ENME489C/ENME808M Problem Set7

Prof. Axel Krieger
Fall 2017
Due Date: Wednesday, November 1st, at 11:59 PM

October 25, 2017

Exercise 1: 50 points
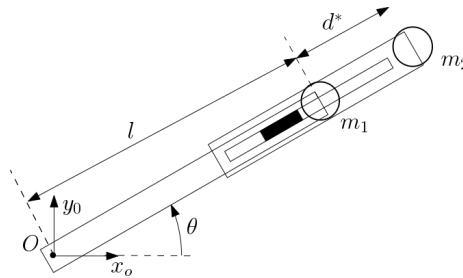

Figure 1: Exercise 1

a. Compute the equations of motion of the RP robot with point masses m_1 and m_2 as shown in figure 1. The point masses are located at the end of each of the two links.

b. Group the EOM and compute the Mass/inertia matrix M, Coriolis/centrifugal matrix C and gravity matrix G.

Exercise 2: 50 points

a. Compute the equations of motion of a standard 3-axis Cartesian manipulator with three point masses as shown in figure 2. The point masses are located at the end of each of the three links.

b. Group the EOM and compute the Mass/inertia matrix M, Coriolis/centrifugal matrix C and gravity matrix G.
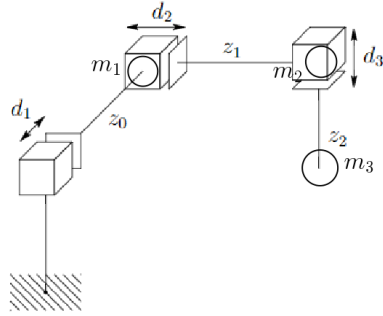
Figure 2: Exercise 2

Exercise 3: 20 points

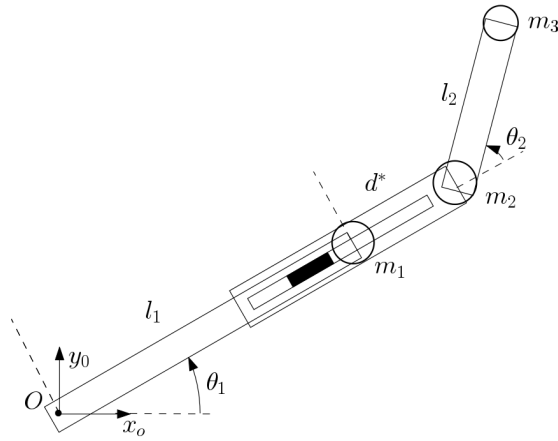**[MUST for GRAD students and optional for undergrad students]**.

Figure 3: Exercise 3

a. Compute the equations of motion of a RPR robot with three point masses as shown in figure 3. The point masses are located at the end of each of the three links.

b. Group the EOM and compute the Mass/inertia matrix M, Coriolis/centrifugal matrix C and gravity matrix G.