

METR4202 -- Robotics

Tutorial 3 – Week 3: Forward Kinematics

Forward Kinematics Tutorial

The objective of this tutorial is to explore homogenous transformations. The MATLAB robotics toolbox developed by Peter Corke might be a useful aid¹.

Reading

Please read/review Please read/review chapter 7 of Robotics, Vision and Control.

Review

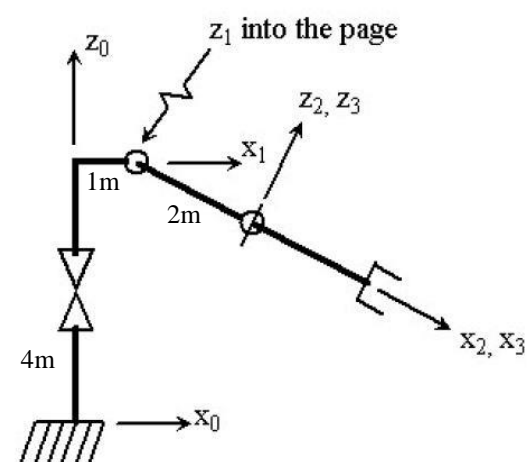
Useful commands:

`Transl, trotx, troty, troz, rotx, roty, rotz, tr2eul, DHFactor`

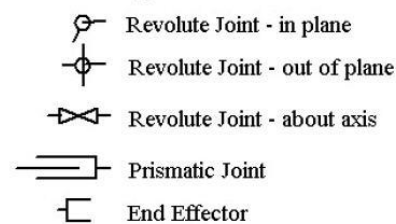
Familiarise yourself with the link class

Questions

1. For the robot shown in the following figure, find the table of DH parameters according to “Standard” DH conventions.



Legend:



¹ http://petercorke.com/Robotics_Toolbox.html

2.

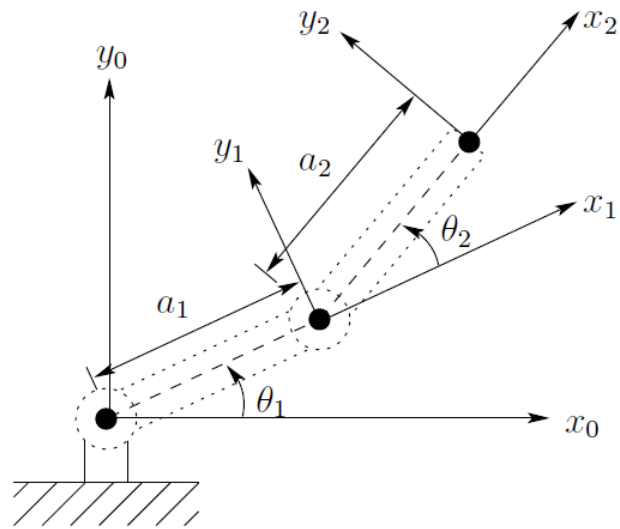


Figure 1: Two-link Planar Robot

- a.) Determine the joint angles of the two-link planar arm.
- b.) If $a_1 = 2$ and $a_2 = 3$ what are the joint angles corresponding to an end effector position of $(x,y)=(1, 1)$.