

Robotics with MuJoCo, HW 5

Homework due on 03-31-2022, Topics: 2D Biped

Email solutions to pranav@uic.edu.

1. **2D Biped on level-ground** Consider the 2D biped shown in Fig. 1. In the lecture, we created walking gait by introducing a slope (by turning the gravity vector). Your goal in this exercise is to create a controller for a 2D biped to walk on level ground. Investigate these two ways of generating level-walking gaits.
 - (a) Use the knee joint to generate a push-off. Good timing of the push-off is critical to generate adequate forward progression speed. The best time to push-off is to do it with the trailing knee just as the forward leg hits the ground. You can do this by changing the state machine for the knee.
 - (b) Add a torso to the model and bend the torso slightly in the direction you want the biped to walk. This generates a torque on the leg on the ground, thus generating a forward progression speed. You will need to add a torso to the model and create a state machine to control the torso.

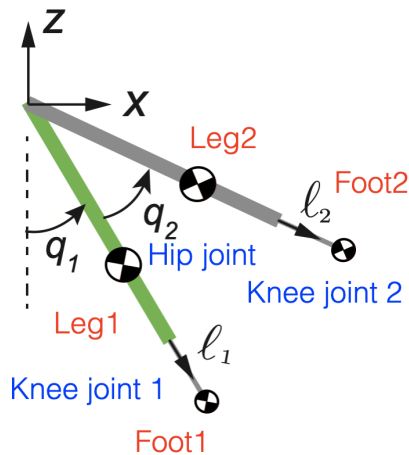


Figure 1: 2D biped model