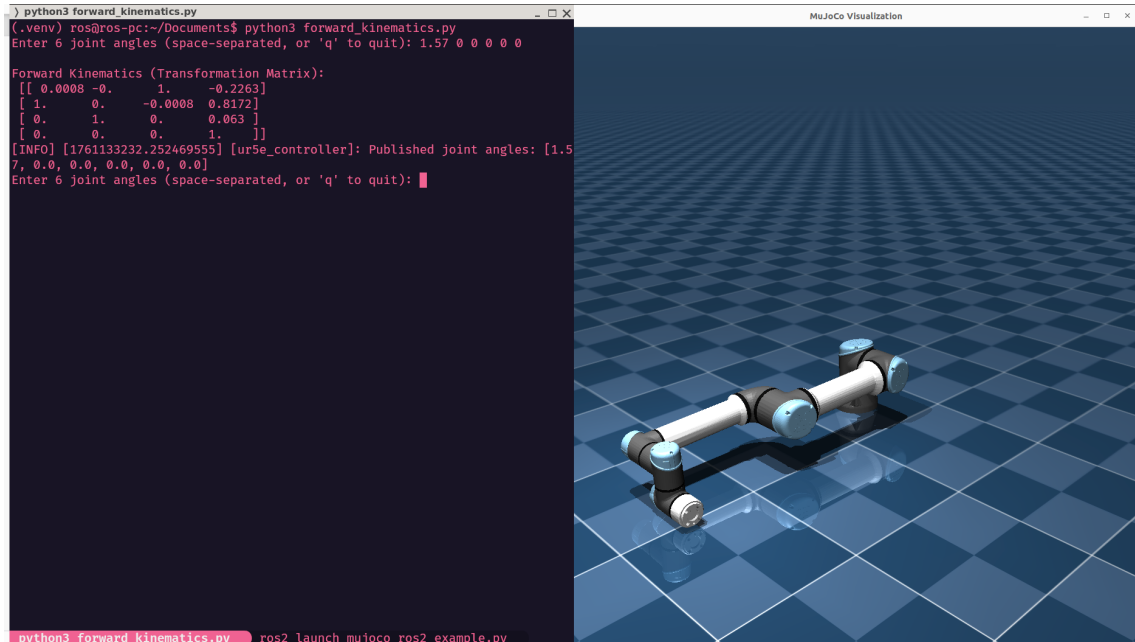


Figure 4: 90° rotation in z

2 Inverse Kinematics

The python library ikpy.chain was used to calculate the inverse kinematics angles for each joint as follows:

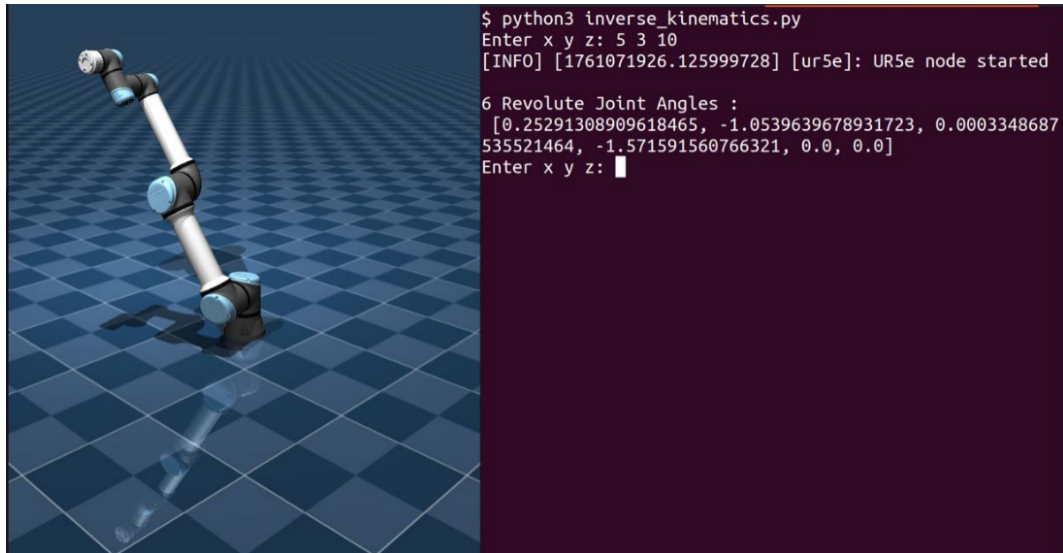


Figure 5: inverse kinematics