**Real-time Balloon Simulation**

Annie Pa Michael Kelly

**Abstract**

We developed a real-time balloon simulation application using a mass-spring simulation and explicit Euler integrator. Our application reads in a user-specified quad mesh obj file and generates a balloon with structural, shear, and flexion springs between the vertices of the balloon. Our application also allows the user to inflate and deflate the balloon in real time. Optionally, the user can apply a vertex position correction algorithm to the vertices to constrain the balloon’s shape. Additionally, we have implemented simple sphere-balloon collision detection so that the user can throw spheres at the balloon.