ME 115(a): Homework #6

(Due Tuesday March. 12, 2002)

Problem #1: (Related to Problem #3, Chapter 3 of MLS)

Solve the inverse kinematic problem, using any technique that you like, for manipulator (iv) in Figure 3.23.

Problem #2: (Related to Problem #3, Chapter 3 of MLS)

Part (a): For Manipulator (iii) in Figure 3.23 (i.e., the "elbow manipulator"), let the link lengths be $a_2 = 1$ and $a_3 = 1$. Let the desired position of the tool frame origin be $(x, y, z) = (1.0, 1.0, 0.0)$. Solve the inverse kinematics problem for this given location.

Part (b): For Manipulator (iv), solve the inverse kinematic problem for the same data as Part (a).

Problem #3: (Related to Problem #3(c), Chapter 3 of MLS)

Find the spatial Jacobian matrix for manipulator (ii) of Figure 3.23.