COMP 258 Homework 4 Nov. 22, 1995, **Due:** Dec. 10, 1995

This is an **optional** bonus assignment. You may choose any one of the following:

Bonus Problems

1. Write a **3D** dynamic simulation system to mimic the roller coaster behavior using constrained dynamics. Please state your assumptions about track friction, track width (must be greater than zero), cart model, the track trajectory, etc.

2. Modify the mass-spring simulator with continuum dynamics. That is to model the spring itself with a collection of spring-mass systems. Comment on the choices of time steps, spring stiffness, numerical convergence.

3. Modify the bouncing ball simulation with rotational dynamics and friction models. State any assumption. Be clear about which simulation paradigm you use – constrained-based, impulse-based, etc.