

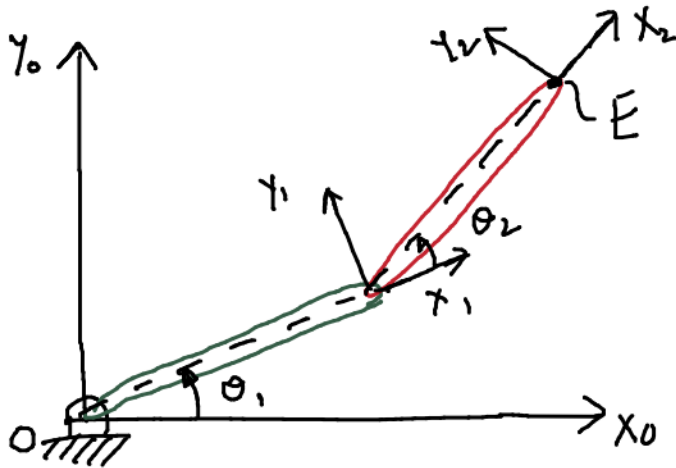
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```
clc
clear all
close all
```

**This example does an animation of a two link manipulator with two rotational joint**



**Specify parameters and get transformation matrices**

```
%D-H for link 1
a1 = 1; alpha1 = 0; d1=0; theta1 = pi/2;
A01 = DH(a1,alpha1,d1,theta1); %A^0_1
```

**Hello**

```
%D-H for link2
```

---

```
a2 = 1; alpha2 = 0; d2=0; theta2 = pi/4;
A12 = DH(a2,alpha2,d2,theta2); %A^1_2
```

## Get locations of joints

```
%Location of joint 1
endOfLink1 = A01(1:3,4);

%Location of joint 2
A02 = A01*A12;
endOfLink2 = A02(1:3,4);

%end-effector position and orientation.
position_of_end_effector = A02(1:3,4)
orientation_of_end_effector = A02(1:3,1:3)
```

## Draw lines from one joint to another

```
%Draw line from origin to end of link 1
line([0 endOfLink1(1)],[0 endOfLink1(2)],[0 endOfLink1(3)],...
      'LineWidth',5,'Color','red');

%Draw line from end of link 1 to end of link 2
line([endOfLink1(1) endOfLink2(1)],...
      [endOfLink1(2) endOfLink2(2)],...
      [endOfLink1(3) endOfLink2(3)],...
      'LineWidth',5,'Color','blue');

xlabel('x');
ylabel('y');
zlabel('z');
grid on; %if you want the grid to show up.
axis('equal'); %make the axis equal, to avoid scaling effect

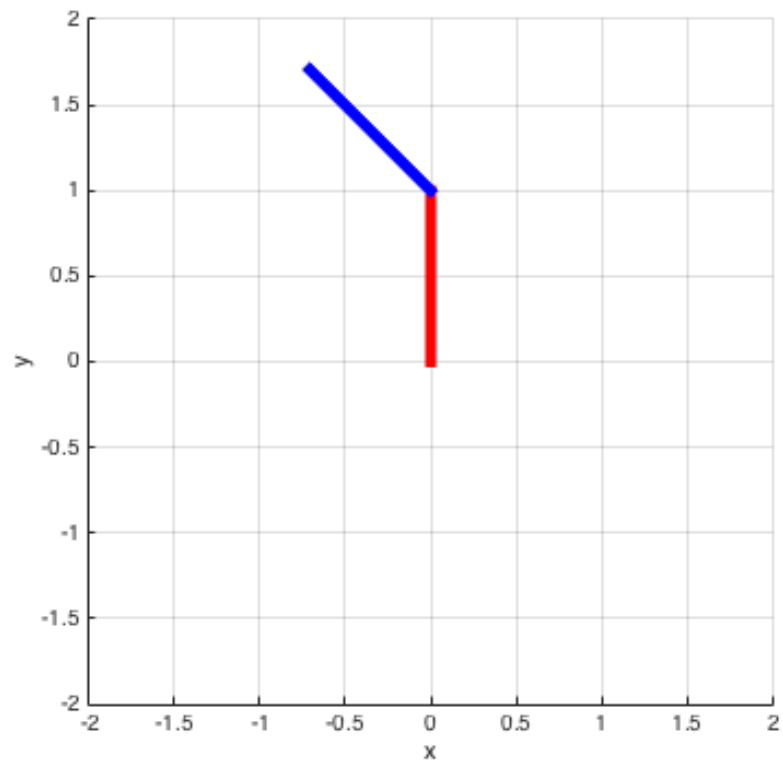
% These set the x and y limits for the axis (will need adjustment)
xlim([-2 2]);
ylim([-2 2]);
zlim([-2 2]);

position_of_end_effector =

    -0.7071
     1.7071
         0

orientation_of_end_effector =

    -0.7071    -0.7071         0
     0.7071    -0.7071         0
         0         0     1.0000
```



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