Homework 2:
Locomotion

Due: Thursday, September 4, 2014, at the beginning of class (11:10AM)

[Submit your homework electronically to the course BlackBoard website by the deadline. Your submission must be in a single pdf file. *No other formats are acceptable.* Be sure to put your name at the top of your homework.]

1. **[Everyone]** Consider an eight-legged walking robot. Consider gaits in terms of lift/release events as in Chapter 2.

   a. How many possible events exist for this eight-legged machine?

   b. Specify two different statically stable walking gaits using the notation of Figure 2.8 in the text.

2. **[Everyone]** Describe a wheel configuration that enables omnidirectional motion that is not identified in Section 2.3.2.2 of the text. Note that you may use any type of wheel in this design. Draw the wheel configuration using the notation of Table 2.1 of the text.

3. **[Grad students only]** Four-legged machines are normally not statically stable. Design a four-legged locomotion machine that is statically stable. Draw it, and describe the gait used using the notation of Figure 2.8.