

# MMC HW4

continued from HW2

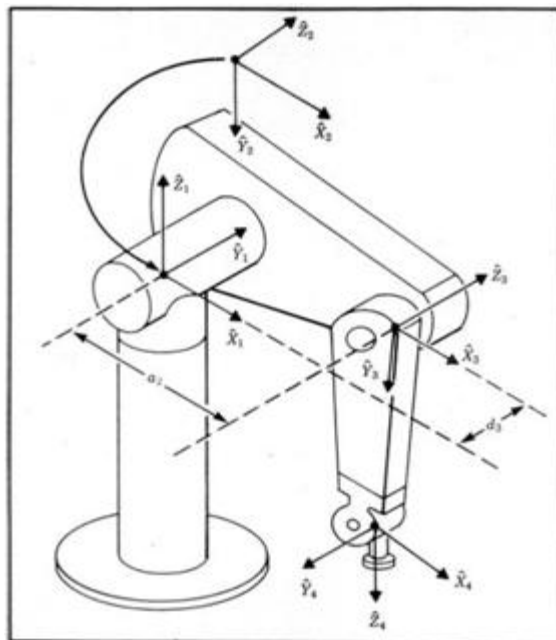
At that instance, all joint velocities are  $0.1 \text{ rad / sec}$  with the robot configuration of prob. 1 of HW2

If possible, Write the Matlab Program to do next problems as

1. Find the linear and angular velocities of the tool through velocity propagation
2. Find the Jacobian at that instant.
3. With the inverse of Jacobian and the obtained results, do velocity inverse kinematics to find the joint velocities.

<HW1> Using MatLab,

1. Program Forward Kinematics for Puma 560 Robots using Matlab



choose  $[a_2, a_3, d_3, d_4]$  as  $[1 \ 0.3 \ 0.5 \ 1]$  and  ${}^6P_T = [0 \ 0 \ 0.3]^T$

- a) When  $\theta_1 = 30^\circ$ ,  $\theta_2 = 30^\circ$ ,  $\theta_3 = 45^\circ$ ,  $\theta_4 = 90^\circ$ ,  $\theta_5 = 30^\circ$ ,  $\theta_6 = 30^\circ$ , find  ${}^0_T T$ .