CPSC 526: Computer Animation
Assignment 4

26 October 2017

Write out the full 2D equations of motion using maximal coordinates.

$$\begin{bmatrix} m & 0 & 0 & -1 & 0 \\ 0 & m & 0 & 0 & -1 \\ 0 & 0 & \frac{m^2 * l}{12} & r_y & -r_x \\ 1 & 0 & r_y & 0 & 0 \\ 0 & 1 & -r_x & 0 & 0 \end{bmatrix} \begin{bmatrix} \ddot{x} \\ \ddot{y} \\ \theta \\ F_x \\ F_y \end{bmatrix} = \begin{bmatrix} 0 \\ -mg \\ 0 \\ -r_x w^2 \\ -r_y w^2 \end{bmatrix}$$

Remark: For our simulation we however used 3D equations matrix. Mostly because it was easier based on lecture notes for one link and especially four links.